Abbey Gardens, off Sawley Road, Sawley BB7 4LE

ECOLOGICAL SURVEY AND ASSESSMENT
(including a Licensed Bat Survey and Assessment)

December 2022

[ERAP (Consultant Ecologists) Ltd ref: 2021-169]

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Document Control

Survey Type:	Surveyors[1]	Survey Date(s)
Extended Phase 1 Habitat Survey	Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM Principal Ecologist	29th August 2021 19th December 2022
Daylight licensed bat survey and assessment	Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM Principal Ecologist	29th August 2021 19th December 2022
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[1] *Licence reference numbers*
Bats
Victoria Burrows, Natural England Class Survey Licence (bats, Level 2) Registration Number 2015-10390-CLS-CLS
Barn owl
Victoria Burrows Natural England Class Survey Licence Registration Number CL29/00061

SUMMARY

Introduction and Scope

i. ERAP (Consultant Ecologists) Ltd was commissioned by Zara Moon Architects on behalf of their client to carry out an ecological assessment of the buildings and land off Sawley Road, Sawley BB7 4LE. The assessment was required to inform a planning application proposing the demolition of the dilapidated poultry sheds and construction of two new residential properties with associated landscaping.

ii. This report presents the results of a desktop study and data search, an extended Phase 1 Habitat Survey and a daylight licensed bat and barn owl survey and assessment carried out in August 2021, and updated in December 2022. The surveys were carried out by a licensed, qualified and experienced ecologist and in accordance with standard recognised survey guidelines.

Results of Survey and Assessment

iii. The approximately 0.86 hectare site is located to the east of Sawley Road and comprises a former, now derelict, cluster of poultry sheds bordered by hard-standing with sparse ruderal herbs and tall-herb vegetation. The western and southern site boundaries are demarcated by a hedgerow (Hedgerow 1). The northern site boundary extends along the northern margin of an existing access track, beyond which lies a narrow (less than 1 metre wide) stream (Hollins Syke) lined with tall-herb vegetation and scattered trees and shrubs. Improved grassland is present beyond the south-western, southern and eastern site boundaries.

iv. With the implementation of the protective measures described in **Section 5.3** it is advised that the proposals can be achieved with no adverse effect on statutory or non-statutory designated sites for nature conservation.

v. The native hedgerow (Hedgerow 1) with scattered trees at the western and southern site boundaries is Priority Habitat; these habitats will be retained by the proposals. None of the other habitats are representative of Priority Habitat.

vi. The areas of tall-herb vegetation and neutral grassland are of value at the 'site' level. The removal of these habitats will be compensated for by the accommodation of areas of wildflower grassland and other landscape planting to be secured as part of the proposals to achieve enhancements for biodiversity (refer to **Section 5.2**).

vii. Wall Cotoneaster, an invasive plant species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) was detected to the north of the site boundary; further guidance is presented at **Section 5.3**.

viii. Evidence to indicate previous use of Buildings 1 and 3 (burned down) as a bat feeding roost was detected in August 2021. A feeding roost is a roost of low conservation significance. The roosting features / positions are no longer present owing to the dilapidation and damage that has occurred. Based on the current poor condition of the buildings and the absence of any recent / additional evidence (December 2022) to indicate use of the buildings by roosting bats it is advised that relevant survey guidance has been complied with and further survey for roosting bats is not required to inform the planning application. In addition, it is also advised that a Natural England licence is not required to proceed with the demolition and site clearance works. Actions to be applied during the demolition are described in **Section 5.3**.

ix. The hedgerow, scattered shrubs and tall-herb vegetation are suitable for use by nesting birds; all wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended). **Sections 5.2** and **5.3** provide best practice guidance to be adhered to in relation to nesting birds and other wildlife such as hedgehog (a Priority Species).

x. Appropriate and proportionate survey effort and / or assessment, in accordance with standard survey guidelines has been applied to discount adverse effects on other relevant protected species. No further surveys for other protected species are necessary to support a planning application.

Recommendations and Conclusion

xi. This ecological assessment has demonstrated that the proposals at the site are feasible and acceptable in accordance with ecological considerations and the National Planning Policy Framework (NPPF).

xii. The recommendations in **Section 5.0** identify the mandatory measures and ecological recommendations to be applied to ensure compliance with relevant wildlife legislation, the NPPF and best practice.

xiii. This report additionally describes the appropriate and proportionate measures and actions that aim to enhance the value of the site for wildlife such as roosting bats, nesting birds and biodiversity associated with residential developments. The recommendations comprise landscape planting and habitat creation to achieve measurable gains for biodiversity and compliance with the NPPF, local planning policy and best practice.

1.0 INTRODUCTION

1.1 Background and Rationale

1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned by Zara Moon Architects on behalf of their client to carry out an ecological assessment of the buildings and land off Sawley Road, Sawley BB7 4LE (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SD 7775 4618. An aerial image of the site and its surrounding habitats is appended at **Figure 1** (source image: ESRI World Imagery).

1.1.2 The assessment was required to inform a planning application proposing the demolition of the dilapidated poultry sheds and construction of two new residential properties with associated landscaping.

1.2 Scope of Works

1.2.1 The scope of ecological works undertaken in 2021, and updated in 2022, comprised:

a. A desktop study and data search for known ecological information at the site and the local area;

b. An Extended Phase 1 Habitat Survey and assessment;

c. Assessment of the ecological value of the habitats within the site with the use of the National Vegetation Classification (NVC) and the Ratcliffe criteria, as presented in *A Nature Conservation Review* (Ratcliffe, 1977);

d. Survey and assessment of all habitats for relevant statutorily protected species[1] and other wildlife including badger (*Meles meles*) and barn owl (*Tyto alba*);

e. An assessment of the suitability of the habitats for great crested newt (*Triturus cristatus*), water vole (*Arvicola amphibius*), otter (*Lutra lutra)*, bird species and reptiles;

f. A daylight licensed bat survey and assessment of the buildings and trees;

g. The identification of any potential ecological constraints on the proposals and the specification of the scope of mitigation and ecological enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance; and

h. The identification of any further surveys or precautionary actions that may be required prior to the commencement of construction activities.

2.0 METHOD OF SURVEY

2.1 Desktop Study and Data Search

2.1.1 The following sources of information and ecological records were consulted:

a. MAGiC Maps: A web-based interactive map which brings together geographic information on key environmental schemes and designations, including details of statutory nature conservation sites;

b. The *Environment Agency Main River Map* (Environment Agency, 2022)

c. Lancashire Environment Record Network (LERN); and

d. Lancashire Biodiversity Action Plan (BAP).

[1] In accordance with *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact on the Planning System* (Ministry of Housing, Communities & Local Government, 2005) developers should not be required to undertake surveys for protected species unless there is reasonable likelihood of the species being present and affected by the development.

2.2 Vegetation and Habitats

2.2.1 An Extended Phase 1 Habitat Survey of the site was carried out by Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM on 28th August 2021. The weather conditions were dry and sunny with a light air (Beaufort scale 1) and a temperature of 14°C.

2.2.2 An updated walkover survey was carried out on 19th December 2022; the weather conditions were dry and overcast with a light breeze (Beaufort scale 2) and a temperature of 10°C.

2.2.3 A habitat and vegetation map was produced for the site and the immediate surrounding (refer to **Figure 2**). The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC, 2010) with minor adjustments to illustrate and examine the habitats with greater precision.

2.2.4 The plant species within the site boundary were determined with estimates of the distribution, ground cover, abundance and constancy of individual species. The estimation of abundance was based on the DAFOR system, where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare, this being a widely used and accepted system employed by ecological surveyors. The terms L = Locally and V = Very were additionally used to describe the plant species distributions with greater precision.

2.2.5 Stands of vegetation and habitats were described and evaluated using the National Vegetation Classification (NVC). The NVC provides a systematic and comprehensive analysis of British vegetation and is a reliable framework for nature conservation and land-use planning.

2.2.6 Habitats within the site were assessed in accordance with the UK Habitats Classification / UKHab (Butcher, et al., 2020). The UKHab has been designed to function at two scales: fine scale (25m^2 or 5 metres length) and large scale (400m^2 or 20 metres length). It has been considered for the purposes of this survey that the fine scale of 25m^2 is appropriate.

2.2.7 The hedgerow was assessed in accordance with *The Hedgerows Regulations 1997* wildlife and landscape Criteria (H.M.S.O., 1997).

2.2.8 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and uncommon plant communities. Plant nomenclature follows *New Flora of the British Isles 3rd Edition* (Stace, 2010).

2.2.9 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), including Japanese Knotweed (*Fallopia japonica*), Indian Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

2.3 Licensed Bat Survey and Assessment

Surveyor and Survey Dates

2.3.1 The daylight licensed bat survey and assessments were carried out by Victoria Burrows, Natural England Class Survey Licence WML CL18 (Bat Survey Level 2), Registration Number 2015-10390-CLS-CLS, on 29th August 2021 with an update on 19th December 2022. Survey conditions were as detailed in **Section 2.2**. Victoria's qualifications and experience meet the criteria as defined in the *Technical Guidance Series Competencies for Species Survey: Bats* (CIEEM, 2013).

