

PROPOSED BARN CONVERSION AT MINTLYN FARM, BAWSEY, KING'S LYNN, NORFOLK



PRELIMINARY ECOLOGICAL APPRAISAL

DRAFT

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Drawing D1 Preliminary Ecological Appraisal

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

Swann Edwards Architecture have prepared a planning application on behalf of Mintlyn Farm for the development of a barn at Mintlyn Farm, Bawsey, King's Lynn, Norfolk. The local planning authority, the Borough Council of King's Lynn and West Norfolk, have requested that an ecological assessment accompanies the planning application.

1.2 This report presents the findings of a Preliminary Ecological Appraisal (PEA) undertaken on the 7th July 2021 by Philip Parker Associates.

1.3 DATA SEARCH

A 2km data search was undertaken with the Norfolk Biodiversity Information Service (NBIS). The following designated sites were noted within 2km of the proposed development site.

- The closest Site of Special Scientific Interest (SSSI) was Bawsey Pit located 1.8km to the north-east;
- Six County Wildlife Sites (CWS) were identified with the closest CWS 416 located 415m to the north-east;
- 254 records of bats with the closest record being for brown long-eared located 790m to the east;
- Thirty-one records of hedgehog with the closest located 1.7km to the north-east
- One record of badger located 1.57km to the north-east;
- One record of water vole with no specific location given;
- 5 records of slow-worm with the closest located 450m to the north-east;
- Numerous records birds of conservation priority including owls were identified. None of these apply to the site.

1.4 HABITAT

The survey barn was a small, single storey building, open fronted to the south. The walls were constructed of a concrete frame and breeze blocks to the height of the eaves. The gable ends walls were similarly constructed of breeze blocks with single skin asbestos above. The roof was constructed of flat corrugated asbestos sheets with semi-circular corrugated asbestos sheets across the ridge on a concrete frame.

1.5 The barn forms part of a much larger active farm, complete with farmhouse and modern agricultural barns. A concrete hardstanding surrounded the building on all sides. Beyond the curtilage of the farm the land use was agricultural, with a small paddock to the north-west. Bawsey Country Park is situated further to the north, along with Mintlyn Crematorium. An active

quarry was situated to the east and a railway line serving the quarry at Brow of the Hill was to the south. A small copse was located to the south-west of the proposed development and much more substantial areas of woodland were to the north and east.

1.6 **FAUNA**

Bats

Internally no roost features were noted associated with the concrete roof frame structure, the internal breeze block walls or the inside face of the external walls. 10 pipistrelle type droppings were noted on a stored trailer and several urine splashes were identified on other stored items. 4 peacock and small tortoiseshell wings were identified near to the north-east corner of the main barn, possibly the result of brown-long eared bat foraging. The western office of the barn contained plastered walls and ceilings with the roof void above the ceiling open to the main part of the barn. 4 peacock wings were noted in the office, 2 in the south-west corner and 2 in the southeast corner, both sets were beneath cobwebs and were consequently as a result of spider foraging activities.

1.7 **Badger**

No evidence of badger was noted as part of the survey.

1.8 **Water Vole/Otter**

There are no ponds or ditches in close proximity of the barn that could support water vole or otter.

1.9 **Hedgehog**

The immediate environment around the barn complex, being largely of hard surfacing, is unlikely to support hedgehogs. However, the mixed habitats within the wider landscape had excellent potential to support them.

1.10 **Birds**

An inactive stock dove or wood pigeon nest was identified in the north-west corner of the main barn, an inactive blackbird nest was present above the ceiling of the office and an active pied wagtail nest was present on the wall top at the south-west corner of the barn. 15 old barn owl pellets were present internally in the north-east corner of the main barn.

1.11 **Reptiles**

The immediate environment around the barn complex, being largely of hard surfacing, is unlikely to support reptiles. However, the mixed habitats within the wider landscape had the potential to support them.

1.12 **Amphibians**

There were three ponds to the south-west as shown on the Ordnance Survey mapping (the closest of which was 110m from the barn). Given that the habitat around the barns was comprised of hard surfacing, providing little or no amphibian terrestrial habitat, these ponds were not inspected any further.

1.13 **Invertebrates**

By its nature, the proposed development site is considered unlikely to support significant invertebrate populations.

1.14 **IMPACT ASSESSMENT**

Development proposals

The plans provided indicated that the barn will be converted into a three bedroomed property with a lounge, kitchen and utility. The currently hard surfacing around the property will be converted into a grass garden with acoustic fencing.

1.15 **POTENTIAL IMPACTS**

The potential impact on ecological resources resulting from the proposed development are as follows:

- The loss of a building of low bat roosting potential;
- The loss of bird nesting habitat for pigeon and blackbird (inactive nest) and pied wagtail (active nest). It will also result in the loss of a temporary roost site for barn owl.

1.16 **Potential impacts on designated sites**

No likely impact on designated sites (the closest designated site is 415m north-east) subject to surface run-off being dealt with in a satisfactory manner.

1.17 **Requirements for further survey**

The barn has been graded as having low bat roost potential. A minimum of one activity survey will be required to confirm absence. If bats are found to be roosting, further bat surveys will be required to confirm the nature of the roost and allow for any derogation licensing.

1.18 **MITIGATION AND ENHANCEMENTS**

Precautionary mitigation and enhancement proposals (to comply with Planning Policy Guidance) include the following:

- A minimum of three Kent bat boxes should be erected on a suitable tree in the vicinity of the complex (but away from the influences of lighting);

- Provision of a nesting box for pied wagtail (location to be agreed);
- Provision of a barn owl box to be placed within one of the other barns (to be agreed) or on a suitable tree/pole;
- Limitations on external lighting to prevent impacts on foraging bats using adjacent habitat features;
- Careful clearance of any potential bird nesting habitat (to be undertaken outside of the bird nesting season - March to August inclusive);
- Careful clearance of vegetation or structures which protected animals might use for cover;
- Waste to be placed directly into skips to avoid creation of debris piles;
- All materials to be delivered to site in bags, therefore no loose materials left on site into which animals could bury;
- All trenches should be left covered at night and inspected for animals in the morning before filling in.

