



Preliminary Ecological Appraisal and Preliminary Bat Roost Assessment Foundry Street, Elsecar

ISSUE RECORD

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EXECUTIVE SUMMARY

Overview

This report has been prepared by Peak Ecology Ltd on behalf of Glebe Construction Building Contractors Ltd. It provides the results of a Preliminary Ecological Appraisal and Preliminary Bat Roost Assessment associated with the proposed redevelopment of a former foundry site on Foundry Street, Elsecar, South Yorkshire. It was not clear as to the extent of the proposals at the time of writing.

The survey was undertaken on the 24th September 2019. The broad habitat types were identified, mapped and assessed for their ecological importance and the potential of the site was assessed to support protected species. An inspection of the buildings on site was also carried out, where possible, to assess their potential to support roosting bats and nesting birds.

Designated Sites

Direct impacts to designated sites (both statutory and non-statutory) are considered unlikely due to their distance from site and the nature of works envisaged. The site also does not fall within the Impact Risk Zone for any Sites of Special Scientific Interest (SSSI), specific mitigation for designated sites is not therefore considered necessary.

Habitats and Botanical Interest

None of the habitats within the proposed site boundary are considered to provide significant botanical ecological value. In addition, the habitats present on site were common in the wider area, and did not qualify under the UK Post-2010 Biodiversity Framework.

Himalayan balsam *Impatiens glandulifera*, and variegated yellow archangel *Lamium galeobdolon argentatum* were found on site. Both species are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), as such it would be an offence to cause either species to grow, or spread in the wild.

Protected Species

The scattered scrub and buildings on site provided suitable nesting and foraging habitat for common bird species. Any vegetation clearance or demolition works should avoid the bird nesting season (March to September inclusive). If the works must take place during the bird nesting season, they should be preceded by a check for nesting birds by an appropriately experienced ecologist.

Favourable terrestrial habitat to support common amphibians, and great crested newt *Triturus cristatus* (GCN) was present on site. The lack of suitable ponds within 500m of site, and lack of connectivity to favourable habitat in the wider area, deem it highly unlikely for GCN to be present on site. The various tire piles on site may provide suitable refugia for common amphibians and reptiles. It is recommended that the tire piles and other potential

refugia are dismantled by hand to prevent causing harm to sheltering animals, should they be present.

Two buildings were present on site; Building 1, a two-storey dwelling, and building 2, a large single storey complex of workshop spaces. Both buildings were derelict at the time of survey, and appeared to have been unoccupied for some time. Building 1 was inaccessible internally, however was classified as having **high** potential for roosting bats due to the large number of suitable external features identified. Bat droppings and feeding remains were located in Building 2, and was therefore classified as a **confirmed roost**. Consequently, both buildings will be subject to three bat activity surveys, as per best practice. Due to the presence of bat evidence within building 2, no works can commence on this building without an EPS licence. Further surveys are required on Building 2 for roost classification and to establish the number of bats using the building. Further surveys are required on Building 1 to confirm presence/likely absence of bats using the building, and to establish if this building will also need to be covered by the EPS licence during the proposed works on site.

Any trenches or excavations must be capped over at night or left with a sloping end/ramp to ensure that no animals become trapped. Any pipes over 150mm in diameter must also be capped off overnight to prevent mammals entering them and using them for shelter.

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1 INTRODUCTION

1.1 Scope of Report

This report has been prepared by Peak Ecology Ltd on behalf of Glebe Construction Building Contractors Ltd. It provides the results of a Preliminary Ecological Appraisal (PEA) and Preliminary Bat Roost Assessment (PBRA) associated with a proposed development of a collection of derelict buildings and associated land at Foundry Street, Elsecar, South Yorkshire.

The purpose of this report is to:

- Describe the existing habitat types present within the site;
- Provide an assessment of habitat suitability for protected and/or notable species;
- Provide outline recommendations for mitigation and/or avoidance measures where appropriate;
- Confirm any further ecological surveys required, for example to confirm presence / likely absence of a specific protected species;
- Identify any likely need for licensing by Natural England;
- Identify any other key ecological constraints to the proposed development; and
- Highlight opportunities for ecological enhancement where appropriate.

In relation to planning and development, this report should be read in conjunction with the reports for any other ecological survey work relevant to the site.

The approach to this ecological appraisal follows best practice published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2013 & 2015) and was undertaken in accordance with the British Standard for Biodiversity Code of Practice for Planning and Development (BS42020:2013). Details of individual survey methods and associated supporting information are provided in Section 2.

1.2 Site Description

The site comprised an approximately 0.2ha area of land which was previously used as a foundry (central grid reference: SE 38091 00199). The site itself housed a series of disused, derelict buildings, and the surrounding land within the redline boundary was a mixture of hardstanding and vegetation. The surrounding land use was mainly arable and residential, with a stream running along the site's southern boundary. There was a railway line approximately 0.1km north of site.

The survey extent was as per the redline boundary on the plan (Drawing No. 1910FND_010) provided by the client. The site location is illustrated below.

Figure 1: Location Map*



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1.3 Zone of Influence

The geographical extent of the potential impact of a proposed development is known as the Zone of Influence. The Zone is determined by the nature of the development and also in relation to individual species, depending on their habitat requirements, mobility and distances indicated in any best practice guideline.

In relation to great crested newts (GCN) the zone of influence is considered to be up to 250m from the site, in regards to bats the zone of influence is considered to be the site itself and any connecting habitat links suitable for use as commuting and foraging corridors. The zone of influence regarding badgers is considered to be up to 30m from the site boundary.

1.4 Planning Context

The National Planning Policy Framework 2018 requires that, when assessing a planning application, all Local Planning Authorities (LPAs) must consider potential impacts on biodiversity that may result from the proposals. In addition to this, county and borough councils typically have biodiversity policies within their Local Development Frameworks that they must also comply with.

In practice, this means that potential impacts on designated sites, notable species and habitats such as those listed on the UK Post-2010 Biodiversity Framework (formerly the UK Biodiversity Action Plan) and species that receive legal direct protection (typically via the Conservation of Habitats and Species Regulations 2017 and/or the Wildlife and Countryside Act 1981 (as amended)) are all material planning considerations.

In relation to European Protected Species (EPS), the LPA requires sufficient information about likely impacts and mitigation or compensatory measures to satisfy the three Habitats Directive tests, the most relevant to ecological reports being that which relates to the Favourable Conservation Status of the species in question.

Appendix A provides a definition of “protected or priority species” for the purposes of this report, and Appendix B provides details on the legislation for species relevant to this site.

2 METHODOLOGY

2.1 Desk Study

The desk study comprised a review of existing information held by the local biological records centres and other specialist groups, as appropriate. Barnsley Biological Records Centre (operated by Sheffield BRC) (BBRC), and Rotherham Biological Records Centre (RBRC) were contacted to obtain locations of designated sites and any existing records of protected or priority species within 2km of the site. A Site Check Report was also carried out using the online interactive mapping tools on the Magic (Multi-Agency Geographic Information for the Countryside) website to identify any statutory designated sites within the search radius.

2.2 Phase 1 Habitat Survey

A daytime site visit was carried out on 24th September 2019. Following standard methodology (JNCC, 2010) the survey comprised a walkover of the site to classify and map the extent of individual habitat types, based on the identification of individual plant species. Nomenclature for vascular plant species follows Stace (2010). Any evidence of invasive plants such as Japanese knotweed *Fallopia japonica* was also noted.

The extent of the habitats recorded is illustrated on the Phase 1 Habitat Plan in Figure 2.