Survey Guidelines

2.3.2 The surveys were carried out in accordance with standard methodology including *Bat Mitigation Guidelines* (Mitchell-Jones, 2004), *Bat Workers' Manual 3rd Edition* (Mitchell-Jones & Mcleish, 2004) and *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)* (Collins, J. (ed), 2016).

Habitat Assessment for Commuting / Foraging Bats

2.3.3 Habitats within and adjacent to the site were assessed for their value and suitability for commuting and foraging bats in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn),* (Collins, J. (ed), 2016). Reference has been made to the categories and descriptions / examples, presented below.

Table 2.1: Consideration of Suitability of Foraging and Commuting Habitat for Bats

Suitability	Commuting Habitat	Foraging Habitat
Negligible	Negligible habitat features on site likely to be used by commuting bats.	Negligible habitat features on site likely to be used by foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat.	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.	Habitat that is linked to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. Habitats close to and connected to known roosts.	High-quality habitat that is well-connected to the wider landscape and is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Habitats close to and connected to known roosts.

Daylight Survey: Buildings

2.3.4 An inspection and assessment of the external surfaces, walls and roofs of the buildings was carried out to find potential bat roosting habitat or accesses into crevices / internal areas where roosts may be present. Searches for evidence of bat presence in the form of droppings, urine stains, feeding signs, grease marks and other evidence were also carried out.

2.3.5 The internal survey involved an examination of the accessible internal areas to find roosting bats or evidence of previous use of the buildings by bats such as droppings and prey remains.

2.3.6 The suitability of each of the buildings for use by roosting bats has been assessed in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn),* (Collins, J. (ed), 2016), taking into account any presence of gaps suitable for access by bats, features suitable for use by roosting bats within the building (including crevice dwelling species and species which can roost in the open in roof voids), and the suitability of the surrounding habitats for use by foraging and commuting bats.

Daylight Survey: Trees and Shrubs

2.3.7 An assessment of the trees and shrubs within the site was conducted to assess their suitability for use by roosting bats, and to inform whether further surveys or precautionary measures were required.

2.3.8 Trees and shrubs were assessed from the ground using binoculars and a high-powered torch. Each tree was searched for the presence of the following features:

Woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed platey bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached Ivy (Hedera helix) with stem diameters in excess of 50mm and bat, bird or dormouse (Muscardinus avellanarius) boxes.

2.3.9 Terms used to describe any features present follow (where possible) those outlined and described in *Bat Tree Habitat Key, 2nd Edition* (Andrews, H (ed), 2013) and *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-care and Ecology Professionals* (BTHK, 2018).

Equipment

2.3.10 A list of equipment used is provided below.

Table 2.2: Survey Equipment Used / Available for Use During Daylight Bat Surveys

Ladders
LED Lenser P14 torch
Canon Ixus digital camera
8x20 binoculars
Ridgid Micro Inspection Camera Borescope CA-300

2.4 Animal Life

Badger

2.4.1 The survey area for badger covered the site (as annotated on **Figure 2**) and extended to accessible land within a radius of 50 metres from the site boundary.

2.4.2 The survey was conducted in accordance with guidance presented within *Badgers and Development* (Natural England, 2007) and *Badgers: surveys and mitigation for development projects* (Natural England, 2015).

2.4.3 The following signs of badger activity were searched for:

a. Sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;
b. Large spoil heaps outside sett entrances;
c. Bedding outside sett entrances;
d. Badger footprints;
e. Badger paths;
f. Latrines;
g. Badger hairs on fences or bushes;
h. Scratching posts; and
i. Signs of digging for food.

2.4.4 Habitats within and surrounding the site were assessed in terms of their suitability for use by foraging and sheltering badger in accordance with their known habitat preferences as detailed in current guidance and *Badger* (Roper, 2010).

Bird Species

2.4.5 Bird species observed and heard during the surveys / site visits were recorded.

2.4.6 Habitats throughout the site and in the immediate surrounding area were assessed for their value to roosting, feeding and nesting birds, as indicated by the amount of shelter, feeding value, woody vegetation structure and species diversity of tree and shrub species in the site.

2.4.7 The buildings were searched for pellets, faecal splashes and feathers which may indicate use by roosting or nesting barn owl in accordance with *The Barn Owl Conservation Handbook* (Barn Owl Trust, 2012) and

Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment. Developing Best Practice in Survey and Reporting (Shawyer, 2011).

Great Crested Newt

2.4.8 In accordance with current Natural England guidance (Natural England, 2020) all ponds within an unobstructed 500 metres of a site should be considered for their suitability to support breeding great crested newts. The potential of the proposed development to impact upon any great crested newt population(s) whose breeding ponds are within 500 metres must be considered.

2.4.9 There are no ponds within the site or within an unobstructed 500 metres radius from the site boundary; no further surveys for amphibian species are necessary.

Reptile Species

2.4.10 The site and its surroundings were assessed in terms of their suitability for use by reptile species using the important characteristics for reptiles outlined in the draft document '*Reptile Mitigation Guidelines*' (Natural England, 2011), and the *Reptile Habitat Management Handbook* (Edgar, et al., 2010). These habitat characteristics are outlined below.

Table 2.3: Important Habitat Characteristics for Reptiles

1. Location (in relation to species range)	7. Connectivity to nearby good quality habitat
2. Vegetation Structure	8. Prey abundance
3. Insolation	9. Refuge opportunity
4. Aspect	10. Hibernation habitat potential
5. Topography	11. Disturbance regime
6. Surface geology	12. Egg-laying site potential

Water Vole and Otter

2.4.11 A narrow (less than 1 metre) wide stream and tributary of the River Ribble (located 113 metres to the west of the site) flows parallel to the access track along the northern site margin.

2.4.12 The stream was surveyed and assessed for its suitability for inhabitation / use by water vole and otter with reference to the guidance as presented in *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series) Eds. Fiona Mathews and Paul Chanin* (Dean, et al., 2016), *Water Vole Field Signs and Habitat Assessment* (Dean, M., 2021) and *Ecology of the European Otter. Conserving Natura 2000 Rivers, Ecology Series 10* (Chanin, 2003).

Other Wildlife

2.4.13 Evidence of other wildlife (including Priority Species) observed whilst on site, but for which specific surveys were not made, was recorded and has been included in this report where it is considered of relevance to the planning application.

2.5 Survey and Reporting Limitations

2.5.1 Although the areas of tall-herb vegetation was dense and contains an array of hidden pieces of debris all efforts were made to gain access to the vegetation to collate the plant species list and to search for evidence of wildlife such as badger; it is considered that a comprehensive survey was achieved. No other survey limitations were experienced.

2.5.2 All measurements within this report are approximate only, and have been either estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAGiC Maps and Google Earth.

2.6 Evaluation Methods

2.6.1 The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in *A Nature Conservation Review* (Ratcliffe, 1977). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.

2.6.2 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities* (NERC) *Act 2006*. Where suitable, the ecological value of the habitats present has been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).

2.6.3 Government advice on wildlife, as set out in the *National Planning Policy Framework* (Ministry of Housing, Communities and Local Government, 2021) and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedules 1, 5, 6 and 8 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species Regulations 2017* (as amended), is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.

2.6.4 The presence of any Priority Species, as listed under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006* is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of species listed by the Lancashire BAP Provisional Long List has been taken into account in the evaluation of the site.

3.0 SURVEY RESULTS

3.1 Desktop Study and Data Search

Statutory Designated Sites for Nature Conservation and SSSI Impact Risk Zones

3.1.1 The site and adjacent land have no statutory designation for nature conservation.

3.1.2 The site lies within a Site of Special Scientific Interest (SSSI) Impact Risk Zone for New Ing Meadow SSSI, which lies 4.3 kilometres to the north of the site and is notified as an important example of one of the few remaining herb-rich hay meadows typical of this part of Lancashire. The SSSI Impact Risk Zone requires the Local Planning Authority to consult with Natural England on likely risks from the following development categories (Ordnance Survey, 2022):

Airports, helipads and other aviation proposals;

Livestock and poultry units with floorspace greater than 500m^2, slurry lagoons greater than 750m^2 and manure stores greater than 3500 tonnes; and

General combustion processes greater than 50 megawatt energy input, including energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis / gasification, anaerobic digestion, sewage treatment works, other incineration / combustion.

3.1.3 It is considered that the proposals do not meet the criteria which would require the local planning authority to consult with Natural England in respect of likely risks to the statutory designated sites as a consequence of the proposed development.

Non-statutory Designated Sites for Nature Conservation

3.1.4 The site and adjacent land have no non-statutory designation for nature conservation (termed Sites of Biological Importance or 'BHS' in Lancashire).