2.0 INTRODUCTION

- 2.1 Swann Edwards Architecture have prepared a planning application on behalf of Mintlyn Farm for the development of a barn at Mintlyn Farm, Bawsey, King's Lynn, Norfolk. The local planning Authority, the Borough Council of King's Lynn and West Norfolk, have requested that an ecological assessment accompanies the planning application.
- 2.2 Philip Parker Associates Limited have been instructed to undertake an ecological appraisal of the proposed development.
- 2.3 This report presents the results of a Preliminary Ecological Appraisal (PEA) that was undertaken on the 21st April 2021 by principal ecologist Karl Charters (2015-13353-CLS-CLS).
- 2.4 The report has been prepared following guidance prepared by the Institute of Ecology and Environmental Management (CIEEM) and BS 42020:2013 Biodiversity : Code of practice for planning and development.
- 2.5 The development site is located at Mintlyn Farm, Mintlyn, Nor at Ordnance Survey Grid Reference TF 6617 1862 as shown on the following Ordnance Survey and aerial photograph extract.



Figure 1 – Location plan
Crown Copyright and database rights
2021 Ordnance Survey



Figure 2 – Aerial photograph
Imagery © 2021 Goody, Getmapping plc,
Infoterra Ltd & Bluesky

2.6 NATIONAL CHARACTER AREA

The site falls within the North West Norfolk National Character Area (NCA). This has a very open, rolling topography which contrasts with the surrounding coastal, fenland and other lowland NCAs. It extends from Downham Market on the edge of the Fens east towards Castle

Acre, and skirts Fakenham before sweeping eastwards into a narrowing triangular area abutting the western edge of the Cromer Ridge.

- 2.7 This NCA is very important for agriculture with a large-scale arable and grassland landscape comprising extensive arable cropping and some areas of mixed farming. The dominant livestock type is pigs. The name 'Good Sands', often applied to the eastern half of this area, derives from the fertility of the versatile light soils which distinguish the area from the low-fertility sands of Breckland to the south. Many of the villages are centred on greens or ponds and built from local vernacular materials – carrstone and chalk in the west with flint becoming characteristic further east, reflecting the underlying geology. Aquifers underlying the NCA and extending well beyond its boundaries provide water both locally and regionally

3.0 DATA SEARCH

3.1 In order to assess whether there are any protected sites and species records for the development site and the surrounding area a 2km data search from the Norfolk Biodiversity Information Service (NBIS) was undertaken on the 3rd August 2021. In addition, checks for designated sites outside the 2km data search area has been made on <https://magic.defra.gov.uk>

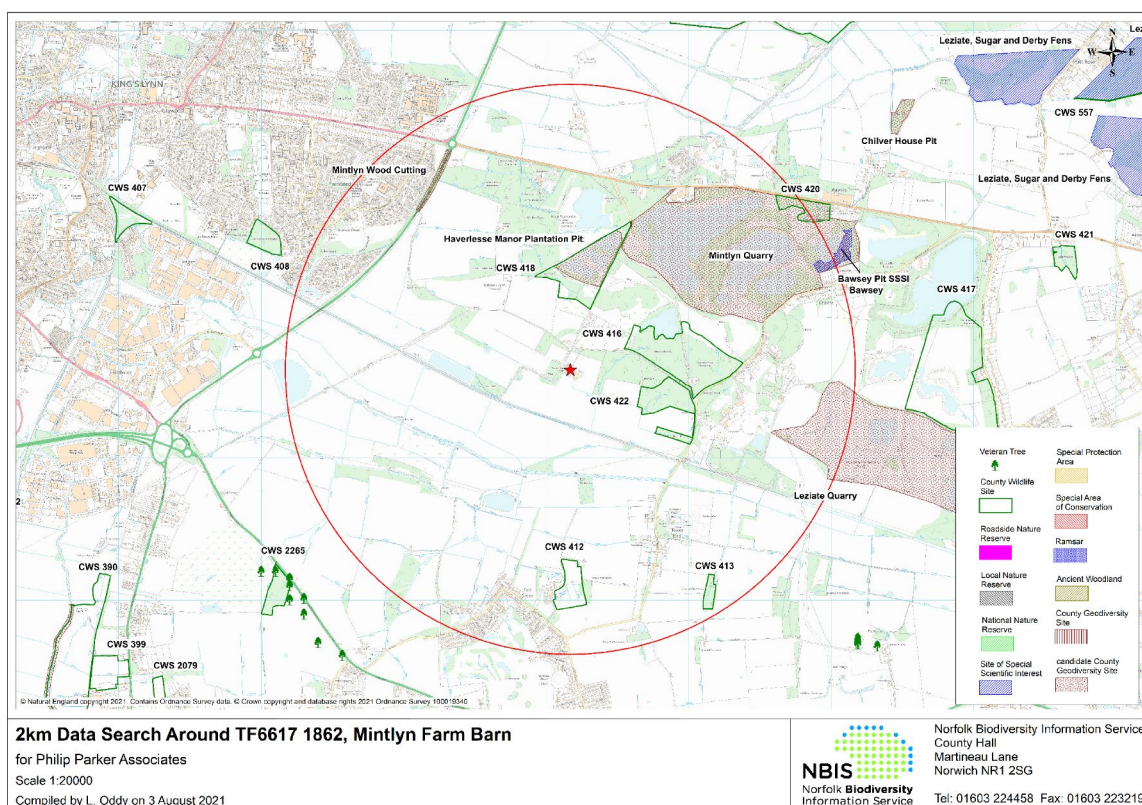


Figure 3 - NBIS data search

3.2 PROTECTED SITES

A summary of the protected sites is given below.

3.3 NATURA 2000 SITES

The Habitats Directive (Council Directive 92/43/EEC of 21 May 1992) requires EU Member States to create a network of protected wildlife areas, known as Natura 2000, across the European Union. This network consists of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), established to protect wild birds under the Birds Directive (Council Directive 79/409/EEC of 2nd April 1979). These sites are part of a range of measures aimed at conserving important or threatened habitats and species.

3.4 Special Area of Conservation (SAC)

Special Areas of Conservation have been given special protection under the European Union's Habitats Directive. They provide increased protection to a variety of wild animals, plants and habitats and are a vital part of global efforts to conserve the world's biodiversity.