2.3 Scoping for Protected / Notable Species

The habitats present were assessed for their potential to support any legally protected or otherwise notable species and any incidental sightings or field signs discovered during the surveys were recorded.

All British wildlife and countryside legislation, policy and guidance were taken into consideration including;

- The Wildlife and Countryside Act 1981 (as amended);
- The Conservation of Habitats and Species Regulations 2017;
- EC Council Directive on the Conservation of Wild Birds 79/409/EEC;
- The Protection of Badgers Act 1992;
- The Countryside and Rights of Way Act 2000;
- The Hedgerow Regulations 1997;
- The Natural Environment and Rural Communities Act 2006; and
- The UK Post-2010 Biodiversity Framework (formerly known as UK BAP).

Appendix B provides greater detail on the legislation context relevant to this site.

In the case of great crested newts and bats, specific assessment methods have been adopted as the industry standard and these were followed during the survey, see Appendix A for detailed methodologies.

2.4 Surveyors

The habitat survey and Preliminary Bat Roost Assessment (PBRA) was led by Lorna Griffiths BSc (*Hons*) MRes ACIEEM, assisted by George Thorpe MBiolSci, and Cass Stuttard BSc (*Hons*). Lorna has been a professional ecologist for over eight years and is experienced in the use of the Phase 1 Habitat Survey methodology, identification of vascular plants and scoping assessments for protected species. Lorna is registered to use Natural England Level 2 class licence for surveying bats (registration number: 2016-19884-CLS-CLS).

All surveyors are appropriately qualified to carry out these types of survey based on the CIEEM competency framework (CIEEM, 2012).

2.5 Limitations

2.5.1 3rd Party Data

Desk study data obtained for this assessment is provided and validated by third parties therefore Peak Ecology have no control over any errors within the dataset. The data represents the information available at the date of request and a lack of records for any particular species does not necessarily indicate absence from the local area as many species are under-recorded.

2.5.2 Survey Methods

Based on the identification of individual plant species, the Phase 1 Habitat Survey provides sufficient information to enable classification of broad habitat types; however, it does not constitute a detailed botanical survey. Plant species lists compiled by this type of survey should not be considered definitive as not all species will be apparent at all times of year.

The scoping assessment for protected species highlights habitats and features suitable for protected species and notes any incidental sightings or field signs discovered; however, it should not be interpreted as providing a comprehensive presence / likely absence survey for any individual species.

Whilst a surveyor may be able confirm presence of a bat roost, where evidence such as droppings or feeding remains are found in accessible areas, it is not always possible to rule out presence of bats based on a daytime survey alone. Pipistrelle species, in particular, tend to roost in small crevices within walls or the roof structure so that evidence of their presence would not be found without carrying out a more destructive search of potential roost features

2.5.3 Access

Building 1 was not accessed internally due to it being deemed unsafe to enter. The rest of the site, including the remaining building and surrounding land was fully accessible to the surveyors. The pond located in the garden of the neighbouring property was also accessed, and a full assessment was possible.

2.5.4 Survey Timing and Conditions

The Phase 1 Habitat Survey was carried out within the optimal survey season (April–September, inclusive), as such an accurate evaluation of habitat types was possible. It was raining at the start of the survey which allowed for dry potential roosting features within the buildings to be noted.

2.5.5 Lifespan of Data

The results and recommendations contained within this report are considered to be valid for up to two years from the date of survey, assuming that there are no significant changes to the site condition or management within this period. After this period, or should the site conditions change, an update may be required in order to inform ecological constraints to development proposals and/or accompany a planning submission.

1 **RESULTS**

1.1 **Desk Study**

1.1.1 *Designated Sites*

There are no statutory designated sites within the search area. Rotherham Biological Records Centre and Barnsley Biological Records Centre provided details of six Local Wildlife Sites (LWS). This is a non-statutory local designation, further details of which are provided in the table below. There are also ten notable habitats including deciduous woodland, good quality semi-improved grassland, and traditional orchard.

Table 1: Designated sites identified during the desk study

Name	Status	Reason for Designation	Approximate distance & Direction from site
Non-statutory Designated Sites			
Elsecar Reservoir	LWS (notified)	Willow carr and wetland habitats.	0.70km to S
Simon Wood	LWS (notified)	Ancient deciduous woodland.	0.80km to ESE
King's Wood	LWS (notified)	Ancient deciduous woodland.	0.97km to SE
Skiers Spring Wood	LWS (notified)	Deciduous woodland providing recreational use.	1.40km to SW
Rainborough Park	LWS (notified)	Large mixed woodland.	1.65km to ESE
Lee Wood	LWS (notified)	Deciduous woodland.	1.90km to SE

1.1.2 *Protected / Notable Species*

The table below provides a summary of the species records received from the Rotherham Biological Records Centre and Barnsley Biological Records Centre that are considered most relevant to the site and/or proposals. The full dataset is not included here but is available on request.

Table 2: Summary of protected and notable species records relevant to the site and/or proposals

Species	Approximate location of closest record and date of record	Approximate location of most recent record and date of record	Total Number of Records
Amphibians			
Common Frog <i>Rana temporaria</i>	0.61km to SSE 2014	0.73km to SSE 2016	3
Common Toad <i>Bufo bufo</i>	0.22km to SSW 2016		3
Smooth Newt <i>Triturus vulgaris</i>	0.22km to SSW 2016		1
Birds			
Barn Owl <i>Tyto alba</i>	0.22km to SSW 2010		1
Black-headed Gull <i>Chroicocephalus ridibundus</i>	0.60km to S 2017		11
Bullfinch <i>Pyrrhula pyrrhula</i>	0.22km to SSW 2018	1.13km to ENE 2019	15
Buzzard <i>Buteo buteo</i>	0.93km to ESE 2015		1
Common Tern <i>Sterna hirundo</i>	0.81km to S 2013		1
Cuckoo <i>Cuculus canorus</i>	1.20km to S 2011		1
Dunnock <i>Prunella modularis</i>	0.22km to SSW 2010	1.31km to NE 2019	44
Fieldfare <i>Turdus pilaris</i>	0.59km to SE 2011		1
Grasshopper Warbler <i>Locustella naevia</i>	1.20km to S 2012		1
Grey Partridge <i>Perdix perdix</i>	0.86km to NNE 2019		1
Grey Wagtail <i>Motacilla cinerea</i>	0.71km to E 2009	0.83km to SSE 2017	6
House Martin <i>Delichon urbica</i>	0.46km to ESE 2013		1
House Sparrow <i>Passer domesticus</i>	0.11km to E 2017		45
Kestrel <i>Falco tinnunculus</i>	0.22km to SSW 2010	0.81km to S 2013	3