3.1.5 Twelve Biological Heritage Sites (BHS) lie within 2 kilometres of the site boundary, as summarised below.

Table 3.1: Biological Heritage Sites within 2 kilometres

Biological Heritage Site Name	Distance and Direction from Site (OS Grid Reference)	Reasons for Designation
River Ribble from London Road Bridge Preston, in West, to County Boundary, in East	125 metres to the south-west (SD718387)	The River Ribble and associated habitats, collectively, support a rich assemblage of plants and animals. The river is important for salmon, sea trout, otter and water vole.
Swanside Beck and Smithies Brook Valley	700 metres to the south-east (SD781453)	Mosaic of semi-natural habitats including woodland, scrub, grassland, flushes, marsh, riverbank and running water. The site is noted for the occurrence of the freshwater crayfish (*Austropotamobius pallipes*) and as a spawning ground for salmon and brown trout.
Brownthwaites and Hartsails Wood	860 metres to the north-east (SD784475)	Semi-natural woodland which is identified within Natural England's Inventory of Ancient Woodland.
Ings Beck Valley	1175 metres to the south-east (SD795450)	Mosaic of semi-natural habitats which is a complex of habitats including woodland, scrub, grassland, flushes, limestone knolls, riverbank and running water. The site is particularly noted for the occurrence of freshwater crayfish, as a spawning ground for salmon and brown trout, and for the occurrence of Green Hellebore (*Helleborus viridis*), a species listed in the *Provisional Lancashire Red Data List of Vascular Plants.*
Railway Banks	1220 metres to the south-east (SD789454)	Notified for artificial habitats (citation is incomplete).
A59 Road Cutting, Worston to Chatburn	1425 metres to the south (SD770436)	Notable for artificial habitats, flowering plants and ferns (citation is incomplete).
Fairy Hills	1460 metres to the south-east (SD787449)	A cluster of limestone outcrops and knolls supporting species-rich calcareous grassland in a field of otherwise improved neutral grassland; Limestone Bedstraw (*Galium sterneri*) a species listed in the *Provisional Lancashire Red Data List of Vascular Plants* has been recorded.
Skirden Beck South	1505 metres to the north (SD781480)	Notified for birds (citation is incomplete).
Town End Croft Wood	1650 metres to the south (SD784445)	A block of woodland that supports a diversity of species characteristic of a semi-natural woodland.
Bean Hill Wood and Grassland	1670 metres to the south-west (SD766447)	A north and north-east facing buff slope which supports habitats comprising two blocks of deciduous woodland separated by a fields of species-rich grassland.
Rainsber Wood	1835 metres to the north-east (SD788482)	A semi-natural woodland identified within Natural England's Inventory of Ancient Woodland.
Swanside Wood	1845 metres to the east (SD797464)	A small Larch (*Larix decidua*) plantation important for supporting a breeding population of grey heron (*Ardea cinerea*).

Main River Designation

3.1.6 The stream adjacent to the northern site boundary is not notified as Main River (Environment Agency, 2022).

Priority Habitats Inventory and Soilscape Information

3.1.7 The Priority Habitats Inventory[2] was checked via MAGiC Maps; no Priority Habitats are noted for the site or immediate surrounds.

3.1.8 In accordance with *Soilscape (England)* as presented on MAGiC Maps (National Soil Resources Institute, 2005), the site supports '*freely draining floodplain soils*', and the characteristic semi-natural habitats associated with the soils comprise '*valley and floodplain grassland; wet carr woodlands*'.

Protected and Notable Species

3.1.9 LERN hold no records of protected and notable species for the site.

3.1.10 Records of protected and notable species for a 2 kilometre radius of the site are summarised at **Table 3.2** below.

Table 3.2: Records of Protected Species Within a 2 Kilometre Radius of the Site

Taxon Group	Species Name and Designations[1] and Notes
Birds	Little ringed plover (*Charadrius dubius*): WCAs1 & LBAP. 1 record, dated 1988, 1220m from the site.
	Kingfisher (*Alcedo atthis*): WCAs1. 2 records, dated in 1999, the closest of which is 1320m from the site.
	PS & LBAP Cuckoo (*Cuculus canorus*), curlew (*Numenius arquata*), dunnock (*Prunella modularis*), grey partridge (*Perdix perdix*), house sparrow (*Passer domesticus*), lapwing (*Vanellus vanellus*), reed bunting (*Emberiza schoeniclus*), song thrush (*Turdus philomelos*), spotted flycatcher (*Muscicapa striata*), starling (*Sturnus vulgaris*), tree sparrow (*Passer montanus*) and yellow wagtail (*Motacilla flava*).
	PS only Marsh tit (*Poecile palustris*).
	LBAP only Black-headed gull (*Chroicocephalus ridibundus*), common sandpiper (*Actitis hypoleucos*), grey heron (*Ardea cinerea*), kestrel (*Falco tinnunculus*), meadow pipit (*Anthus pratensis*), oystercatcher (*Haematopus ostralegus*), raven (*Corvus corax*), redshank (*Tringa totanus*), snipe (*Gallinago gallinago*), swift (*Apus apus*) and willow warbler (*Phylloscopus trochilus*).
Bony fish	**PS & LBAP** Atlantic salmon (*Salmo salar*), brown/sea trout (*Salmo trutta*) and European eel (*Anguilla anguilla*).
	LBAP only Brown trout (*Salmo trutta* subsp. *fario*), bullhead (*Cottus gobio*) and sea trout (*Salmo trutta* subsp. *trutta*).
Crustacean	White-clawed freshwater crayfish (*Austropotamobius pallipes*): WCAs5, PS & LBAP. A total of 9 records, dated between 1992 and 2012, the closest of which is 790m from the site.
Flowering plants	**PS only** Field Eryngo (*Eryngium campestre*).
	LBAP only Bird's-eye Primrose (*Primula farinosa*), Field Mouse-ear (*Cerastium arvense*), Field Pepperwort (*Lepidium campestre*), Fragrant Orchid (*Gymnadenia conopsea*), Green Hellebore (*Helleborus viridis*), Herb-Paris (*Paris quadrifolia*), Lily-of-the-valley (*Convallaria majalis*), Limestone Bedstraw (*Galium sterneri*), Northern Spike-rush (*Eleocharis mamillata* subsp. *austriaca*), Opposite-leaved Pondweed (*Groenlandia densa*), Round-leaved Dog-rose (*Rosa obtusifolia*), Slender Tufted-sedge (*Carex acuta*), Small Scabious (*Scabiosa columbaria*), Stinking Hellebore (*Helleborus foetidus*), Tuberous Comfrey (*Symphytum tuberosum*), White Bryony (*Bryonia dioica*) and Wood Crane's-bill (*Geranium sylvaticum*).

[2] A spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance.

Taxon Group	Species Name and Designations[1] and Notes
Insects (butterflies)	Duke of burgundy (*Hamearis lucina*): PS & LBAP. 2 records, dated between 2014 and 2014, the closest of which is 660m from the site.
Jawless fish	Brook lamprey (*Lampetra planeri*): LBAP. 2 records, dated in 2015, the closest of which is 720m from the site.
	River lamprey (*Lampetra fluviatilis*): PS & LBAP. 2 records, dated in 2013, the closest of which is 720m from the site.
Terrestrial mammals	Bats (Order *Chiroptera*): EPS, WCAs5 & LBAP. 1 record, dated 2013, 420m from the site.
	Brown hare (*Lepus europaeus*): PS & LBAP. 6 records, dated between 2000 and 2013, the closest of which is 660m from the site.
	European otter (*Lutra lutra*): EPS, WCAs5, PS & LBAP. 3 records, dated between 2012 and 2013, the closest of which is 370m from the site.
	European water vole (*Arvicola amphibius*): WCAs5, PS & LBAP. 2 records, dated in 1964 and 1969, the closest of which is 800m from the site.
	Natterer's bat (*Myotis nattereri*): EPS, WCAs5 & LBAP. 2 records, dated in 2014 and 2017, the closest of which is 560m from the site.
	Polecat (*Mustela putorius*): PS & LBAP. 2 records, dated in 2020, the closest of which is 710m from the site.
	Soprano pipistrelle (*Pipistrellus pygmaeus*): EPS, WCAs5, PS & LBAP. 1 record, dated 2011, 810m from the site.
	Unidentified bat (*Myotis* species): EPS, WCAs5 & LBAP. 2 records, dated in 2010 and 2015, the closest of which is 1820m from the site.
	West European hedgehog (*Erinaceus europaeus*): PS & LBAP. 2 records, dated in 1979 and 2019, the closest of which is 370m from the site.
	Whiskered bat (*Myotis mystacinus*): EPS, WCAs5 & LBAP. 2 records, dated in 2010 and 2015, the closest of which is 1820m from the site.
	Eurasian badger (*Meles meles*): PBA92. 2 records, dated in 2017, the closest of which is 700m from the site.