3.5 No SAC's were noted within the 2km data search. The closest was Roydon Common (SAC) located 3.5km to the north-east.

3.6 Special Protection Area (SPA)

Special Protection Areas are strictly protected sites classified in accordance with Article 4 of the EC Directive on the conservation of wild birds (79/409/EEC), also known as the Birds Directive, which came into force in April 1979. They are classified for rare and vulnerable birds, listed in Annex I to the Birds Directive, and for regularly occurring migratory species.

3.7 No SPA's were noted within the 2km data search. The closest was for Breckland (SPA) located 13.8km to the south-east.

3.8 RAMSAR Sites

Ramsar sites are wetlands of international importance designated under the Ramsar Convention.

3.9 Sites proposed for selection are advised by the UK statutory nature conservation agencies, or the relevant administration in the case of Overseas Territories and Crown Dependencies, co-ordinated through JNCC. In selecting sites, the relevant authorities are guided by the Criteria set out in the Convention. The UK also has a national Ramsar Committee composed of experts who provide further advice.

3.10 In the UK, the first Ramsar sites were designated in 1976. Since then, many more have been designated. Compared to many countries, the UK has a relatively large number of Ramsar sites, but they tend to be smaller in size than many countries. The initial emphasis was on selecting sites of importance to water birds within the UK, and consequently many Ramsar sites are also Special Protection Areas (SPA) classified under the Birds Directive. However, greater attention is now being directed towards the selection of Ramsar sites in UK Overseas Territories and Crown Dependencies; the first of these was designated in 1990. Both within the UK and overseas, non-bird features are increasingly taken into account, both in the selection of new sites and when reviewing existing sites.

3.11 No RAMSAR sites were noted within 2km of the site. The closest was Roydon Common (RAMSAR) located 3.5km to the north-east.

3.12 **Sites of Special Scientific Interest (SSSI)**

The SSSI/ASSI 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. These sites are also used to underpin other national and international nature conservation designations. Most SSSIs are privately-owned or managed; others are owned or managed by public bodies or non-government organisations. The SSSI/ASSI 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/ASSIs beyond low water mark, although boundaries sometimes extend more widely within estuaries and other enclosed waters.

3.13 Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs have been re-notified 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.

3.14 One SSSI site was noted within 2km of the site and pertained to Bawsey Pit (1.8km north-east). This site is designated due to its geological formation. The age and origin of the till, the number of units present and their mode(s) of deposition are currently the subject of much discussion and have a key bearing on interpreting Quaternary history in East Anglia. The site is also important for present and future work directed towards determining the origin of the west Norfolk tills and their relationships to the Marly Drift and Lowestoft Till which form the main till sheet of the region.

3.15 **County Wildlife Sites**

County Wildlife Sites are second tier ecological sites, identified as they fulfil a range of select criteria for their ecological interest on a county level. They do not receive statutory protection but are usually offered some protection under local plan policy. They are listed in order of distance, starting at the closest to the site.

3.16 Six County Wildlife Sites were noted within the 2km data search and pertained to CWS 412, CWS 413, CWS 416, CWS 418, CWS 420 and CWS 422. The closest pertains to CWS 416 located 415m to the north-east.

3.17 PROTECTED SPECIES

The following records for protected species were noted within the NBIS data search.

3.18 Bats

- *Chiroptera spp* – 23 records, latest 2018 – closest located 1.58km south-west
- Pipistrelle species *Pipistrellus pipistrellus sensu lato* – 114 records, latest 2016 – closest located 1.37km north-west
- Soprano pipistrelle *Pipistrellus pygmaeus* – 14 records, latest 2015 - closest located 1.37km north-west
- Brown long-eared bat *Plecotus auritus* – 49 records, latest 2014 – closest located 790m east.
- Natterer's bat *Myotis nattereri* – 1 record, 2016 – located 1.37km north-west
- Noctule bat *Nyctalus noctula* – 53 records, latest 2016 – closest located 1.37km north-west

3.19 **NB:** A large proportion of the records above have been gathered from an ongoing study by Philip Parker Associates at Mintlyn Crematorium, King's Lynn. These pertain to both bat box records and use of the Crematorium building itself, notably by a large soprano pipistrelle and brown long-eared bat maternity roost.

3.20 Mammals

- Hedgehog *Erinaceus europaeus* - 31 records, latest 2008 – closest 1.7km north-east
- Badger *Meles meles* – 1 record, 2003 – located 1.57km north-east
- Water vole *Arvicola amphibius* – 1 record, 2013 – exact location not given.

3.21 Reptiles

- Slow-worm *Anguis fragilis* – 5 records, latest 2009 – closest record 450m north-east

3.22 Birds

- Grey partridge *Perdix perdix* – 5 record, latest 2012 – closest record 450m north-west
- Turtle dove *Streptopelia turtur* – 3 records, latest 2015 – closest record 1.85km north-east
- Barn owl *Tyto alba* – 5 records, latest 2014 – closest record 790m east
- Little owl *Athene noctua* - 2 records, latest 2010 – closest record 1.85km north-east
- Tawny owl *Strix aluco* – 2 records, 2011– located 870m north-east
- Nightingale *Luscinia megarhynchos* – 2 records, latest 2012 – closest record 1.85km north-east
- Fieldfare *Turdus pilaris* – 7 records, latest 2015 – closest record 450m north-west

- Song Thrush *Turdus philomelos* – 1 record, 2018 – located 1.7km north-west
- Redwing *Turdus iliacus* – 2 records, latest 2012 – closest 450m north-west
- Mistle Thrush *Turdus viscivorus* – 1 record, 2006 – located 2km south
- Starling *Sturnus vulgaris* – 1 record, 2016 – 2km north-east
- House Sparrow *Passer domesticus* – 1 record, 2008 – located 1.75km north-west
- Linnet *Linaria cannabina* – 2 records, latest 2016 – closest 1.2km north-west
- Yellowhammer *Emberiza citrinella* – 2 records, latest 2015 – closest 1.2km north-west

3.23 No records for amphibians were noted on the data search.

4.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT SITE

4.1 GENERAL

The following description is based on the site visit undertaken on the 7th of July 2021 by senior ecologist Karl Charters (2015-13353-CLS-CLS).