Species	Approximate location of closest record and date of record	Approximate location of most recent record and date of record	Total Number of Records
Lapwing <i>Vanellus vanellus</i>	1.20km to S 2012		2
Lesser Redpoll <i>Acanthis cabaret</i>	1.00km to S 2013		1
Lesser Spotted Woodpecker <i>Dendrocopos minor</i>	1.20km to S 2010		1
Linnet <i>Carduelis cannabina</i>	0.22km to SSE 2010	1.62km to SW 2010	4
Mallard <i>Anas platyrhynchos</i>	0.55km to ESE 2016	0.70km to S 2017	21
Marsh Tit <i>Poecile palustris</i>	0.71km to E 2009		2
Mistle Thrush <i>Turdus viscivorus</i>	0.22km to SSW 2010	0.93km to ESE 2017	13
Mute Swan <i>Cygnus olor</i>	0.70km to S 2017		3
Redshank <i>Persicaria maculosa</i>	1.51km to WSW 2013		1
Reed Bunting <i>Emberiza schoeniclus</i>	0.40km to S 2015		7
Skylark <i>Alauda arvensis</i>	0.92km to SSW 2015	1.00km to NE 2019	3
Song Thrush <i>Turdus philomelos</i>	0.22km to SSW 2010	0.72km to SSW 2017	16
Starling <i>Sturnus vulgaris</i>	0.51km to NNE 2009	1.17km to NNW 2015	23
Swift <i>Apus apus</i>	1.11km to SSW 2017		4
Tawny Owl <i>Strix aluco</i>	0.22km to SSW 2010	1.20km to S 2010	2
Tree Sparrow <i>Passer montanus</i>	1.17km to NNW 2015		1
Willow Tit <i>Parus montanus</i>	1.10km to S 2015		1
Willow Warbler <i>Phylloscopus trochilus</i>	0.22km to SSW 2009	0.81km to S 2013	7
Yellow Wagtail <i>Motacilla flava</i>	1.62km to SW 2010		1

Species	Approximate location of closest record and date of record	Approximate location of most recent record and date of record	Total Number of Records
Yellowhammer <i>Emberiza citrinella</i>	0.22km to SSW 2010	0.91km to E 2015	7
Invasive Non-native Species			
Himalayan Balsam <i>Impatiens glandulifera</i>	0.80km to S 2010	0.96km to ENE 2016	18
Japanese Knotweed <i>Fallopia japonica</i>	0.63km to SW 2013	1.24km to NNE 2014	6
Snowberry <i>Symphoricarpos albus</i>	0.14km to NW 2018		4
Mammals			
Brown Hare <i>Lepus europaeus</i>	1.20km to S 2015		1
Harvest Mouse <i>Micromys minutus</i>	0.95km to S 2015		2
Hedgehog <i>Erinaceus europaeus</i>	0.40km to S 2016	0.66km to ESE 2019	6
Common Pipistrelle <i>Pipistrellus pipistrellus</i>	0.81km to S 2016		1
Daubenton's Bat <i>Myotis daubentoni</i>	0.81km to S 2016		1
Unidentified Bat <i>Myotis sp.</i>	1.21km to S 2016		1
Badger <i>Meles meles</i>	Within Search Area*		1
Reptiles			
Grass Snake <i>Natrix natrix</i>	0.81km to E 2017		1

*NB. Due to the risk of persecution of this species any badger records, if present, remain confidential.

1.2 Phase 1 Habitat Survey

The following Phase 1 habitat types were recorded on and immediately adjacent to the development area:

- Buildings;
- Scattered Scrub;
- Hardstanding;
- Scattered Trees;

- Semi-improved Grassland; and
- Tall Ruderal.

The individual habitat types recorded on site are described under the sub-headings below, with the location and extent of each illustrated on the Phase 1 Habitat Map in Figure 2. Details of target notes can be found on Figure 2. Representative photographs of the site are provided in Appendix E.

1.2.1 *Buildings*

There were two buildings within the survey area. In this report Building 2 has been split up into four sub-sections to aid identification. The location of the buildings on site are shown in Appendix E and further details on each of the buildings has been outlined below, with photographs provided in Appendix F.

Each building was assessed for its potential to support roosting bats in accordance with the Bat Conservation Trust (BCT) industry standard guidelines (Collins, 2016). Table 3 in section 2.3.4 summarises the bat roosting potential currently associated with each section.

1.2.1.1 *Building 1 (B1)*

General Description:

The building was a two-storey, derelict dwelling constructed of red brick. The structure was deemed unsafe to enter, as such only an external assessment was made.

Exterior:

Concrete render was in place around much of the exterior. The render had come away from a section of the wall on the western elevation, and was completely absent from the eastern elevation. Windows, glazed with frosted glass, were present on the ground floor and the first floor of the northern, and southern elevation. The windows and doors were wooden throughout, and the ground floor windows were boarded up at the time of survey. The roof was double pitched with slate tiles present, however many tiles were missing, leaving holes in the roof.

1.2.1.2 *Building 2 (B2)*

General Description:

The building was a large complex of derelict, single-storey workshop spaces, split up into four sub-sections to aid identification and description. Each section was accessible to the surveyors, as such a full assessment of the building was made.

Building 2a (B2a)

Exterior

The structure was constructed of red brick, with patches of concrete render in place along the western aspect. Wooden framed windows were present along the western aspect, many of which had metal security grates installed. A metal, full-height, double door was present to allow vehicle access into the structure. The roof was double pitched, with wooden and metal roof beams present. No slates or sheeting were present, as such the roof was entirely open to the elements.

Interior

The interior was open plan, with a single breeze-block partition wall in place at the southern end of the building. The interior was open to the elements and encroached by low-growing bramble *Rubus fruticosus agg.*, and buddleia *Buddleja davidii* throughout.

Building 2b (B2b)

Exterior

This section of the building was located immediately adjacent to the east of B2a. The northern wall was made from red brick, and housed a double-height, metal door to allow vehicle access. All other walls were constructed from breeze block. The roof was single pitched, sloping to the east, and covered with corrugated asbestos sheeting, and transparent plastic panels.

Interior

The interior was entirely open plan, made up of a single large room. The roof panels were missing in some areas, allowing water ingress into the interior. Various pieces of large heavy machinery were left in place.

Building 2c (B2c)

Exterior

This section of the building was located immediately adjacent to the east of B2b, but was significantly smaller in size. It was open fronted at the northern aspect, leading to a large courtyard area. The roof was single pitched and continued on from the roof of B2b.

Interior

Due to its small size, and open-fronted nature, the interior was reasonably open to the elements. This section of the building was used for storage of materials.

Building 2d (B2d)

Exterior

This section of the building was located immediately adjacent to the south, and extended along the entirety of the previous three sections. The structure was a lean-to, constructed

largely of corrugated metal sheeting on top of a concrete base. The roof was single pitched, sloping to the south, and was made from corrugated metal sheeting.

Interior

Internally, this section was made up of three separate rooms with an associated corridor. The main, largest room, appeared to have previously been used as a metal workshop, with old machinery still in place. The other two rooms were empty, apart from empty shelving and a safe. Walls were finished in a mixture of bare red brick, exposed corrugated metal sheeting, painted wooden cladding, and plasterboard. Wooden roof joists were present, with corrugated asbestos sheeting and wooden slats in place to form the roof. This was failing in a number of places, allowing water ingress into the building.

1.2.2 *Scattered Scrub*

Patches of scattered scrub were located adjacent to the north of B2, and along the southern boundary of the site. This habitat was dominated by bramble, with frequent young silver birch *Betula pendula* saplings, hedge bindweed *Calystegia sepium*, and occasional rosebay willowherb *Epilobium angustifolium*.

1.2.3 *Hardstanding*

A hardstanding walkway and vehicle access track was present around the majority of B2. In most places, vegetation indicative of scattered scrub and tall ruderal was encroaching over the hardstanding.

1.2.4 *Scattered Trees*

A small stand of broadleaf trees were located adjacent to the stream that runs along the southern boundary of site. Willow *Salix* sp. and hawthorn *Crataegus monogyna* were present in this area. Silver birch and ash *Fraxinus excelsior* saplings were also present throughout the site.