[1]Key to Designation Codes:
EPS = European Protected Species under the *Conservation of Habitats and Species Regulations 2017.*
WCAs1 = Species receives full protection under Schedule 1 of the *Wildlife and Countryside Act 1981* (as amended).
WCAs5 = Species receives full protection under Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended).
PBA92 = Protection of Badger Act 1992.
PS = Priority Species listed under Section 41 of the NERC Act 2006.
LBAP = Species listed on the Lancashire Biodiversity Action Plan Provisional Long List.

3.1.11 The presence of these protected and notable species within the wider area has been taken into account throughout this report.

3.2 Vegetation and Habitats

General Description

3.2.1 The approximately 0.86 hectare site is located to the east of Sawley Road and comprises a former, now derelict, cluster of poultry sheds bordered by hard-standing with sparse ruderal herbs and tall-herb vegetation. The western and southern site boundaries are demarcated by a Hawthorn (*Crataegus monogyna*) hedgerow (Hedgerow 1). A timber post and wire fence is present at the eastern site boundary. The northern site boundary extends along the northern margin of an existing access track, beyond which lies a narrow (less than 1 metre wide) stream lined with tall-herb vegetation and scattered trees and shrubs. Improved grassland is present beyond the south-western, southern and eastern site boundaries.

3.2.2 A Phase 1 Habitat Survey map is appended at **Figure 2**. Photographs are appended at **Table 8.1**.

Buildings

3.2.3 The former, dilapidated poultry sheds are described in relation to their suitability for use by roosting bats at **Section 3.3**. The buildings are described by the UKHab as u1b5 buildings.

3.2.4 The site survey in December 2022 confirmed that, since the site visit in August 2021, Building 3 has been burned down and the remaining sheds (Buildings 1 and 2) have been damaged further with many of the timber panels and sections of roof covering now absent.

Hard-standing Yard and Tall-herb Vegetation with Neutral Grassland

3.2.5 Refer to **Photo 1**. The concrete hard-standing bordering the sheds is colonised by sparse ruderal herbs typical of shallow soil such as White Stonecrop (*Sedum album*), Annual Meadow grass (*Poa annua*), Colt's-foot (*Tussilago farfara*) and Knotgrass (*Polygonum aviculare*). This vegetation has affinities with the OV19 *Poa annua – Matricaria perforata* community of the NVC (Rodwell, 2000) and is described in the UKHab as u1b developed land; sealed surface with the secondary code 17 ruderal / ephemeral.

3.2.6 Refer to **Photos 2** to **4**. South of Buildings 1 and 2 and bordering all buildings is an area of unmanaged tall-herb vegetation characterised by species typical of fertile soils such as constant and locally dominant / abundant Common Nettle (*Urtica dioica*), constant and locally abundant Great Willowherb (*Epilobium hirsutum*), constant and abundant False Oat-grass (*Arrhenatherum elatius*) and constant and frequent Common Hogweed (*Heracleum sphondylium*) and Smooth Sow-thistle (*Sonchus oleraceus*).

3.2.7 Other plant species in this area are locally frequent Spear Thistle (*Cirsium vulgare*), frequent Creeping Bent (*Agrostis stolonifera*) and Creeping Buttercup (*Ranunculus repens*) and locally abundant Bramble (*Rubus fruticosus* agg.). The cover of woody species is low with scattered occasional shrubs of Hawthorn and Elder (*Sambucus nigra*) with rare Butterfly-bush (*Buddleia davidii*). The vegetation is a mosaic of the MG1 *Arrhenatherum elatius* neutral grassland community (Rodwell, 1992) and the OV25 *Urtica dioica – Cirsium arvense* and the OV26 *Epilobium hirsutum* tall-herb communities of the NVC (Rodwell, 2000). The vegetation is described by the UKHab as g3c other neutral grassland with the secondary code 17 ruderal / ephemeral and 77 neglected.

3.2.8 A plant species list for the sparse, ruderal colonising vegetation and the areas of tall-herb vegetation is appended at **Table 8.2**.

Boundary Features

Hedgerow 1

3.2.9 Refer to **Photos 5** and **6**. Hedgerow 1 is an unmanaged native hedgerow that extends around the western and southern site boundaries and is characterised by constant and dominant Hawthorn with occasional Elder, very locally frequent Horse Chestnut (*Aesculus hippocastanum*) and rare Sycamore (*Acer pseudoplatanus*). A semi-mature Beech (*Fagus sylvatica*) tree is present in the centre of the southern site boundary.

3.2.10 The understorey vegetation is characterised by constant and abundant Common Nettle with frequent Great Willowherb, Common Hogweed and locally frequent Common Couch-grass (*Elytrigia repens*), Cock's-foot (*Dactylis glomerata*) and False Oat-grass; no woodland herbs were detected. A plant species list for Hedgerow 1 is appended at **Table 8.3** and an assessment under *The Hedgerows Regulations 1997* is presented at **Table 8.5**.

3.2.11 Hedgerow 1 is characteristic of the W21 *Crataegus monogyna - Hedera helix* community of the NVC and is described by the UKHab as h2a (priority habitat) with the secondary codes 11 scattered trees and 77 neglected.

Off-site Stream Corridor

3.2.12 Refer to **Photos 9** to **11**. North of the northern site boundary is a narrow (less than 1 metre wide) stream corridor referred to as Hollins Syke. The stream bed and banks are a shale and silt substrate colonised by tall-herb vegetation of constant and abundant Common Nettle and locally abundant Great Willowherb with constant and frequent Common Figwort (*Scrophularia nodosa*) with an understorey of Ivy (*Hedera helix*). Other sections support scattered shrubs of frequent Hazel (*Corylus avellana*) and locally abundant / frequent Hawthorn and Sycamore. Alder (*Alnus glutinosa*) is locally abundant with locally frequent Goat

Willow (*Salix caprea*). Towards the western end and associated with the garden of an adjacent residential property the stream is canalised within stone retaining walls with a planted Beech hedgerow to the north; this section of the stream channel supports Brooklime (*Veronica beccabunga*).

3.2.13 A plant species list for the stream corridor is appended at **Table 8.4**.

Invasive Plant Species

3.2.14 No Japanese Knotweed is present at the site.

3.2.15 As illustrated on **Figure 2**, one plant of Wall Cotoneaster (*Cotoneaster horizontalis*) was detected along the stream corridor to the immediate north of the northern site boundary. This species is listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended); it is an offence to spread or cause its spread in the wild. This is considered further at **Section 4.3** below.

3.3 Licensed Bat Survey and Assessment

Habitat Assessment for Commuting / Foraging Bats

3.3.1 Due to the diversity of suitable habitats within the relatively small site (namely unmanaged neutral grassland, shrubs, a hedgerow, scattered trees, tall-herb vegetation and a stream corridor) within the context of the surrounding improved grassland, the site is assessed to be of 'moderate' suitability for use by foraging bats.

Daylight Survey: Buildings

Building 1

3.3.2 Refer to **Photos 12** to **15**. Building 1 is a timber framed single storey former poultry shed with a pitched corrugated sheet covered roof. The elevation walls are a lower section of concrete blocks with horizontal timber boarding with sections of corrugated metal sheets above. The timber plank and metal sheet elevation walls are single-ply and extensively damaged with frequent missing sections and gaps. Where the walls are intact the fabrication provides no opportunities with suitability for use by roosting bats.

3.3.3 No bats or bat droppings were found at Building 1. The interior is damaged and dilapidated. A partitioned off timber-framed office area at the western end was inspected; an area of scattered large yellow underwing moth and small tortoiseshell remains were found on the floor of the office. This field sign can typically indicate the presence of a feeding roost associated with species that glean their prey such as brown long-eared bat (*Plecotus auritus*); no bat droppings were found in this location however. In addition, the updated survey in December 2022 found no additional evidence of use of the building as a feeding roost and confirmed that the conditions at the building have deteriorated since August 2021.

3.3.4 The possible presence of a bat feeding roost at Building 1 is discussed further in **Section 4.4**. Otherwise in consideration of the extensive damage at the building and the absence of features suitable for use by bats as a maternity or day roost, Building 1 is assessed to be of 'negligible' suitability for use by roosting bats.

Building 2

3.3.5 Refer to **Photos 16** to **21**. Building 2 is of a similar construction to Building 1.

3.3.6 The sections of concrete block walls are well-pointed and sealed and provide no opportunities for use by roosting bats. The timber plank and metal sheet elevation walls are single-ply and extensively damaged with frequent missing sections and gaps. Where the walls are intact the fabrication provides no opportunities suitability for use by roosting bats.

3.3.7 The underside of the sheet covered roof is lined with timber boards; which is damaged extensively. Building 2 is assessed to be of 'negligible' suitability for use by roosting bats.