4.2 SITE DESCRIPTION

The survey barn was a small, single storey building, open fronted to the south. The walls were constructed of a concrete frame and breeze blocks to the height of the eaves. The gable end walls were similarly constructed of breeze blocks with single skin asbestos above. The roof was constructed of flat corrugated asbestos sheets with semi-circular corrugated asbestos sheets across the ridge across a concrete frame.

4.3 Guttering was attached to bargeboards on the northern and southern elevations. Generally the bargeboards were found to be tight however, a gap was noted at the western end of the southern elevation, where the board was lifted on the northern elevation of the eastern part of the barn. The gap between bargeboard and wall was heavily cobwebbed. On both gables there were gaps between the breeze block wall and the overlapping corrugated asbestos sheets, and between the corrugated asbestos sheets and the flat asbestos verge sheets. All were found to be clear.

4.4 Gaps were present above the pillars on the southern elevation, these were found to open internally and be clear. The join between wall and pillar at the eastern end of the open fronted section of the southern elevation offered some roosting potential however when inspected it was clear. Gaps were also present around the concrete pillars of the northern elevation, these were often too narrow to be a potential bat roosting feature, heavily cobwebbed or open to the inside.

4.5 Gaps were present to the wall top in the north-west, south-west, north-east and south-east corners, all were clear of bat evidence.

4.6 The eastern part of the barn had gaps at the eaves of the southern, northern, and western elevations. A gap was present above the pedestrian doorway of the southern elevation. This was found to be clear.

4.7 The barn forms part of a much larger active farm, complete with farmhouse and modern agricultural barns. A concrete hardstanding surrounded the building on all sides. Beyond the curtilage of the farm the land use was agricultural, with a small paddock to the north-west. Bawsey Country Park is situated further to the north, along with Mintlyn Crematorium. An active

quarry was situated to the east and a railway line serving the quarry at Brow of the Hill was to the south. A small coppice was located to the south-west of the proposed development and much more substantial areas of woodland were to the north and east.



Figure 4 – View of the barn from the north-west



Figure 5 – View of the barn from to the south-west



Figure 6 – View of the barn from to the south-east



Figure 7 – View of the store to the south-east of the barn (southern elevation of the store)



Figure 8 – View of the barn to the south

5.0 FAUNA SURVEY

5.1 GENERAL

The potential scope of works, data search and habitats within the site have informed the basis of the preliminary ecological appraisal. The following protected and priority species have been considered further within this report:

- Bats
- Badger
- Water vole
- Otter
- Hedgehog
- Breeding birds
- Reptiles
- Amphibians

5.2 BATS

Legislation

In Britain, all bat species and their roosts are legally protected, by both domestic and international legislation, namely:

- The Wildlife and Countryside Act (1981) (as amended);
- The Countryside and Rights of Way Act, 2000 and
- The Conservation of Habitats and Species Regulations (2017).

5.3 This legislation makes it an offence amongst others to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time)
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat
- Intentionally or recklessly obstruct access to a bat roost

5.4 A bat roost is regarded as “any structure or place which any wild animal....uses for shelter or protection” As bats tend to reuse the same roosts, legal opinion is that the roost is protected whether or not the bats are present at the time.

5.5 Bats are also listed under the Natural Environment and Rural Communities Act (NERC, 2006). This is a list of habitats and species that are of principal importance for the conservation of biodiversity in England. The list (including 56 habitats and 943 species) has been drawn up in consultation with Natural England and draws upon the UK BAP List of Priority Species and Habitats. The S41 list should be used to guide decision-makers such as local and regional authorities when implementing their duty: to have regard to the conservation of biodiversity in the exercise of their normal duties.

5.6 **Existing records**

Chiroptera spp, Pipistrellus sp, soprano pipistrelle, brown long-eared, Natterer's bat and noctule were all returned from the 2km NBIS data search. The closest record was for brown long-eared, located 790m to the east. A large proportion of the records have been gathered from an ongoing study by Philip Parker Associates at Mintlyn Crematorium, King's Lynn, located 1.37km north-west. These pertain to both bat box records and use of the Crematorium building itself, notably by a large soprano pipistrelle and brown long-eared bat maternity roost.

5.7 **Survey Methodology**

In summer, bats typically roost in trees and buildings. They feed along hedgerows, woodland edge, old pasture and over water. In winter, hibernation sites can include trees and buildings but more commonly underground structures such as caves and ice houses.

5.8 The Bat Mitigation Guidelines produced by English Nature (now Natural England) set out the timescales for survey work, as follows:

Table 1 Timescales for bat survey

SEASON	ROOST TYPE	INSPECTION	BAT DETECTOR AND EMERGENCE COUNTS
Spring (Mar – May)	Building	Suitable (Signs, perhaps bats)	Limited, weather dependent
	Trees	Suitable (Signs only)	Static detectors may be useful
	Underground	Suitable (signs only)	Static detectors may be useful
Summer (June – August)	Building	Suitable (signs and bats)	Suitable
	Trees	Difficult	Limited, use sunrise survey
	Underground	Suitable (signs only)	Rarely useful
Autumn (September – November)	Building	Suitable (signs and bats)	Limited, weather dependent
	Trees	Difficult	Rather limited, weather dependent; use sunrise survey
	Underground	Suitable (signs, perhaps bats)	Static detectors may be useful
Winter (December – February)	Building	Suitable (signs, perhaps bats)	Rarely useful

SEASON	ROOST TYPE	INSPECTION	BAT DETECTOR AND EMERGENCE COUNTS
	Trees	Difficult (best for signs after leaves have gone)	Rarely useful
	Underground	Suitable (signs and bats)	Static detectors may be useful

5.9 Preliminary Survey Results

The following description is based on a preliminary site visit to survey the property, undertaken by senior ecologist Karl Charters (level 2 bat licence 2015-13353-CLS-CLS) on the 7th July 2021. The survey commenced at 08:00 and was completed by 09:00. The weather at the time of the survey was dry, warm and still.

5.10 The survey was conducted using an extending ladder to gain access to the upper levels, a pair of 8 x 42 binoculars and a powerful Clulite lamp (fitted with a red filter where appropriate to avoid disturbing any bats that might be present). A Rigid CA-100 endoscope was used to inspect cavities as appropriate.

5.11 The survey concentrated on checking horizontal surfaces on which bat droppings and feeding remains could rest (including windowsills, beams, gutters, stored goods) as well as vertical surfaces such as walls. Potential access points to cavities and possible roost spaces were checked for urine staining and fur rubbings.