1.2.5 *Semi-improved Grassland*

The dominant habitat on site was semi-improved grassland, and was present in areas surrounding the buildings and hardstanding. This habitat was dominated by false oat-grass *Arrhenatherum elatius*, with abundant fescue *Festuca* sp., frequent common toadflax *Linaria vulgaris*, ribwort plantain *Plantago lanceolata*, occasional common mouse-ear *Cerastium fontanum*, vetch *Vicia* sp., and rarely occurring common knapweed *Centaurea nigra*.

1.2.6 *Tall Ruderal*

Tall ruderal vegetation was found along the southern boundary of site, adjacent to the stream. Common nettle *Urtica dioica* dominated here, with abundant rosebay willowherb, and frequent broad-leaved dock *Rumex obtusifolius*. A small patch of Himalayan balsam was also present in this area, in the southwest corner of the site.

Figure 2: Phase 1 Habitat Plan

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Map Legend

Site boundary

Scattered scrub

Semi-improved grassland

Tall ruderal

Building

Hardstanding

Scattered tree

Target note

Target Notes:

[1] Himalayan balsam, *Impatiens glandulifera*
[2] Variegated yellow archangel, *Lamium galeobdolon* subsp. *Argentatum*
[3] Bat dropping and feeding remains
[4] Bat droppings
[5] Pile of tyres
[6] Pile of grass clippings
[7] Rubble pile
[8] Tarpaulin covering ground
[9] Vegetation covered hardstanding
[10] Little owl feeding perch

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Project

Foundry Street, Elsecar [CroDe01]

Figure

Extended Phase 1 Habitat Survey - October 2019

Client

Croft Design Collective

Date

21/10/19

Reviewer

MP

Version

1.1

Scale

1:250

Size

A3

1.3 Protected / Notable Species Assessment

1.3.1 *Amphibians and Reptiles*

There were records of common frog *Rana temporaria*, common toad *Bufo bufo*, and smooth newt *Triturus vulgaris*, however no records of GCN within 2km of the proposed development site were returned in the desk study. Despite this, the various piles of tyres, and derelict machinery throughout the site provide suitable refugia for GCN and other common amphibians. The tall ruderal and scattered scrub also provides suitable foraging and commuting habitat.

Following a search of aerial photography and OS mapping, a pond was located in the garden of the neighbouring property, approximately 50m west of site. The pond was lined with black plastic lining, and was purely ornamental with no vegetation present. It was stocked with large numbers of ornamental carp *Cyprinus* sp., and sturgeon. The pond was assessed as having negligible potential to support GCN due to the high density of large predatory fish, and lack of vegetation.

The desk study returned a single record of grass snake *Natrix natrix*, 800m from the development site.

The grass clippings and piles of tyres situated throughout the site may provide good shelter and basking opportunities for common reptile species, whilst the semi-improved grassland and tall ruderal provide some foraging potential. Due to the small areas of suitable habitat, it is considered unlikely for a large population of reptiles to be present on site.

The site has limited connectivity to suitable amphibian habitat in the wider landscape. Dispersal barriers are present in the form of a raised, landscaped garden to the west, and a river immediately adjacent to the southern boundary of the site.

1.3.2 *Birds*

The scattered trees, and scrub vegetation throughout the site provide suitable nesting and foraging habitat for common bird species. The outbuildings also provided nesting opportunities for birds. Feral pigeons *Columba livia domestica* were observed entering B1 during the survey, and a pair of magpies *Pica pica* were identified in B2a. A number of feeding perches, indicative of little owl *Athene noctua*, with pellets and feathers found beneath, were identified in B2b.

1.3.3 *Badger*

The desk study returned a number of records of badger *Meles meles* within 2km of site.

Habitats on site were considered unsuitable for sett-building and no setts or evidence of badger activity was noted within the site boundary. The scattered scrub and tall ruderal vegetation on site do, however, offer commuting and foraging habitat for badgers, and it is considered likely that badgers would pass through the site on occasion.

1.3.4 Bats

Records of three species of bat were returned in the desk study within 2km of the development site; common pipistrelle *Pipistrellus pipistrellus*, Daubenton's bat *Myotis daubentonii*, and an unidentified *Myotis* species *Myotis* sp.

Bat evidence, in the form of droppings and feeding remains, was found during the survey in B2b, and B2d. A collection of peacock butterfly *Aglaia io*, and underwing moth *Catocala* sp. wings were located on the floor and walls of the corridor of B2d, and around the large metal workbench in B2b. Bat droppings were also found in the same areas. The characteristics of the droppings, coupled with the collection of insect wing feeding remains, are indicative of brown long-eared *Plecotus auritus* feeding activity. It is likely that a small number of bats use the building for feeding, and potential roosting purposes.

A small number of bat droppings were also found on top of stored materials in B2c. The droppings found in this area were indicative of pipistrelle species.

1.3.4.1 Foraging and Commuting Habitat

The survey area consisted of unmanaged grassland, buildings, and overgrown scattered scrub. All of which had the potential to support foraging bats. The stream, and associated vegetation, running along the southern boundary of site were considered to provide ideal commuting routes to neighbouring habitats.

Further afield, the railway line to the north offered a good linear commuting route to other suitable foraging habitat. The woodland immediately adjacent to the eastern boundary of site, and the woodland towards the south west both offer good foraging potential.

1.3.5 Other Protected and/or Notable Species

The desk study returned records of brown hare *Lepus europaeus*, and hedgehog *Erinaceus europaeus* within 2km of the development site. The habitats present on site offer suitable habitat, albeit small in size, for both species. The scrub vegetation would provide sheltering and hibernation opportunities and the grassland may provide a foraging resource for hedgehog. Similarly the grassland would provide good foraging potential for brown hare, whilst the tall ruderal and scrub vegetation would provide suitable commuting and sheltering habitat for brown hare.

1.3.6 Invasive Species

Himalayan balsam was located in the southwest corner of the site, adjacent to the stream. Approximately 15 plants were present within the redline boundary of the site, however extensive areas of Himalayan balsam were present along the river adjacent to site, outside of the redline boundary. Variegated yellow archangel was also identified in the southeast corner of site, again in close proximity to the stream.

2 EVALUATION

2.1 Designated Sites

The closest non-statutory site was Elsecar Reservoir LWS, located 0.70km to the South. Due to the nature of the site and the limited impact on surrounding habitats of the proposed development, it is anticipated that the designated sites will be unaffected by the proposals.

The site did not fall within the impact risk zone of any Sites of Special Scientific Interest (SSSI).

2.2 Habitats & Botanical Interest

None of the habitats within the proposed site boundary are considered to provide significant botanical ecological value. In addition, the habitats present on site were small and common in the wider area, and did not qualify under the UK Post-2010 Biodiversity Framework.

Himalayan balsam and variegated yellow archangel were present on site at the time of survey. As both species are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), it would be an offence to cause the species to grow, or spread in the wild.

All roots, stems and leaves of Himalayan balsam die annually, and reproduction occurs through the production of viable seeds. The primary risk associated with the plant is the spread of seeds during ground works. This risk is heightened due to the close proximity to the stream running along the southern edge of site, as seeds are readily dispersed long distances through flowing water.

Variegated yellow archangel spreads and carpets the floor through the production of horizontally spreading stems called stolons. These stolons readily break off, and vegetative reproduction is possible through broken stolons with as little as two leaves present forming new plants. Variegated yellow archangel also produces viable seeds, and can reproduce through the spreading of such seeds.

With this in mind the works on site could result in an offence under the Wildlife and Countryside Act 1981 (as amended).