Building 3

3.3.8 Refer to **Photos 23** to **26**. Building 3 is (was) of a similar construction to Buildings 1 and 2.

3.3.9 In August 2021 scattered bat droppings (i.e. indicative of droppings left by a bat in flight) were found on the smooth clean surfaces of the items inside Building 3. In addition, on the floor of a dark partitioned off office area a cluster of small tortoiseshell wings and one bat dropping were found (as described at Building 1). The field signs were not beneath a cavity or crevice roost feature and it is considered that a bat may have hung from a light fitting in the ceiling.

3.3.10 It is advised that Building 3 has been used as a bat feeding roost. The site visit in December 2022 confirmed that Building 3 has been burned down (refer to **Photo 26**); it is therefore currently of no suitability for use by roosting bats.

Other Structures

3.3.11 Refer to **Photos 27** and **28**. The metal hoppers and the collapsed building have no suitability for use by roosting bats.

Trees and Shrubs

3.3.12 None of the trees and shrubs at the site support features suitable for use by roosting bats; all trees / shrubs, are assessed to be of negligible suitability for use by roosting bats.

3.4 Animal Life

Badger

3.4.1 Due to the high cover of hard-standing the habitats at the site are assessed to be of limited suitability for use by badger. No badger setts or evidence of badger was detected at the site or survey area / zone of potential influence of the proposals.

3.4.2 As confirmed by the data search (refer to **Table 3.2**) badger activity is known in the wider area and the implementation of the best practice actions outlined in **Section 5.3** are appropriate and proportionate to the proposals.

Bird Species

3.4.3 Hedgerow 1 and the trees and shrubs bordering the site are suitable for use by passerine bird species, including Priority Species. Birds detected in the site on 29th August 2021 are listed below (no birds were recorded at the site on 19th December 2022).

Table 3.3: Bird Species Detected on 29th August 2021

Scientific Name	Common Name	BOCC Status[1]	Notes / Observations
Buteo buteo	Buzzard	Green	In flight over site
Carduelis carduelis	Goldfinch	Green	Flock moving along Hedgerow 1
Corvus corone	Carrion crow	Green	Perched on Beech tree
Passer domesticus	**House sparrow**	**Red**	**Associated with the off-site residential property**
Troglodytes troglodytes	Wren	Amber	In shrubs at the stream corridor
Turdus merula	Blackbird	Green	In Hedgerow 1
[1]BOCC: Birds of Conservation Concern (Stanbury, et al., 2021). Priority Species are presented in **bold**.			

3.4.4 No evidence of use of the buildings by nesting birds, including swallow (*Hirundo rustica*) was detected in August 2021.

Barn Owl

3.4.5 One very old and disintegrated barn owl pellet was found on the floor of Building 1 (refer to **Photo 19**); no other field signs to indicate use by barn owl was detected. In accordance with the photographs on Plate 25 of the *Barn Owl Conservation Handbook* (Barn Owl Trust, 2012) the pellets are estimated to be over 3 years old when they were detected in August 2021.

Reptiles

3.4.6 Due to the high cover of hard-standing and sparse ruderal and tall-herb vegetation (that will die back extensively in the winter months) the habitats within the site provide poor quality habitat for sheltering, basking and hibernating reptiles.

3.4.7 The site is not adjacent or linked to any areas of favourable habitat for reptile species, and there are no records of reptile for the site or the wider area. The presence of reptiles within the site is reasonably discounted.

Water Vole and Otter

3.4.8 No evidence of use of the off-site stream corridor / Hollins Syke by water vole or otter was found.

3.4.9 The shaley and stone lined banks of the stream with limited emergent plants are assessed to be 'suitable but poor' in accordance with the criteria outlined in *Water Vole Field Signs and Habitat Assessment, a Practical Guide to Water Vole Surveys* (Dean, 2021) and in consideration of their suitability for use by water vole; it is advised that the presence of water vole is not a constraint on the proposals.

3.4.10 The stream has connectivity to the River Ribble (known to support otter) and, as such, may be used by commuting otter as part of a wider territory; this is considered as part of the best practice guidance outlined in **Section 5.3**.

Other Wildlife

3.4.11 The hedgerow understorey and the areas of tall-herb vegetation and neutral grassland are assessed to be suitable for use by hedgehog, a Priority Species; this is considered further at **Section 4.4**.

3.4.12 Butterflies observed during the site visit on 29th August 2021 comprised small white (*Pieris rapae*) and small tortoiseshell (*Aglais urticae*); both common and widespread species typical of the habitats present at the site and the gardens / hedgerows in the wider area.

4.0 EVALUATION AND ASSESSMENT

4.1 Introduction and Description of Proposals

4.1.1 The proposals, as illustrated on *Drawings 130.21 P01.01* (ZMA, 2022), hereafter the 'proposals plan', comprise:

a. Demolition of the remaining parts of Buildings 1 and 2 and site clearance;

b. Construction of two residential properties with associated gardens. The properties will be accessed from the existing track along the northern margin;

c. Hedgerow 1 and the associated Beech tree will be retained; and

d. The stream corridor and associated trees along the northern boundary will be retained and will not be directly affected by the proposals.

4.1.2 **Section 4.2** provides an assessment of any impacts of the proposed development on the designated sites for nature conservation present in the wider area. The ecological value of habitats within the site is evaluated at **Section 4.3**, and protected and notable species are considered at **Section 4.4**.

4.2 Designated Sites for Nature Conservation

4.2.1 Owing to the distance between the site and any statutory and non-statutory designated sites for nature conservation within the wider area, the absence of habitats at the site that complement the habitats at the relevant designated sites, direct effects on any statutory and non-statutory designated sites are reasonably discounted.

4.2.2 Due to the proximity of the proposed demolition and construction site to the off-site stream at Hollins Syke which has hydrological connectivity to the River Ribble BHS to the west it is advised that, in the absence of appropriate protective measures and mitigation, there is a risk that accidents and incidents may have an indirect effect on the off-site BHS and its features of interest. The implementation of the protective measures described in **Section 5.3** aim to ensure the risk of an adverse effect is avoided.

4.3 Vegetation and Habitats

4.3.1 Only common and widespread plant species were found within the site. Albeit species poor, Hedgerow 1 at the western and southern site boundaries is Priority Habitat, although it does not satisfy the criteria to be assessed as 'important' in accordance with *The Hedgerows Regulations 1997* (refer to **Section 8.3**). None of the other habitats present are semi-natural or are representative of Priority Habitat.

4.3.2 In terms of each habitat's importance in a geographical context[3], the hedgerow and the scattered semi-mature trees, are assessed to be of 'local' value owing to the recognised habitat connectivity function of these habitats and the opportunities they provide for fauna such as nesting birds and foraging bats.

4.3.3 The tall-herb vegetation and neutral grassland are of value at the 'site' level as they contribute to the diversity of habitats within the site but are assessed to be replaceable.

4.3.4 The presence of Wall Cotoneaster, an invasive species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), is a consideration of the proposals; further guidance is presented at **Section 5.3** of this report.

4.3.5 Guidance / recommendations of features to be accommodated at the redeveloped site for the attraction of wildlife are provided at **Section 5.2**.

4.4 Protected Species and Other Wildlife

Bat Species

4.4.1 Evidence to indicate the previous use of Buildings 1 and 3 (burned down) as a bat feeding roost (possibly by a brown long-eared bat) was detected in August 2021. A feeding roost is described by Natural England as '*a place where individual bats or a few individuals rest or feed during the night but are rarely present by* day'. In accordance with Figure 4 in *Bat Mitigation Guidelines* (Mitchell-Jones, 2004), a feeding roost is of low conservation significance.

4.4.2 The roosting features / positions are no longer present owing to the dilapidation and damage that has occurred.

4.4.3 Based on the current poor condition of the buildings (including the loss of Building 3) and the absence of any recent / additional evidence (December 2022) to indicate use of Buildings 1 and 2 by roosting bats it is advised that relevant survey guidance has been complied with and further survey for roosting bats is not required to inform the planning application. In addition, it is also advised that a Natural England licence is

[3] Using the terms presented at Section 4.7 of *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018), i.e. International and European, National, Regional, Local Authority-wide area, River Basin District, Estuarine system / Coastal cell or Local. The term 'site' value is additionally used to highlight ecological features considered to be of importance in the context of the wider site habitats, but which are of negligible value in the context of the local area.

not required to proceed with the demolition and site clearance works. Rather, the works should be carried out in accordance with the guidance at **Section 5.3**.

4.4.4 Habitats within and adjacent to the site are suitable for use by foraging and commuting bats. The proposals plan accommodates the conservation of areas of greenspace and buffers between the built environment and features such as the boundary hedgerow. It is advised that the proposals will not adversely affect, sever nor fragment habitats suitable for use by foraging bats. In the presence of an appropriate lighting strategy (refer to **Section 5.2**) it is advised that opportunities for foraging bats will be conserved at the site. In addition, the built development will secure the creation of features for roosting bats as part of good design, refer to **Section 5.3** and **Figure 3**.