5.12 Preliminary survey results

The results of the preliminary bat roost assessment are shown on the following tables. They are also present on Drawing D1.

Table 2 External / internal roosting potential and bat evidence on the barn

Location	Roosting potential and evidence	Bat evidence
Internal main barn	No roost features were noted associated with the concrete roof frame structure, the internal breeze block walls or the inside face of the external walls.	10 pipistrelle type droppings were noted on a stored trailer and several urine splashes were identified on other stored items. 4 peacock and small tortoiseshell wings were identified near to the north-east corner of the main barn, possibly the result of brown-long eared bat foraging.
Internally western office	The western office of the barn contained plastered walls and ceilings with the roof void above the ceiling open to the main part of the barn.	4 peacock wings were noted in the office, 2 in the south-west corner and 2 in the south-east corner, both sets were beneath cobwebs and were consequently a result of spider foraging activities
External	Gaps between the verge/ ridge and the corrugated asbestos sheets. Gaps between the beams / beams and breeze block pillars. Gaps into the eastern store at eaves level on all sides. Gap over the doorframe (southern	No bat evidence noted.

Location	Roosting potential and evidence	Bat evidence
	doors of the eastern storage). Occasional gaps behind the northern and southern bargeboards.	



Figure 9 – Feature on the north wall pillar



Figure 10 – Gaps where the corrugated asbestos sheets and verge meet on north-west elevation



Figure 11 – Gaps between corrugated sheets and ridge

5.13 Suitability of structures/trees for bat roosting potential

The potential of trees to support roosting bats and the general habitat for the potential for foraging bats has been assessed against Table 4.1 of the Bat Survey Guidelines 2016 (see Table 3 below). The barn was considered to have low suitability for roosting bats but the mixture of habitats within the surrounding area was considered to have high suitability for commuting and foraging.

Table 3 Suitability of structures for bat use

Suitability	Description of roosting habitats	Commuting and foraging habitat
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, treelined watercourses and grazed parkland. Site is close to and connected to known roosts.
Confirmed roost	Bats discovered roosting within the building/tree or definitive evidence to suggest they do so.	

5.14 **BADGERS**

Legislation

Badgers are protected under Appendix III of the Bern Convention and are protected in Britain under the Protection of Badgers Act 1992, and under Schedule 6 of the Wildlife and Countryside Act 1981.

5.15 A badger sett is defined in the legislation as “any occurrence which displays signs indicating current use by a badger” and includes seasonally used setts.

5.16 Badgers can be disturbed by work near the sett even if there is no direct interference or damage to the sett. A licence may be required for any working within 30m of a badger sett. The licensing authority is Natural England.

5.17 **Existing records**

One record of badger was returned from the NBIS 2km data search. This was located 1.57km to the north-east.

5.18 **Survey methodology**

The survey involved a detailed search of the site and immediate areas to identify evidence of badger residence, foraging or territorial activity in the vicinity of the farmyard. Particular emphasis was placed on the location of badger setts. Paths and signs of territorial activity such as dung piles and latrines were searched for.

5.19 **Survey results**

No evidence of badger activity was noted on site, the habitat around the barn was unsuitable for badgers being largely of hard surfacing but the wider landscape had excellent potential for badger to occur.

5.20 **WATER VOLE**

Legislation

Water vole *Arvicola amphibius* is protected through its inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This section of the Act protects water vole places of shelter from damage and disturbance as well as protecting the water vole itself. Legal protection makes it an offence to intentionally:

- Damage, destroy or obstruct access to any structure or place that water voles use for shelter or protection;
- Kill, injure or take water voles whilst they are using shelter.

5.21 **Existing records**

One record of water vole was returned from the NBIS 2km data search. No details on the location was provided.

5.22 **Survey Methodology**

Although a detailed survey was not undertaken during the preliminary assessment, the area on and immediately adjacent to the site was assessed for suitable habitat such as banks for burrows, water edge berms, vegetation cover, suitable water depth for swimming and diving and

food source. Any obvious signs of the presence of water vole signs such as latrines, piles of eaten vegetation (feeding stations), burrows and runs were also noted.

5.23 **Survey Results**

There are no ponds nor ditches within the vicinity of the barn complex that could support water vole.

5.24 **OTTER**

Legislation

Otters are protected both under the Wildlife and Countryside Act 1981 and by the Conservation (Natural Habitats, &c.) Regulations 2017. Otters and their resting places are fully protected, and it is an offence to:

- 1) Disturb otters in their breeding or resting places;
- 2) Damage, destroy or obstruct their breeding or resting places.

5.25 Otter shelters are legally protected whether or not an otter is present.

5.26 **Existing records**

No records for otter were returned from the NBIS 2km data search.

5.27 **Survey methodology**

The habitat on the site was searched for evidence of otter including laying up sites, commuting routes under cover, and potential feeding sites.

5.28 **Survey results**

There are no ponds nor ditches within the vicinity of the barn complex that could support otter.

5.29 **HEDGEHOG**

Legislation

Hedgehogs *Erinaceus europaeus* listed as a UK 'Priority Species' under S41 of the NERC Act (2006) they are partially protected under Schedule 6 of the Wildlife and Countryside Act (1981), making it illegal to trap or kill them without a licence. They are known to be in serious decline in the countryside at the moment.

5.30 **Existing records**

The NBIS 2km data search identified 31 records of hedgehog with the closest located 1.7km to the north-east.

5.31 **Survey results**

The immediate environment around the barn complex, being largely of hard surfacing, is unlikely to support hedgehog. However, the mixed habitats within the wider landscape had excellent potential to support hedgehog.

5.32 **BREEDING BIRDS**

Legislation

The majority of breeding birds in Britain are protected under the Wildlife and Countryside Act 1981 (plus amendments) from disturbance whilst nesting (generally from late April to the end of August).

5.33 Some birds such as barn owls receive special protection under Schedule 1 of the Wildlife and Countryside Act 1981 (plus amendments). This makes it an offence (amongst others) to intentionally or recklessly disturb the bird whilst building a nest, or when such a bird is in, on or near a nest containing eggs or young, or intentionally or recklessly disturb dependent young.