2.3 Protected / Notable Species

2.3.1 *Amphibians and Reptiles*

Some suitable habitat for GCN, common amphibians and reptiles was identified on site. Due to the lack of suitable ponds close to site, coupled with the lack of desk study records, and lack of connectivity to other favourable habitat, it is considered unlikely for GCN to be present on site.

GCN and their place of shelter are protected under the Wildlife and Countryside Act 1981 (as amended). All Vegetation clearance, removal of brash piles, and general groundworks

could result in an offence being caused to GCN if they were to be present at the time of the works taking place.

All common amphibians and reptiles are protected under the Wildlife and Countryside Act 1981 (as amended). Any access to the site by heavy machinery, the demolition of the buildings, movement of brash piles or vegetation clearance, has the potential to kill or injure reptiles, thereby causing an offence.

2.3.2 *Birds*

There is potential for birds to use the habitats and buildings present on site for nesting. All breeding birds are fully protected under the EC Birds Directive and the Wildlife & Countryside Act 1981 (as amended) and as such, if demolition works or vegetation clearance is timed within the nesting bird season March to September (inclusive), an offence may be committed.

No significant impacts are envisaged for foraging birds, given the availability of suitable habitat in the wider area.

2.3.3 *Badger*

The habitats on site and in the wider area were favourable for commuting and foraging badgers, and a number of badger records were returned in the desk study.

Badgers and their setts are protected under the Protection of Badgers Act 1992. Badgers using the site for foraging and commuting have the potential to become trapped in excavations or pipework if left uncovered overnight.

2.3.4 *Bats*

Suitability of Roosting Habitats

Bat species and their roosts are fully protected under the Conservation of Habitats and Species Regulations 2017 and under the Wildlife and Countryside Act 1981 (as amended) through inclusion in Section 1 (Schedule 5). Bats are also a UK Post-2010 Biodiversity Framework species.

In accordance with industry standard guidelines (Collins (ed), 2016), the two buildings and associated sub-sections on site were assessed for their potential to support roosting bats. Table 3 summarises the roosting potential of each building.

Table 3: Summary of Bat Roosting Potential

Building	Potential for Roosting Bats	Evidence
B1	High	Not accessible internally. Cracks present within the render and brickwork, creating small cavities beneath. Slipped and missing tiles present, and ridge tiles lifted with missing mortar. Many window panes were smashed, providing potential bat access points into the building.
B2	Confirmed Roost	Evidence of bats found in section B2b, B2c, and B2d. Bat access points were identified into each section of the building. Due to bats having access to, or being able to move between, each section of the building, the entire building was classified as a confirmed roost.

2.3.4.1 Bat Evidence and Roosting Potential

Building 1 (B1) – Externally, the building was in very poor condition. Several large cracks were present both within the external concrete render, but also within the red brick itself. These cracks provided potential crevice features for roosting bats. A number of roofing slates were either slipped or missing, and ridge tiles were lifted with missing mortar, providing potential access points into the building. Many of the windows had been vandalised leaving holes present, and therefore potential bat access points.

The external crevice features within the brickwork may also offer hibernation potential. Should the brickwork within B1 also be exposed, there would be further hibernation potential.

Due to the large number of external potential roost features and bat access points, coupled with the fact that the surveyors were not able to assess the building internally, the building was classified as having **high** potential for roosting bats.

Building 2 (B2) – Direct bat evidence was found within B2b, B2c, and B2d. As such, the entirety of B2 was classified as a **confirmed roost**.

The majority of the building was accessible to bats due to the lack of a complete roof on B2a, and various holes within the roofs of other sections of the building. Internal features were present throughout, beneath the wooden roof slats.

2.3.4.2 Suitability of Foraging Habitats

Foraging potential within the redline boundary of the site is considered to be low in comparison to neighbouring habitat. The site was well connected to very suitable foraging habitat in close proximity to site, in particular the stream and associated vegetation adjacent to the southern boundary of site. The railway line to the north of site provided excellent commuting potential.

2.3.5 *Other Protected and/or Notable Species*

Hedgehog, fox *Vulpes vulpes*, brown hare, and other unprotected mammals may use the site, which have the potential to become trapped in excavations or pipework if left uncovered overnight.

3 **RECOMMENDATIONS**

3.1 **Additional Surveys**

3.1.1 *Bats*

All bats and their resting places are strictly protected by UK and European law which makes it an offence to kill, injure or disturb a bat and/or damage or destroy a bat roost (whether bats are present or not).

Building 1 (B1) was considered to provide **high** bat roosting potential, and building 2 (B2) was classified as a **confirmed roost** due to the presence of bat droppings and feeding remains in section B2b, B2c, and B2d. Both buildings would therefore be subject to three survey visits to confirm presence/likely absence of bats in the case of B1, and for roost categorisation and presence/likely absence of other bat species in the case of B2 and to inform the subsequent European Protected Species (EPS) derogation licence (See Table 4).

It should be noted that no works can commence on Building 2 without an EPS derogation licence, and further surveys are required to inform whether Building 1 will need to be covered under such licence.

Bat activity surveys can only be undertaken during the main bat activity season, with the optimum survey period running from May to August (inclusive). Successive surveys are required to have a minimum gap of two weeks between each survey visit and can only be undertaken during suitable weather conditions.

Table 4: Recommended Minimum Number of Activity Surveys

Suitability	Recommended minimum number of survey visits
Negligible	No further surveys required
Low	One survey visit. One dusk emergence or dawn re-entry survey. (Undertaken May to August)
Moderate	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. (Undertaken May to September ¹ with at least one of the surveys between May to August ²)
High or Confirmed Roost	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visits could be either dusk or dawn. (Undertaken May to September ¹ with at least one of the surveys between May to August ²)

¹September surveys are both weather – and location – dependant. Conditions may become more unsuitable in these months, particularly in more northerly latitudes, which may reduce the length of the survey season.

² Multiple survey visits should be spread out to sample as much of the recommended survey period as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more, unless there are specific ecological reasons for the surveys to be closer together (for example, a more accurate count of a maternity colony is required but it is likely that the colony will soon disperse). If there is potential for a maternity colony then consideration should be given to detectability. A survey on 31 August followed by a mid-September

survey is unlikely to pick up a maternity colony. An ecologist should use their professional judgement to design the most appropriate survey regime.

3.2 Mitigation /Compensation Measures

3.2.1 *Amphibians and Reptiles*

Contractors should remain vigilant throughout the works for the possible presence of common amphibians and reptiles. If any are found, these should be carefully moved by hand to a suitable similar habitat outside of the site boundary. In the unlikely event that a great crested newt is found, works should stop immediately and an ecologist should be contacted who will then advise on how to proceed.

Vegetation removal should be carried out using hand tools such as strimmers in a coordinated approach, starting from the south west corner of site and progressing from south to north, and west to east. This will allow any reptiles present on site to disperse to a safe space, off site. It is also recommended that potential refugia on site, such as the rubble piles, grass clippings, tire piles, and tarpaulin are dismantled by hand to prevent harm to potential sheltering animals.

3.2.2 *Bats*

A sympathetic lighting scheme in accordance with guidance set out in Bats and Artificial Lighting in the UK (BCT, 2018) should be utilised on site to prevent an increase to lighting levels of the retained vegetation, both on site, and neighbouring vegetation. Proposed lighting schemes should therefore take into account of the following;

- Avoiding direct lighting of any retained mature trees or vegetation and any proposed linear vegetation features;
- Where possible install lamps of the shortest permissible column height and at the lowest permissible density;
- Use of low intensity bulbs (sodium lamps) to minimise light intensity and impacts to bats;
- Lamps should be fitted with spill accessories avoiding upward spill and spill onto site boundaries;
- The use of timers, dimmers and activity sensors to avoid lighting areas of the site at night is recommended; and
- Where possible, linear features should be created through soft landscaping planting to enhance foraging and commuting habitats on site.