Other Animal Life

4.4.5 The site preparation works such as the clearance of the tall-herb vegetation with scattered shrubs and Bramble may affect habitats suitable for use by nesting birds. Mandatory actions to be applied to ensure the protection of breeding birds during the site preparation and construction period are described at **Section 5.3** and provisions for nesting birds to be installed at the site are described in **Section 5.2** and **Figure 3**.

4.4.6 No evidence of use of the site by nesting barn owl was detected. Based on the current condition of the buildings it is advised that the risk of damage / removal of a building used by nesting / roosting barn owl as a result of the proposals is minimal. As barn owl are present in the wider area the recommendations in **Section 5.2** include provisions to assist the long-term conservation of barn owl in the local area.

4.4.7 Appropriate and proportionate survey effort and / or assessment, in accordance with standard survey guidelines has been applied to discount adverse effects on other relevant protected species. No further surveys for other protected species are necessary to support a planning application.

5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

5.1 Introduction

5.1.1 Ecological guidance, based on the baseline surveys, has been provided to the design team throughout the preparation of the planning application. The recommendations and guidance provided in this section follows 'The Mitigation Hierarchy' (i.e. avoid, mitigate, compensate), as advised by the NPPF, to aim to ensure that the development is implemented in accordance with relevant wildlife legislation, Natural England guidance, the principles of the NPPF, relevant local planning policy and best practice.

5.1.2 Opportunities to enhance the ecological interest and habitat connectivity and seek biodiversity gain through appropriate landscape planting and habitat creation and management have been identified, as required by the NPPF and other relevant planning documents.

5.1.3 The recommendations and guidance in this section are also annotated on **Figure 3**.

5.2 Site Design and Ecological Enhancement

5.2.1 The following ecological recommendations have been / will be accommodated by the site design and aim to protect existing features and maximise opportunities for biodiversity as part of proposals.

Tree and Hedgerow Retention and Creation

5.2.2 Hedgerow 1 and the associated trees and the off-site trees beyond the northern site boundary will be retained.

5.2.3 The proposals provide an opportunity to increase the length of hedgerow at the site and to plant trees to enhance habitat connectivity, improve structural and habitat diversity and to increase opportunities for nesting birds and foraging bats. As outlined on the *Softworks Plan* (drawing 512-P03) and the *Landscape General Arrangements* (drawing 512-P01) (extracted at **Figure 3**) the proposals accommodate additional

hedgerows at the plot boundaries and tree planting composed of a variety of native species including Sycamore, Alder, Silver Birch (*Betula pendula*), Beech and Oak (*Quercus* sp.).

Appropriate Use of Lighting

5.2.4 In consideration of the suitability of the site surrounds for use by foraging bats and owl species, and other crepuscular wildlife such as hedgehog, and paragraph 185(c) in Chapter 15 (conserving and enhancing the natural environment) of the NPPF which states that development should:

"*limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation*"

any external lighting to be installed at the site must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines the retained vegetation, the brook corridor and other habitats outside the curtilage of the residential property, as lighting overspill may deter use by wildlife such as foraging bats.

5.2.5 The lighting scheme will be designed with reference to current guidance, namely:

a. *Guidance Note 8: Bats and Artificial Lighting in the UK* (Institution of Lighting Professionals & Bat Conservation Trust, 2018); and

b. *Bats and lighting: Overview of current evidence and mitigation guidance* (Stone, 2014).

Wildflower Grassland and Landscape Proposals

5.2.6 As annotated on the *Softworks Plan* (drawing 512-P03) and presented on **Figure 3**, to provide habitats suitable for breeding and feeding invertebrates and their predators such as bird, bat and small mammals and to provide an attractive and complementary habitat, the landscaping at the frontage of the properties and the borders of the rear gardens will include wildflower grasslands.

Provisions for Nesting Birds

5.2.7 As annotated on **Figure 3**, provisions for nesting birds including barn owl, and bird species, are recommended and can be secured by the proposals.

Provisions for Roosting Bats

5.2.8 As annotated on **Figure 3**, the proposed construction materials at the new properties provide an opportunity for the installation of provisions for use by roosting bats as part of the proposals.

5.3 Protection of Existing Features During Construction and Construction Environment Management Plan (CEMP) for Biodiversity

Introduction

5.3.1 To inform the site preparation and construction activities it is recommended that a Construction Environment Management Plan (CEMP) for Biodiversity is prepared and implemented. The actions / measures covered by the CEMP for Biodiversity are outlined below.

Protection of Existing Vegetation

5.3.2 During the construction phase, temporary protective demarcation fencing will be used to protect the off-site stream corridor and the trees, hedgerow and shrubs to be retained. The fencing will be in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction: Recommendations* (BSI, 2012).

Protection of Water Quality

5.3.3 The water quality of the off-site stream / Hollins Syke and the downstream section of the River Ribble will be protected during the demolition and construction operations through the implementation of best practice. In the absence of any updated guidance, the following Pollution Prevention Guidelines (PPG) will be adhered to:

a. PPG1: Basic good environmental practices (Environment Agency, 2013);

b. PPG5: Works in, near or over watercourses (Environment Agency, 2014);

c. PPG6: Construction and demolition sites (Environment Agency, 2012); and

d. PPG7: Operating refuelling sites (Environment Agency, 2011).

5.3.4 During demolition and construction, it may be necessary to install silt fencing along the base of the construction zone demarcation fencing at the northern site boundary.

Invasive Plant Species and Biosecurity

5.3.5 The Wall Cotoneaster plant is located off-site, as such, there is no requirement as part of the works to remove or treat the plant. Rather, all contractors must be made aware of its presence and avoid disturbance of the area.

5.3.6 To minimise the risk of introduction of other invasive species to the site (and the off-site stream corridor) all machinery / plant to be brought to the site must be clean. Wheels / tracks of machinery / plant must have been pressure washed before use at the site. No excessive remnant soil or plant material from other sites must be present on the machinery / plant or in the tyre treads as this may increase the risk of spread of non-native and invasive plant species e.g. Japanese Knotweed (*Fallopia japonica*) and Giant Hogweed (*Heracleum mantegazzianum*).

Dust Suppression, Incidents and Accidents

5.3.7 The risk of adverse effects on retained on and off-site vegetation, habitats and wildlife as a result of dust, spills and leaks will be minimised by the application of best practice measures and appropriate environmental controls such as dust suppression, appropriate storage of chemicals and fuel, presence of spill kits and appropriate training of on-site personnel.

Bats

5.3.8 As outlined in **Section 4.4**, the current presence of a bat roost at the site has been reasonably discounted. The following best practice measures must be applied during demolition / removal of the remaining buildings.

5.3.9 There is no restriction on the timing of works at the roost (subject to the absence of nesting birds, see below).

5.3.10 If at any time during the works a bat is discovered or suspected all contractors must withdraw from the area and ERAP (Consultant Ecologists) Ltd (01772 750502) or the Bat Conservation Trust must be contacted for further guidance.

Nesting Birds

5.3.11 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is advised that any works such as vegetation clearance that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season. Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist. The bird breeding season typically extends between March to August inclusive.

5.3.12 If breeding birds are detected the ecologist will issue guidance in relation to the protection of the nesting birds in conjunction with the scheduled works. This may involve cordoning off an area of the site until the young birds have fledged.

Reasonable Avoidance Measures Method Statement of the Protection of Hedgehog and Other Wildlife

5.3.13 During the site preparation and construction operations it is essential that the following best practice and Reasonable Avoidance Measures are applied:

a. Construction and demolition operations must be confined to the demarcated construction zone only;

b. Demolition arisings must be removed as soon as practically possible. Piles of concrete block and timber rubble (for example) must not be retained at the site for long periods;

c. No trenches must be left open overnight. Trenches or holes must be properly covered with a board or fitted with a means of escape (such as ramped edge or a sloping plank of timber). This will ensure that any inquisitive animals do not become trapped;

d. Any pipes must be stored with caps on (to prevent animal entry);

e. No fires must be lit at the site; and

f. Any chemicals or harmful materials must be stored so that they cannot be accessed by inquisitive animals.

6.0 CONCLUSION

6.1 This ecological assessment has demonstrated that the proposals at the site are feasible and acceptable in accordance with ecological considerations and the National Planning Policy Framework (NPPF).

6.2 The recommendations in **Section 5.0** identify the mandatory measures and ecological recommendations to be applied to ensure compliance with relevant wildlife legislation, the NPPF and best practice.

6.3 This report additionally describes the appropriate and proportionate measures and actions that aim to enhance the value of the site for wildlife such as roosting bats, nesting birds and biodiversity associated with residential developments. The recommendations comprise landscape planting and habitat creation to achieve measurable gains for biodiversity and compliance with the NPPF, local planning policy and best practice.