5.34 An assessment was made of the site's suitability to support breeding and wintering bird species. Nesting birds will utilise a broad range of habitats, including built structures, trees, scrub, isolated shrubs, dense herbaceous vegetation (terrestrial and aquatic) and open grassland. All bird species and evidence of breeding activity (active or inactive) observed on site was recorded.

5.35 **Existing records**

The NBIS 2km data search identified a number of records of birds of conservation concern such as red list, UK BAP and Schedule 1 species. A number of owl records for barn owl, little owl and tawny owl were additionally returned. None of these apply to the site.

5.36 **Survey results**

An inactive stock dove or wood pigeon nest was identified in the north-west corner of the main barn, an inactive blackbird nest was present above the ceiling of the office and an active pied wagtail nest was present on the wall top at the south-west corner of the barn. 15 old barn owl pellets were present internally in the north-east corner of the main barn.

5.37 **REPTILES**

Legislation

The reptiles occurring in Norfolk (common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, grass snake *Natrix natrix*, adder *Vipera berus*) are all given limited legal protection under part

of Section 9 (1) and all of Section 9 (5) of the Wildlife and Countryside Act 1981 (as amended). This means that it is an offence to intentionally kill, injure and offer for sale all of these reptiles.

5.38 Existing records

One slow-worm record was returned from the NBIS 2km data search. This was located 450m north-east of the site.

5.39 Survey methodology

An assessment was made of the site's suitability to support reptile populations. Key habitat features include: tussocky/patchy grassland; scrub edge; linear watercourses; ponds; compost heaps; brush piles and rubble/soil heaps. Linkage to suitable habitat within the surrounding landscape will increase the potential for reptiles to occur, although populations can occur within isolated/fragmented habitats even within urban areas.

5.40 Survey results

The immediate environment around the barn complex, being largely of hard surfacing, is unlikely to support reptiles. However, the mixed habitats within the wider landscape had the potential to support reptiles.

5.41 AMPHIBIANS

Legislation

Great crested newts *Triturus cristatus* and their habitat (aquatic and terrestrial) are afforded full protection by The Wildlife and Countryside Act 1981 (Section 9, Schedule 5; and as amended) and The Conservation (Natural Habitats & c.) Regulations 1994. It is an offence to:

- 1) Disturb, injure or kill recklessly a great crested newt;
- 2) Disturb or destroy recklessly great crested newt habitat (a breeding site or place of shelter).

5.42 Great crested newt is also listed in the National Biodiversity Action Plan.

5.43 Existing records

No amphibian records were returned from the NBIS 2km data search.

5.44 Survey methodology

Great crested newts utilise ponds for breeding and grassland areas for foraging. Newts are normally present in the breeding ponds between March and June and survey techniques to demonstrate presence or absence include torch survey, bottle trapping, netting and egg search. It is also possible to undertake a Habitat Suitability Index assessment (HSI), which assesses

the potential of a pond to support great crested newts by looking at a range of environmental factors.

5.45 Recent development in eDNA technology means that it is possible to test pond water for the presence of great crested newt DNA between mid-April to the end of June. Environmental DNA (eDNA) is collected from the environment in which an organism lives rather than from the animal themselves. In aquatic environments, animals such as great crested newts shed cellular material into the water by reproduction, saliva, urine, faeces or skin cells. The DNA will be present in the water for several weeks and can be collected through a sample which is then analysed to detect if the target species of interest have been present in the water body

5.46 **Survey results**

There were three ponds to the south-west as shown on the Ordnance Survey mapping (the closest of which was 110m from the barn). Given that the habitat around the barns comprised of hard surfacing, providing little or no amphibian terrestrial habitat, these ponds were not inspected any further.

6.0 EFFECTS OF THE PROPOSED DEVELOPMENT WORKS ON THE SPECIES PRESENT

6.1 DEVELOPMENT PROPOSALS

The development proposals are shown on the following Swann Edwards drawings:

- SE 1612 100 Survey drawing - Site plan and location plan
- SE 1612 200 Survey drawing - Plans, elevations and section
- SE 1612 PP 1000 Planning Drawing – Site plan and location plan
- SE 1612 PP 2100 Planning Drawing – Plans, elevations and section

6.2 These plans indicate that the barn will be converted into a three bedroomed property with a lounge, kitchen and utility. The currently hard surfacing around the property will be converted into a grass garden with acoustic fencing.

6.3 IMPACTS ON PROTECTED SITES

Given the distance to designated sites and the nature of the development, it is not anticipated that the proposed development will have any impact on these sites.

6.4 IMPACTS ON PROTECTED SPECIES

The proposed development will result in the loss of the following;

- The loss of a building of low bat roosting potential
- The loss of bird nesting habitat for pigeon and blackbird (inactive nest) and pied wagtail (active nest). It will also result in the loss of a temporary roost site for barn owl

6.5 REQUIREMENTS FOR FURTHER SURVEYS

Given the state of the habitat and appropriate mitigation, further surveys are considered necessary as follows.

6.6 Bats

In order to comply with the requirements, set out in Table 8 below, one further survey will be required to comply with the BCT Survey Guidelines (2016). The result of this survey will be presented in a final updated report.

Table 4 Recommended minimum number of survey visits for presence/absence surveys

Potential	Description
Negligible	No surveys required
Low suitability	One survey visit. One dusk emergence or dawn re-entry survey between May and August

Potential	Description
Moderate suitability	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey between May and August
High suitability	Three separate survey visits between May and September. At least one dusk emergence and a separate dawn re-entry survey. The third could be either dusk or dawn. At least 2 of the visits should be between May and August.

6.7 On the basis that the barn has been graded as having low bat roosting potential, one survey will be required to confirm whether roosting bats are present or absent. If bats are found to be roosting on this first survey, two further surveys will be required to confirm the nature of the roost, appropriate mitigation and provide sufficient information for subsequent derogation licencing (see 6.18 below).

6.8 **BADGERS**

No further surveys are required in respect of badger

6.9 **HEDGEHOG/SMALL MAMMALS**

Subject to the precautionary mitigation set out in Section 7.10, no further surveys are considered necessary in relation to these species.