3.2.3 *Birds*

It is recommended that vegetation clearance and demolition works takes place outside of the bird nesting season (March to September, inclusive). If the works must take place during the bird nesting season they should be preceded by a check for nesting birds by an appropriately experienced ecologist no more than 48 hours, and preferably immediately prior to, the start of works. All contractors should be made aware of the legislation regarding active bird nests and if a nest is found at any time, work in that area should stop. Upon discovery of an active nest, an ecologist should be contacted for advice regarding appropriate buffer zones, which will be dependent on the species present.

3.2.4 *Other Protected/Notable Species*

General good working practices should include, if any trenches dug during works activities are left open overnight, they should be left with a sloping end or ramp to allow any hedgehogs or other animals that may fall in to escape. Also, any pipes over 150mm in diameter should be capped off at night to prevent animals entering.

Hedgehogs usually hibernate between November and mid-March (with periodic activity in-between) and will therefore seek out hibernacula. To prevent causing harm or disturbance to hedgehogs during hedgerow and scrub removal, it is recommended that the following precautionary methods are followed to prevent impacting sheltering or hibernating hedgehogs:

- Prior to the removal of any vegetation it is important to undertake a thorough search of any hibernacula (i.e. leaf litter, brash and log piles or small burrows) to ensure that no hedgehogs are sheltering beneath;
- Once the hibernacula have been checked, remove materials off site;
- If any hedgehogs are found they should be handled with gloved hands and relocated to a suitable refuge away from the area of works; and
- Where possible it is advised that hand tools are used instead of machinery during the vegetation clearance.

3.2.5 *Invasive Species*

Although Himalayan balsam reproduces through the production of viable seeds, the soil surrounding stands of Himalayan balsam is likely to contain seeds from previous growing seasons. The areas in and around both Himalayan balsam, and variegated yellow archangel must therefore be treated with care. To avoid the potential spread of the invasive species on site, it is recommended that:

- All site personnel should be provided a tool box talk which includes how to identify Himalayan balsam and variegated yellow archangel, and what to do if they are encountered;

- Ground works in and around the affected areas should be carried out during the growing season for both species to aid identification, but before the plants set seed. This is usually from May-July for Himalayan balsam, and May-June for variegated yellow archangel, however flowering time will be dependent on location and weather conditions. Ground works in and around the affected areas should also be carried out towards the end of the work program (if practical);
- Any soil excavated from within 6m, and at depth of 0.5m of Himalayan balsam, and at a depth of 0.5-1m around the stand of variegated yellow archangel should be treated as 'control/special waste'. This material must be removed off site, and disposed of in accordance with the Environmental Protection Act 1990 and the Environmental Protection Act Duty of Care Regulations 1991.
- If either species is identified outside of known locations it should be immediately fenced off and a suitable specialist should be contacted to confirm presence. And provide further advice.

3.3 Ecological Enhancement

National planning policy recommends that all developments incorporate ecological enhancement in order to “pursue opportunities for securing measurable net gains for biodiversity” (NPPF, 2019), therefore consideration should be given to the following suggestions.

- Provide suitable bird boxes, targeted at species most likely to use them, such as house sparrow, starling, house martin and tit species. See <https://www.livingwithbirds.com/nest-boxes> for suitable examples.
- Attach suitable bat boxes on to buildings, targeting species such as pipistrelle and brown long-eared. Preferably a mixture of box types should be installed, including hibernation and maternity roost boxes. Alternatively, boxes could be positioned on to suitable trees within the site boundary. See <https://www.livingwithbirds.com/nest-boxes> for suitable examples.
- Use native species within soft landscaped areas, many native plants are suitable for inclusion in planting areas, including herbaceous perennials, annual plants, trees and shrubs. Suitable species are listed on the RHS website: <https://www.rhs.org.uk/science/pdf/conservation-and-biodiversity/wildlife/plants-for-pollinators-wildflowers.pdf>
- If native species are not practical it is recommended that species with known benefit to wildlife are considered as an alternative, suitable species are listed on the RHS website: <https://www.rhs.org.uk/science/conservation-biodiversity/wildlife/plants-for-pollinators>

- It is important that any new fencing or walls installed as part of the development do not create a barrier to dispersal for wildlife. It is recommended that suitable holes are incorporated at the base of boundary structures to allow wildlife to commute through the site, such as specific “hedgehog holes” which are 13 x 13cm in size.

4 **REFERENCES**

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APPENDIX A : Protected and Priority Species

Legal protection is afforded to particular habitats and species (as well as designated sites), see Appendix B. The legislation, and the habitats and species listed, vary between the different jurisdictions. Certain habitats and species are also considered to have some level of nature conservation importance, due to factors such as their rarity, vulnerability or declining population/status. This document uses the term 'priority habitats' and 'priority species', as they are those which should be considered as priorities for conservation (it should not be confused with priority habitats and species as listed in the EU Habitats Directive). Priority habitats and species are defined as those which are:

- 1) listed as a national priority for conservation (such as those listed as habitats and species of principal importance for the conservation of biodiversity);
- 2) listed as a local priority for conservation, for example in the relevant local Biodiversity Action Plan (BAP);
- 3) Red Listed using International Union for the Conservation of Nature (IUCN) criteria (e.g. in an all-Ireland Red List, in one of the UK Species Status Project reviews, in the Species of Conservation Concern Red List, Birds of Conservation Concern in Wales, or BWI/ RSPB Red List for Ireland and Northern Ireland (Birds of Conservation Concern in Ireland 2014 to 2019) or, where a more recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book);
- 4) listed as Near Threatened or Amber Listed e.g. in an all-Ireland Red List, in one of the UK Species Status Project reviews, in Birds of Conservation Concern in Wales, in the Species of Conservation Concern Amber List or BirdWatch Ireland (BWI)/RSPB Amber List for Ireland and Northern Ireland (Birds of Conservation Concern in Ireland 2014 to 2019);
- 5) listed as a Nationally Rare or Nationally Scarce species (e.g. in one of the Species Status Project reviews) or listed as a Nationally Notable species where a more recent assessment of the taxonomic group has not yet been undertaken; and/or
- 6) endemic to a country or geographic location (it is appropriate to recognise endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place).

Most protected species are also considered to be priority species, although there are some exceptions. There are numerous priority habitats and species which do not receive any legal protection.

Note that the terms 'priority habitat' and 'priority species' used in this document differ from the following uses of the same terms:

- a) These terms were previously used to denote those habitats and species afforded the highest level of priority for conservation under the UK BAP; this has been superseded by the lists of habitats and species of principal importance for the conservation of biodiversity in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, Section 7 of the Environment (Wales) Act 2016, or their equivalents in Scotland (Nature Conservation (Scotland) Act 2004, Scotland's

Biodiversity Strategy and the Scottish Biodiversity List¹⁵) and Ireland (Actions for Biodiversity – Ireland’s National Biodiversity Plan 2017 -2021¹⁶; and Valuing Nature – A Biodiversity Strategy for Northern Ireland to 2020).

b) The terms ‘Priority Natural Habitat Type’ and ‘Priority Species’ are used to denote specific lists of habitats and species under The Conservation of Habitats and Species Regulations 2017; these are defined in Articles 1(d) and 1(h) respectively of the Habitats Directive.