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8.0 APPENDIX 1: TABLES

8.1 Photographs

Table 8.1: Photographs

Taken in August 2021 unless otherwise stated.

Photo 1: Sparse ruderal vegetation around buildings (Building 2)

Photo 2: Tall-herb vegetation and neutral grassland to the south of Buildings 1 and 2

Photo 3: Tall-herb vegetation and neutral grassland to the south of Buildings 1 and 2

Photo 4: Tall-herb vegetation and neutral grassland showing Hedgerow 1 and semi-mature Beech tree at southern site boundary

Photo 5: Hedgerow 1

Photo 6: Hedgerow 1

Photo 7: Track along the northern site margin (taken facing west)

Photo 8: Track along the northern site margin (taken facing east)

Photo 9: Hollins Syke / stream corridor parallel to the northern site boundary

Photo 10: Hollins Syke / stream corridor parallel to the northern site boundary

Photo 11: Hollins Syke / stream corridor parallel to the northern site boundary (western end adjacent to the existing residential property)

Photo 12: Eastern and northern elevations of Building 1

Photo 13: Timber planks at elevations of Building 1 (and 2)

Photo 14: Interior of Building 1 showing well-pointed concrete block section of walls

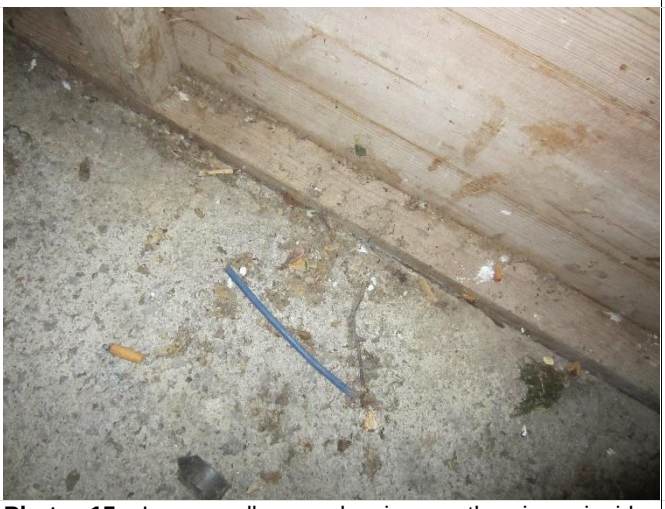

Photo 15: Large yellow underwing moth wings inside portioned off office area at Building 1

Photo 16: Northern elevation of Building 2

Photo 17: Section of Building 2

Photo 18: Interior of Building 2

Photo 19: Disintegrated barn owl pellet on floor of Building 2

Photo 20: Damage at Building 2 (taken December 2022)

Photo 21: Damage at building (taken December 2022)

Photo 22: Track and off-site tree (taken December 2022)

Photo 23: Western elevation of Building 3

Photo 24: Interior of Building 3

Photo 25: Small tortoiseshell remains at Building 3

Photo 26: Building 3 in December 2022

Photo 27: Collapsed building at north-eastern end of the site

Photo 28: Collapsed building at north-eastern end of the site and example of the metal hoppers

8.2 Plant Species Lists

Table 8.2: Plant Species List for the Sparse Ruderal Colonising Vegetation and Tall-herb Vegetation at the Yard

Scientific Name	Common Name	DAFOR[1]	Cover
Woody Species			
Aesculus hippocastanum	Horse Chestnut	VLF	<1%
Buddleia davidii	Butterfly-bush	R	<1%
Crataegus	Hawthorn	O	<1%
Fraxinus excelsior	Ash sapling	O	<1%
Salix caprea	Goat Willow sapling	O	<1%
Sambucus nigra	Elder	O	<1%
Herb Species			
Agrostis stolonifera	Creeping Bent	F	5%
Alopecurus pratensis	Meadow Foxtail	F	5%
Anthriscus sylvestris	Cow Parsley	VLA	<1%
Arrhenatherum elatius	False Oat-grass	A*	25%
Cirsium vulgare	Spear Thistle	LF/O	2%
Crassulaceae	White Stonecrop	LA	2%
Epilobium hirsutum	Great Willowherb	LA*	10%
Festuca rubra	Red Fescue	VLA	<1%
Galium aparine	Cleavers	VLF	<1%
Geranium molle	Dove's-foot Crane's-bill	VLA	<1%
Geranium robertianum	Herb Robert	VLA	<1%
Heracleum sphondylium	Common Hogweed	F*	5%
Holcus lanatus	Yorkshire-fog	LF	5%
Lapsana communis	Nipplewort	R	<1%
Lolium perenne	Perennial Rye-grass	F	5%
Persicaria maculosa	Redshank	VLF	<1%
Plantago major	Greater Plantain	VLA	<1%
Poa annua	Annual Meadow-grass	LF	2%
Polygonum aviculare	Knotgrass	LVA	<1%
Ranunculus repens	Creeping Buttercup	F	5%
Rubus fruticosus agg.	Bramble	LA	5%
Rumex obtusifolius	Broad-leaved Dock	O	<1%
Silene dioica	Red Campion	VLF	<1%
Sonchus asper	Prickly Sow-thistle	O	<1%
Sonchus oleraceus	Smooth Sow-thistle	F*	1%
Stachys sylvatica	Hedge Woundwort	VLA	<1%
Taraxacum	Dandelion	O	<1%
Tussilago farfara	Colt's-foot	VLA	<1%
Urtica dioica	Common Nettle	LD/A*	60%

[1]**Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

Table 8.3: Plant Species List for Hedgerow 1

Scientific Name	Common Name	DAFOR[1]	Cover
Woody Species			
Acer pseudoplatanus	Sycamore	R	<1%
Aesculus hippocastanum	Horse-chestnut	VLF	<1%
Crataegus monogyna	Hawthorn	D*	99%
Fagus sylvatica	Beech	LA	2%
Sambucus nigra	Elder	O	1%
Herb Species			
Arrhenatherum elatius	False Oat-grass	LF	<1%
Cirsium vulgare	Common Thistle	O	<1%
Dactylis glomerata	Cock's-foot	LF	1%
Elymus repens	Common Couch	LF	<1%
Epilobium hirsutum	Great Willowherb	LA/F	3%
Heracleum sphondylium	Common Hogweed	F	2%
Rumex obtusifolius	Broad-leaved Dock	O	<1%
Urtica dioica	Common Nettle	A*	95%

[1]**Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

Table 8.4: Plant Species List for the Hollins Syke Stream Corridor (off-site)

Scientific Name	Common Name	DAFOR[1]	Cover
Woody Species			
Acer pseudoplatanus	Sycamore	LA/F	10%
Alnus glutinosa	Alder	LA	5%
Corylus avellana	Hazel	F	5%
Crataegus monogyna	Hawthorn	LA/F	15%
Fagus sylvatica	Beech	LVA	2%
Fraxinus excelsior	Ash	LF	5%
Salix caprea	Goat Willow	LF	2%
Herb Species			
Alopecurus pratensis	Meadow Foxtail	LF	5%
Anthriscus sylvestris	Cow Parsley	VA	<1%
Arrhenatherum elatius	False Oat-grass	F/LA*	20%
Bromus sp.	Brome species	VLF	<1%
Carex pendula	Pendulous Sedge	VLA	<1%
Cotoneaster horizontalis	Wall Cotoneaster	R	<1%
Dactylis glomerata	Cock's-foot	LA/F*	5%
Dryopteris filix-mas	Male-fern	O	<1%
Epilobium hirsutum	Great Willowherb	LA/F*	5%
Festuca rubra	Red Fescue	LA	1%
Fragaria sp.	Strawberry	LVA	1%
Galium aparine	Cleavers	VLF	<1%
Geranium robertianum	Herb-Robert	VA	<1%
Glyceria fluitans	Floating Sweet-grass	VA	<1%
Hedera helix	Ivy	LA/F*	5%
Heracleum sphondylium	Common Hogweed	F	5 %
Holcus lanatus	Yorkshire Fog	F	5%
Lolium perenne	Perennial Ryegrass	LF	1%
Phalaris arundinacea	Reed Canary-grass	LF	1%
Ranunculus repens	Creeping Buttercup	LF	1%
Rubus fruticosus agg.	Bramble	LA	2%
Rubus idaeus	Raspberry	LVA	2%
Scrophularia nodosa	Common Figwort	F*	2%
Sedum album	White Stonecrop	LA	2%
Silene dioica	Red Campion	D	<1%
Stachys palustris	Marsh Woundwort	VA	<1%
Stachys sylvatica	Hedge Woundwort	VLF	<1%
Taraxacum officinale agg.	Dandelion	O	<1%
Urtica dioica	Common Nettle	A*	40%
Veronica beccabunga	Brooklime	VLA	<1%

[1]**Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species.
Species highlighted in grey are classed as either 'woody' or 'woodland' species contributing to *The Hedgerows Regulations 1997* wildlife and landscape criteria assessment.