6.10 **BREEDING BIRDS**

Subject to the precautionary mitigation set out in Section 7.7 to 7.9, no further surveys are considered necessary in relation to breeding birds

6.11 **REPTILES/AMPHIBIANS**

Subject to the precautionary mitigation set out in Section 7.10, no further surveys are considered necessary in relation to reptiles/ amphibians.

6.12 **LICENSING**

A derogation licence (a European Protected Species Licence) may be required from Natural England where the proposed development would result in an otherwise un-lawful activity. This includes:

- a. The killing or disturbance of a European Protected Species;
- b. Damage, destruction or obstruction of any place used by a European Protected Species for shelter or protection.

6.13 Any licence application will take a minimum of 30 working days to process and can only be processed once any relevant permissions have been issued. The granting of the relevant permissions to allow the works to proceed is no guarantee that a licence will be granted.

- 6.14 Following changes to the Habitats Regulations in 2007, the threshold to which a person commits an offence of deliberately disturbing a European Protected species has changed, such that the disturbance is likely to affect;
- (i) the ability of any significant group of animals of that species to survive, breed, or rear or nurture their young, or
 - (ii) the local distribution or abundance of that species
- 6.15 Further changes took place in January 2009, but these generally relate to increased monitoring of licensed mitigation works.
- 6.16 In April 2015, a new Low Impact Class Licence (now renamed the Bat Mitigation Class Licence) was introduced which covers works that impact small numbers of common bat species. Such licences are normally granted within 10 working days. Philip Parker is a registered consultant to work under this licence.
- 6.17 Licences cannot be issued on a precautionary basis and normally require the benefit of supporting activity surveys to categorise the nature of the roost.
- 6.18** No derogation licence is likely to be required with respect to the proposed development as long as the site is maintained in its currently bare state.
- 6.19 Requirement for a licence**
- The requirement for a derogation licence will be determined following the bat survey(s).




7.0 MITIGATION /ENHANCEMENT STRATEGY




7.1 The proposed strategy is to mitigate the impacts of any development on the various species as set out above. In addition, proposals are also put forward to enhance the biodiversity of the site via the development. The delivery of biodiversity enhancement of development sites is promoted by National Planning Policy Framework and Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006.

7.2 BATS

The following table is based on the guidance within Table 8 given in the Bat Mitigation Guidelines. Given the level of evidence noted during the PEA, the likely level of mitigation/enhancement proposed is shown toned orange.

Table 5 Guidelines for proportionate mitigation

Roost status	Mitigation/compensation depending on the impact
Feeding perches of common/rarer species  Individual bats of common species  Small numbers of common species. Not a maternity site	Flexibility over provision of bat boxes, access to new buildings etc. No conditions about timing or monitoring
Feeding perches of Annex II species  Small numbers of rarer species. Not a maternity Site	Provision of new roost facilities where possible. Need not be exactly like-for-like, but should be suitable, based on species' requirements. Minimal timing constraints or monitoring requirements

Roost status	Mitigation/compensation depending on the impact
Hibernation sites for small numbers of common/rarer species 	Timing constraints. More or less like-for-like replacement. Bats not to be left without a roost and must be given time to find the replacement. Monitoring for 2 years preferred.
Maternity sites of common species Maternity sites of rarer species 	Timing constraints. Like-for-like replacement as a minimum. No destruction of former roost until replacement completed, and usage demonstrated. Monitoring for at least 2 years.
Significant hibernation sites for rarer/rarest species or all species assemblages Sites meeting SSSI guidelines 	Oppose interference with existing roosts or seek improved roost provision. Timing constraints. No destruction of former roost until replacement completed and significant usage demonstrated. Monitoring for as long as possible.
Maternity sites of rarest species	

7.3 Timing of the work

The Bat Mitigation Guidelines present the optimum seasons for works involving various types of bat roosts.

Table 6 Optimum seasons for undertaking work in different types of roost

Bat usage of the site	Optimum period for carrying out works (some variation between species)
Maternity	1 st October – 1 st May
Summer (not a proven maternity site)	1 st September – 1 st May
Hibernation	1 st May – 1 st October
Mating/swarming	1 st November – 1 st August

7.4 The recommended timescales for the works will depend on the results of the proposed activity survey (s).

7.5 New Bat Roosting Provision

Whether or not bats are recorded roosting, it is recommended that new bat roosting provision is provided as part of the enhancement works. As a minimum three Kent bat boxes should be erected on a suitable tree in the vicinity of the complex (but away from the influences of lighting).

Can the client confirm if they own any of the surrounding woodland areas as there are no trees on site



Figure 12 – Kent bat boxes on a tree

7.6 Lighting

The area surrounding the barn complex has high potential for foraging and commuting bats

Can the client confirm if the area around the farmyard has any external lighting associated

with it If any lighting is required as part of this development, it should comply with the following principles.

- Any external lighting should be limited to only that absolutely necessary for safety purposes;
- The brightness of the lighting should be as low as possible and kept at a low level and directed away from the boundary vegetation and any existing/new bat boxes/roosting areas;
- Narrow spectrum lighting with no UV light is preferred;
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;
- Lighting on sensors should not be so sensitive that foraging bats set them off and should be on short timers (1 minute).

7.7 BREEDING BIRDS

Bird nests, when occupied or being built, receive legal protection under the Wildlife and Countryside Act 1981 (as amended). Any clearance of potential bird nesting habitat should be undertaken outside the bird nesting season, which is generally seen as extending from March to the end of August, although it may extend for longer depending on local conditions. If there is no alternative to carrying out work in these areas during this period, then suitable nesting locations should be carefully inspected for evidence of nests prior to works commencing. If occupied nests are present, then works must stop in the area and only recommence once the nest becomes unoccupied of its own accord.

- 7.8 The barn will result in the loss of an active nesting site for pied wagtail. This should be replaced through the provision of a nesting box, location to be agreed.



Figure 13 – Example pied wagtail box

- 7.9 Additionally, the development will result in the loss of an occasionally used barn owl roost. It is now known whether barns owls nest anywhere else within the complex, but often the loss of one roosting site within a territory can negatively impact on them. It is therefore recommended that a barn owl box is placed into one of the other barns (to be agreed) or on a suitable tree or pole.