APPENDIX B : Relevant Legislation

The following text provides information on the key legislation, which is applicable to this survey.

The main wildlife legislation in the UK is as follows:

European Legislation

The relevant sections of the EC Directives and international conventions are summarised below:

- EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitat Directive 1992) as amended (92/43/EEC)

The Directive requires Member States to introduce a range of measures including the protection of species listed in the Annexes. The 189 habitats listed in Annex I of the Directive and the 788 species listed in Annex II, are to be protected by means of a network of sites. Once adopted, these are designated by Member States as Special Areas of Conservation (SACs), and along with Special Protection Areas (SPAs) classified under the EC Birds Directive. The Habitats Directive introduces the precautionary principle; that disturbance to the designated sites can only be permitted having ascertained no adverse effect on the integrity of the site.

- EC Directive on the Conservation of Wild Birds (Birds Directive 1979) as amended (79/409/EEC)

The main provisions of the Directive includes; the maintenance of the favourable conservation status of all wild bird species across their distributional range.

- Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)

The Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.

UK Legislation

The sections of UK legislation considered to be of relevance include:

- The Conservation (Natural Habitats, and c.) Regulations 2017

This transposes the Habitats Directive into national law. The Regulations provide for the designation and protection of 'European sites', and the protection of 'European protected species'.

- The Wildlife and Countryside Act 1981 (as amended) (WCA)

This consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive) in Great Britain.

- The Countryside and Rights of Way Act 2000 (CRoW)

This act strengthens wildlife enforcement legislation.

- The Protection of Badgers Act 1992

Species-Specific Legislation

Species specific legislation is provided in the Table below:

Species-Specific Wildlife Legislation

Feature/Species	Legislation	It is an offence to:
Plants	Sch. 8 Wildlife and Countryside Act 1981 (as amended)	• Pick; • Uproot; • Trade; • Possess (for trade) Any wild plant listed.
Breeding birds	Wildlife and Countryside Act 1981 (as amended). Countryside and Rights of Way Act 2000.	• Kill; • Injure; • Take; any wild bird, their eggs or nest (with the exception of those on Sch. 2).
Specially protected birds	Sch. 1 Wildlife and Countryside Act 1981 (as amended).	As above but includes: • Disturbing birds at their nest, or their dependent young.
Badgers	The Protection of Badgers Act 1992	• Wilfully kill, injure, take, or cruelly ill-treat a badger, or attempt to do so; • Possess any dead badger or any part of, or anything derived from, a dead badger; • Intentionally or recklessly interfere with a sett by disturbing badgers whilst they are occupying a sett, damaging or destroying a sett, causing a dog to enter a sett, or obstructing access to it. A badger sett is defined in the legislation as <i>“any structure or place, which displays signs indicating current use by a badger”</i> .
Bats	Sch. 5 Wildlife and Countryside Act 1981 (as amended). Conservation of Habitats and Species Regulations 2017.	• Intentionally or deliberately kill, injure or capture (or take) bats; • Deliberately disturb bats (whether in a roost or not); • Recklessly disturb roosting bats or obstruct access to their roosts; • Damage or destroy bat roosts.

Feature/Species	Legislation	It is an offence to:
Common reptiles	Sch. 5 Wildlife and Countryside Act 1981 (as amended). Countryside and Rights of Way Act 2000.	Deliberate or reckless: • Killing; • Injuring; • Sale.
Common amphibians	Sch. 5 and Sch. 9 Wildlife and Countryside Act 1981 (as amended). Countryside and Rights of Way Act 2000.	• Sell; • Transport; and • Advertise for sale.
Hedgehog	Sch. 6 Wildlife and Countryside Act 1981 (as amended). Wild Mammals Protection Act (1996)	• Cruel treatment For certain methods: • Kill; • Capture.

In addition, species and habitats listed on the UK Post-2010 Biodiversity Framework (formally the UK BAP) are also considered. Details on these species and habitats can be found at: <http://jncc.defra.gov.uk/page-5705>.

Protected Sites

A network of protected sites, at varying levels, have been put in place across the UK. Further details are provided below;

International importance

- Natura 2000

Natura 2000 is the name of the European Union-wide network of nature conservation sites established under the EC Habitats and Birds Directives. This network will comprise Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

- Special Areas of Conservation (SAC)

SACs are designated under the EC Habitats Directive. The Directive applies to the UK and the overseas territory of Gibraltar. SACs are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs in terrestrial areas and territorial marine waters out to 12 nautical miles are designated under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). New and/or amended Habitats Regulations are shortly to be introduced to provide a mechanism for the designation of SACs and SPAs in UK offshore waters (from 12-200 nm).

National importance

- Sites of Special Scientific Interest (SSSI)

The SSSI series has developed since 1949 as the national suite of sites providing statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features. Most SSSIs are privately-owned or managed; others are owned or managed by public bodies or non-government organisations. The SSSIs designation may extend into intertidal areas out to the jurisdictional limit of local authorities, generally Mean Low Water in England and Northern Ireland; Mean Low Water of Spring tides in Scotland. In Wales, the limit is Mean Low Water for SSSIs notified before 2002, and, for more recent notifications, the limit of Lowest Astronomical Tides, where the features of interest extend down to LAT. There is no provision for marine SSSIs beyond low water mark. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs have been renotified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and the Nature Conservation (Scotland) Act 2004.

Regional/local importance

- Wildlife Sites

Local authorities for any given area may designate certain areas as being of local conservation interest. The criteria for inclusion, and the level of protection provided, if any, may vary between areas. Most individual counties have a similar scheme, although they do vary. These sites, which may be given various titles such as 'Listed Wildlife Sites' (LWS), 'County Wildlife Sites' (CWS), 'Local Nature Conservation Sites' (LNCS), 'Sites of Importance for Nature Conservation' (SINCs), or Sites of Nature Conservation Importance' (SNCIs), together with statutory designations, are defined in local and structure plans under the Town and Country Planning system and are a material consideration when planning applications are being determined.

APPENDIX C : Methodologies

Assessment Method for Great Crested Newts

Ponds were evaluated using the Habitat Suitability Index (HSI) assessment method (Oldham et al, 2000). During a daytime site visit, each pond was assessed against 10 key habitat criteria, or Suitability Indices (SI) as follows:

- SI1 Geographic area
- SI2 Pond area
- SI3 Pond drying
- SI4 Water quality
- SI5 % shoreline shade
- SI6 Presence of waterfowl
- SI7 Presence of fish
- SI8 Pond count within 1km
- SI9 Terrestrial habitat quality
- SI10 % macrophyte cover

Based on a standardised scoring system, each SI achieves a score of between 0 and 1, and these are used to calculate an overall score for that pond. The scores equate to a habitat suitability rating as per the Table below.

Summary of HSI assessment scale

HSI score	Pond Suitability	Occupancy Rate
<0.5	Poor	3%
0.5 – 0.59	Below average	20%
0.6 – 0.69	Average	55%
0.7 – 0.79	Good	79%
>0.8	Excellent	93%

In general, ponds with high HSI scores are more likely to support GCN than those with low scores. This alone does not determine whether or not a pond should be subject to further survey, but rather provides an indication of habitat quality to aid professional judgement on survey requirements and is a useful tool for informing mitigation or ecological enhancement proposals.

Assessment Method for Bats

Following current good practice guidelines (Collins (ed) 2016), the assessment comprised a visual inspection of each of the trees and built structures, for the latter including any internal areas such as roof voids or cellars. For ease of reference, each structure was numbered B1, B2, B3 etc and trees were numbered T1, T2, T3 etc.