8.3 Assessment of Hedgerow 1 in Accordance with *The Hedgerows Regulations 1997*

Table 8.5: Assessment of Hedgerow 1 in Accordance with *The Hedgerows Regulations 1997*

	Hedgerow Name	**Hedgerow 1**		
Hedgerow Dimensions and Management	Height x width x length (metres)	3 x 2 x 204		
	Continuity	100%		
	Management	Neglected		
Average Number of Qualifying Woody Species:	Section number	1	2	3
	Qualifying woody species	2	2	2
	Average Number	***2***		
Number of Features Present:	(a) Bank or wall along at least ½ length	No		
	(b) Gaps which in agg. do not exceed 10%	Yes		
	(c)-(e) 1 standard tree per 50m	No		
	(f) At least 3 woodland species within 1m	No		
	(g) Ditch along at least ½ its length	No		
	(h) Connections scoring 4 points or more	No		
	(i) Parallel hedge within 15m	No		
	Total Features	**1**		
Criteria for Hedgerow Importance 1: Hedgerow contains species listed as:	(1) Part 1 of Schedule 1, Schedule 5 or Schedule 8 of WCA 1981	No		
	(2) Declining breeders in 'Red Data Birds of Britain'	No		
	(3) Categorised as 'endangered', 'extinct' or 'vulnerable'	No		
Criteria for Hedgerow Importance 2: Hedgerow includes: (all woody species reduced by 1 as hedgerow is in Lancashire)	(i) At least 7 woody species (on average)	No		
	(ii) At least 6 woody species (on average) and at least 3 features	No		
	(iii) At least 6 woody species (on average), including one of: Black Poplar, Large-leaved Lime, Small-leaved Lime or Wild Service Tree	No		
	(iv) At least 5 woody species (on average), and has 4 features	No		
Criteria for Hedgerow Importance 3: Is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g):		No		
	Hedgerow Classed as Important?	***No***		

9.0 FIGURES

Figure 1: Aerial Image of the Site and Designated Sites within 1 Kilometre

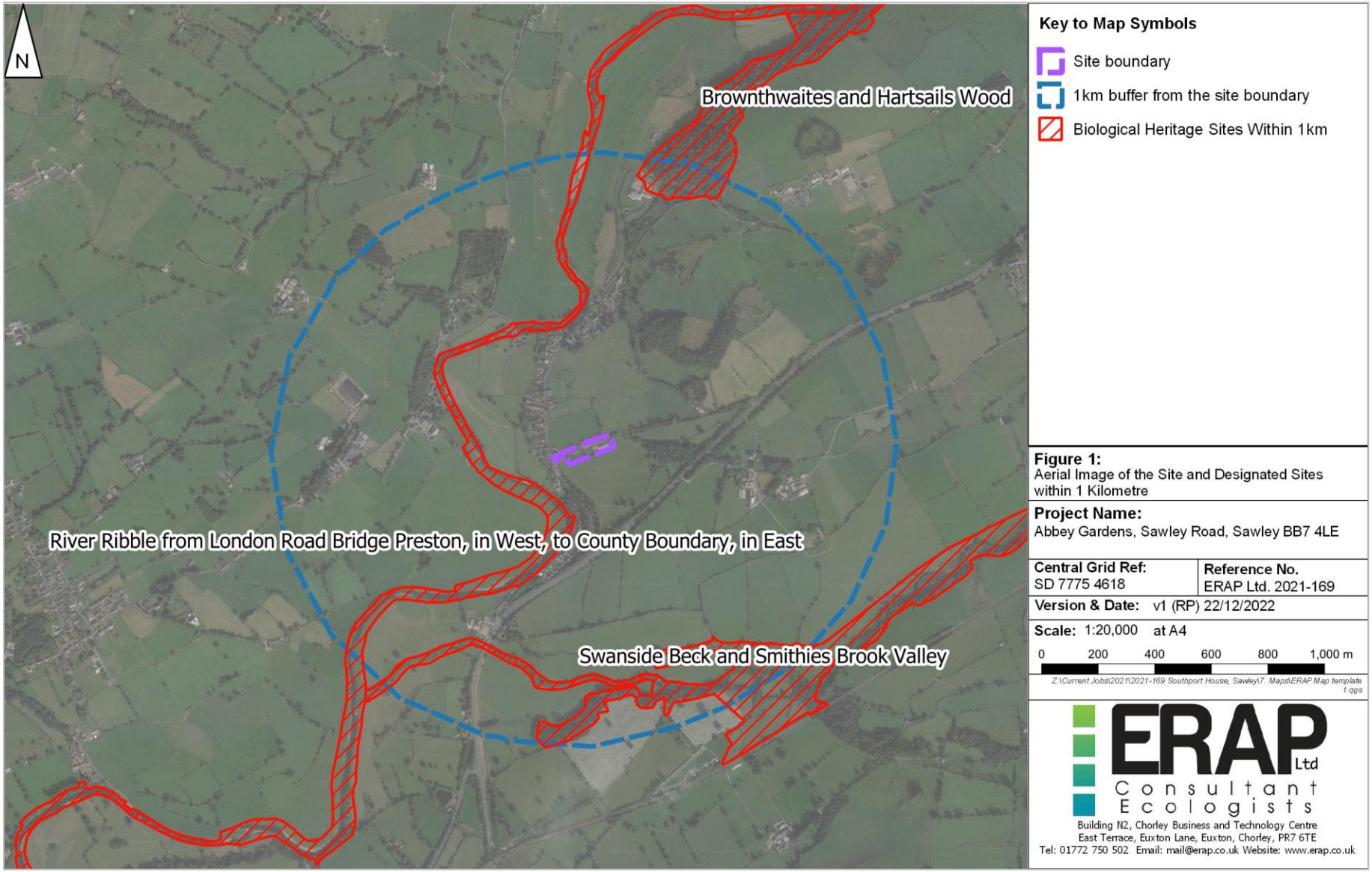

Figure 2: **Phase 1 Habitat and Vegetation Map**

Figure 3: Ecological Protection and Enhancement

Provisions for use by Roosting Bats

Provisions for roosting bats to be accommodated at the new property to comprise two bat access panels / bat tubes to be installed integral to the stone clad elevation either on the northern elevations (one on each property). The access panels can be entirely clad with the facing stone so that only the bat access slot is visible. A number of products are available. The examples shown below at **Inserts 3 to 5** are the 1WI Schwegler Summer and Winter Bat Box on a property in the Lake District.

Supplier: www.NHBS.com

***Inserts 3** to **5:** Photos to show installation of an enclosed integrated bat box (1WI Schwegler Summer / Winter Bat Box) on a stone clad wall.*

Protection of Hollins Syke and Water Quality

Demarcation fencing (with silt fencing, as needed) to be installed to separate the stream corridor from the active demolition / construction site.

Water quality protected by application of measures presented in a Construction Environment Management Plan (CEMP) to include application of appropriate Pollution Prevention Guidelines and best practice.

All contractors to be made aware of the presence of Wall Cotoneaster (refer to **Figure 2**).

Wildflower Grassland

Wildflower grasslands to provide opportunities for breeding and feeding invertebrates (and their predators such as bird and bat species) and shelter for species such as hedgehog.

Refer to the Softworks Plan (512-P03) for details.

Retention and Protection of Hedgerow and Trees

Hedgerow 1 and trees to be retained and protected demolition and construction by demarcation fencing in accordance with BS5837:2012.

Hedgerow and Tree Planting

Additional native hedgerow and tree planting to be accommodated at the site as part of the works. Will improve habitat connectivity and provide opportunities for foraging bats and birds. Refer to the Softworks Plan (512-P03) for details.

Barn Owl Box

Barn owl box to be installed on Beech tree at southern site boundary. Box to be installed at a height of 4 metres from ground level and must face the open field to the south.

***Insert 1 (right):** timber barn owl box (available from www.NHBS.com)*

Provisions for Nesting Birds

Nest boxes suitable for other bird species will be installed to enhance the opportunities for nesting birds at the site . Suitable boxes and locations are presented at **Insert 2**. .

Number: Four.

Position: Installed at a height of 3 metres above ground level on the trunks of suitable trees or the elevations of the buildings. South facing boxes to be avoided.

Specifications:

Management and Maintenance: Boxes to be cleaned out in autumn every 2 years.

Supplier: www.NHBS.com

01 02 03 04 05 10 15
1:250

General Arrangements Plan | 1:250 @ A1
Land Adj. to Southport House | DWG No. 512-P01 | Dec 2022 |

Plans / Images extracted from the Landscape General Arrangements Drawing No 512-P01

Project Name: Abbey Gardens, Sawrey Road, Sawrey		
Title: Ecological Protection and Enhancement		
Scale: Not to scale	**Drawing No.** Figure 2	**Date:** December 2022
Reference No. ERAP Ltd 2021-169		

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