Figure 14 – Example external barn owl box



Figure 15 – Example internal barn owl box

7.10 REPTILES/ AMPHIBIANS/SMALL MAMMALS

Although the site has limited potential for the presence of reptiles, amphibians and small mammals (occurring in the middle of an active farmyard):

- a. Keep the working area of the site clear of vegetation or other structures which protected animals might use for cover;

- b. All waste shall be placed directly into skips or designated areas so that debris piles and therefore potential refuge areas are not created;
- c. Piles of loose sand or other granular materials into which animals could bury are not to be left around the site. All such materials should ideally be delivered in bags and kept in such bags until required for use. Bags should be stored on pallets. If it is essential that they are delivered loose, they should be retained in designated areas which are not accessible to reptiles;
- d. All trenches should be left covered. They should be checked in the morning before they are filled in. All trenches are to be provided with a small mammal ramp to allow any animals that get trapped to escape.

7.11 If any animals are discovered during the works, they will be moved to a safe location away from the development site (location to be agreed).

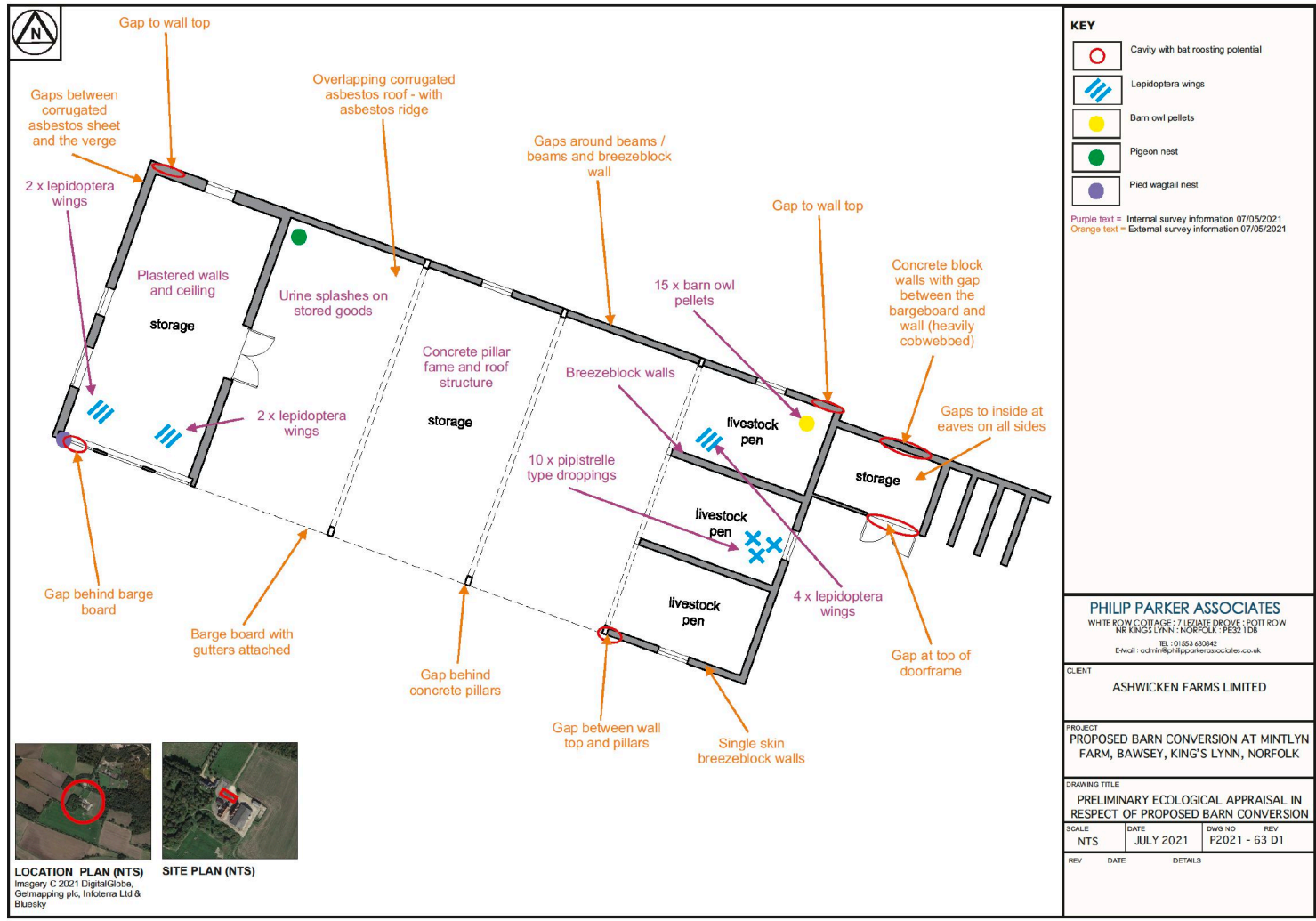
7.12 **ADVISORY NOTE**

The report presents a true reflection of habitats present and wildlife usage at the site at the time of the survey and remain valid for a period of 12 months from the date of this report. Even given the precautions set out above, it is always possible that protected species could be encountered at any time. In such a case, work should cease immediately and either Natural England or Philip Parker Associates Limited (Tel: 01553 630842) be contacted for further advice.

8.0 REFERENCES

- **Altringham J D, 2003**, British Bats, Collins New Naturalist
- **Bat Conservation Trust, 2016**, BCT Bat Survey Guidelines Third edition
- **Bat Conservation Trust, 2018**, Bats and artificial lighting in the UK
- **BS 42020:2013**. Biodiversity. Code of practice for planning and development
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- **Froglife 1999, Reptile Survey** - An introduction to planning, conducting and interpreting surveys for snake and lizard conservation
- **Gent T and Gibson S 1998** *Herpetofauna Workers Manual* JNCC
- **Joint Nature Conservation Committee. 1993**. A Handbook for Phase 1 Habitat Survey : A Technique for Environmental Audit. Peterborough: Joint Nature Conservation Committee.
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- **National Rivers Authority, 1993**, Otters and River Habitat Management. Conservation Technical Handbook Number 3.
- **Natural Environment and Rural Communities Act 2006**, Ch 3, s. 40
- **Strachan and Moorhouse, 2006**, Water Vole Conservation Handbook 2nd Ed. Environment Agency, English Nature, WildCRU. Oxford.

DRAWING D1 PRELIMINARY ECOLOGICAL APPRAISAL



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