The location and description of any features such as holes, crevices or internal voids that could potentially be used by roosting bats was recorded and a search was made for any evidence of bat presence such as droppings or feeding remains. Binoculars, ladders, high powered torches and endoscopes were used where necessary to facilitate more detailed inspection of individual features.

Based on the number, location and type of any potential roost features, structures and trees were categorised as having negligible, low, moderate or high potential for roosting bats, or confirmed roost where direct evidence of bat presence was encountered. Evaluation of roost potential is necessarily subjective and relies on the professional judgment of the surveyor; however, the table below provides a useful guide to how this is informed.

Examples of characteristics that inform assessment of roost potential

Status	Typical characteristics
Negligible potential	• Modern construction / immature trees • Lack of access points for bats • Situated within very poor quality foraging habitat • High levels of external lighting
Low potential	• Small number of minor hole / crevice features suitable for opportunistic roosting • Lack of roof voids or small cluttered roof spaces • Features obscured by dense cobwebs • Unlikely to support breeding or hibernating bats • Situated within poor quality foraging habitat
Moderate potential	• One or more hole / crevice features suitable for roosting, e.g. damaged soffits, uneven roof tiles • Access into large, dark internal spaces such as roof voids • Trees with small fissures and crevices in dead wood suitable for day roosting • Situated within or near to moderate/good quality foraging habitat

Status	Typical characteristics
High potential	• Old buildings / mature or veteran trees • Trees with woodpecker holes or deep fissures and crevices in dead wood • Structures with large, uncluttered roof voids • Traditional brick, stone or timber framed barns • Features suitable for large numbers of bats and/or several different species • Types of structure suitable for hibernation, e.g.caves, tunnels, ice houses etc • Low level of disturbance by humans • Little / no external lighting • Situated within good quality foraging habitat
Confirmed Roost	Bats seen or heard within the roost feature during the survey Bat droppings, particularly if piled rather than scattered Feeding remains such as moth wings Existing record of roost at that location

Guidance for assessing the overall value of potential development sites for bats (Collins (ed), 2016)

Site Status	Description
 Increasing site value for bats	• No features likely to be used by bats • Small number of potential roost sites but unlikely to be suitable for maternity roosts or hibernacula • Isolated habitat that could be used by foraging bats • Isolated site not connected by prominent linear features to suitable other/adjacent foraging habitats • Several potential roost sites in buildings, trees or other structures • Habitat suitable for foraging bats (e.g. trees, water, scrub, grassland present) • Site is connected with the wider landscape by features that could be used by foraging/commuting bats (e.g. gardens backed by scrub or line of trees) • Buildings, trees or other structures (e.g. caves or underground structures) of particular significance for roosting bats • Site includes high quality foraging habitat (e.g. broadleaved woodland, tree-lined watercourses, parkland with mature trees and rough grass) • Site is connected with the wider landscape by strong linear features that could be used by commuting bats (e.g. hedgerows, river valleys) • Site is close to known roosts • Bats recorded or observed using an area for foraging or commuting close to a potential roost

APPENDIX D : Botanical Species Lists

Latin Name	Common Name
<i>Arrhenatherum elatius</i>	False oat-grass
<i>Asplenium scolopendrium</i>	Hart's tongue fern
<i>Brachypodium sylvaticum</i>	False brome
<i>Buddleja davidii</i>	Buddleia
<i>Calystegia sepium</i>	Hedge bindweed
<i>Centaurea nigra</i>	Common knapweed
<i>Cerastium fontanum</i>	Common mouse-ear
<i>Crataegus monogyna</i>	Hawthorn
<i>Dactylis glomerata</i>	Cock's-foot
<i>Epilobium angustifolium</i>	Rosebay willowherb
<i>Festuca sp</i>	Fescue
<i>Fraxinus excelsior</i>	Ash
<i>Hedera helix</i>	Ivy
<i>Hypericum sp.</i>	St. John's-wort
<i>Impatiens glandulifera</i>	Himalayan balsam
<i>Lamium galeobdolon subsp. Argentatum</i>	Variegated yellow archangel
<i>Linaria vulgaris</i>	Common toadflax
<i>Lolium perenne</i>	Perennial ryegrass
<i>Plantago lanceolata</i>	Ribwort plantain
<i>Pteridium aquilinum</i>	Bracken
<i>Rubus fruticosus agg.</i>	Bramble
<i>Rumex obtusifolius</i>	Broad-leaved dock
<i>Salix sp.</i>	Willow
<i>Senecio jacobaea</i>	Common ragwort
<i>Sonchus asper</i>	Prickly sow-thistle
<i>Tanacetum vulgare</i>	Tansy
<i>Taraxacum agg.</i>	Dandelion
<i>Trifolium pratense</i>	Red clover
<i>Trifolium repens</i>	White clover
<i>Urtica dioica</i>	Common nettle
<i>Vicia sp.</i>	Vetch sp.

APPENDIX E : Building Plan



APPENDIX F : Site photographs

No.	Description	Photograph
1	Semi-improved grassland with strip of scattered scrub in front of Building 2.	
2	Looking north, with tall ruderal vegetation in the foreground, and semi-improved grassland beyond. Tarpaulin weighed down with tyres (TN8).	
3	Tall ruderal vegetation at the southern boundary of site, showing flowering Himalayan balsam (TN1).	

No.	Description	Photograph
4	Tire pile in southwest corner of site (TN5).	
5	Grass clipping pile in southwest corner of site (TN6).	
6	Rubble pile adjacent to Building 2a (TN7).	

No.	Description	Photograph
7	Semi-improved grassland and scattered scrub adjacent to the southern aspect of Building 2d.	
8	Location of variegated yellow archangel (TN2), in the south east corner of site.	
9	Ornamental pond located in the residential garden adjacent to site. Note the lack of vegetation and dense stocking of carp.	

No.	Description	Photograph
10	North east aspect of Building 1. Note large cracks in the mortar and brickwork on the gable end.	
11	North west aspect of Building 1. Note the smashed windows providing potential bat access points.	
12	Close up of north west aspect of Building 1. Note crack in concrete render, slipped and missing slate tiles, missing mortar in ridge tiles, and presence of pigeons.	

No.	Description	Photograph
13	Southern aspect of Building 1, showing potential bat access points via smashed windows and open wooden door.	
14	Western aspect of Building 2a. Note lack of roof covering, allowing bat access into the building.	
15	Eastern aspect of Building 2b (right), and open-fronted Building 2c in use for storage of materials. Note encroaching vegetation over hardstanding courtyard.	

No.	Description	Photograph
16	Western aspect of Building 2d.	
17	Internal of Building 2a, showing open access through the roof, and breeze block partition wall.	
18	Internal of Building 2b, showing stored materials and direct access to Building 2a to the left.	

No.	Description	Photograph
19	Internal of Building 2b, showing bat dropping on metal table (TN3).	
20	Bat feeding remains at same location as photograph 19 (TN3).	
21	Internal of Building 2b, showing location of little owl feeding perch (TN10).	

No.	Description	Photograph
22	Example pellet found beneath feeding perch (TN10).	
23	Main workshop space in Building 2d.	
24	Example section of wooden slatted roof in Building 2d.	

No.	Description	Photograph
24	Corridor of Building 2d, where bat evidence was found (TN3).	
25	Bat feeding remains in Building 2d (TN3).	
26	Example bat dropping in Building 2d (TN3).	