



EXTENDED PHASE 1 ECOLOGICAL ASSESSMENT

LYEHEATH FARM, PIGEON HOUSE LANE, FAREHAM PO17 6ES

DRAFT REPORT

November 2021

Report conditions

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<i>Written by</i>	Trevor Codlin MCIEEM	<i>Date</i>	27 th October 2021
<i>Amended by</i>	Trevor Codlin MCIEEM	<i>Date</i>	2 nd November 2021
<i>Reviewed by</i>	Izabel Phillips	<i>Date</i>	3 rd November 2021

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Executive Summary

- This extended phase 1 ecological assessment report has been prepared in order to support a planning application for the proposed construction of two new cattle barns, a straw barn and silage clamp at Lyeheath Farm, Fareham. The proposals will require the demolition of existing dilapidated cattle sheds.
- An extended phase 1 ecological assessment of the application site was undertaken on the 5th October 2021 by Trevor Codlin MCIEEM of Phillips Ecology.
- The survey area comprised the entire site within the red line boundary. A data search extended to a 2km radius for statutory designated sites and priority habitats.
- The site is considered to support opportunities for protected and priority species including badger, breeding birds and foraging/commuting bats.
- With the implementation of precautionary construction avoidance measures, impacts on protected and priority species will be avoided.
- The proposals present an opportunity to deliver ecological enhancements at a site level, and benefit wildlife in the wider area.

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1. Introduction

1.1 Report purpose

This report has been prepared in order to present the extended phase 1 ecological assessment undertaken for the proposed construction of two new cattle buildings, a straw barn and silage clamp at Lyeheath Farm, Pigeon House Lane, Fareham PO17 6ES.

1.2 Description of proposal

The current proposals are for the demolition of existing cattle shelter and construction of a new straw barn on the same location and the construction of two new cattle barns and a silage clamp, to the north of the existing farm buildings.

1.3 Report context

Rosehill Advisors Limited are preparing a planning application on behalf of the Southwick Estate. Phillips Ecology have been instructed by the applicant to undertake this assessment.

1.4 Scope of assessment

An extended phase 1 ecological assessment was carried out on the 5th October 2021. The survey comprised a field survey and desktop study in order to identify notable or protected sites, habitats or species potentially affected by the proposal under consideration.

1.5 Survey area

The survey area comprised the entire site within the red line boundary. A data search extended to a 2km radius for statutory designated sites and priority habitats.

1.6 Survey conditions

The survey was carried out in dry conditions, with 90% cloud cover with a force 3 – 4 south-westerly wind. The temperature was 12°C.

1.7 Limitations

Limitations which are specific to each phase of the assessment are provided in the relevant sections, below.

2. Data search

2.1 Methodology

A desk-based assessment was undertaken by Phillips Ecology on the 25th October 2021 with Multi-Agency Geographic Information for the Countryside (MAGIC). The MAGIC database was consulted for records of statutory designated sites and priority habitats for the application site and a 2km radius.

2.2 Limitations

The data search results are bound by the following statement contained within MAGICs general disclaimer: “*The materials contained on this website are of a general, informational, nature. We have used reasonable endeavours to ensure the accuracy and completeness of the contents of the pages on this site but the information does not constitute advice and must not be relied on as such*”.

2.3 Results

2.3.1 Statutory designated sites

There are two statutory designated sites located within a 2km radius of the site. These comprise two Sites of Special Scientific Interest (SSSI). Details on these are given in table 1, below.

Table 1: Statutory designated sites within 2km of the application site

Site Name	Approximate distance and direction from the site	Reason for designation
Lye Heath Marsh SSSI	0.4km south	<p>Lye Heath Marsh is situated along a spring-line at the junction of the Bagshot Sands and London Clay. Within a relatively small area it supports an intimate mixture of basic flushes, unimproved grassland, alder woodland and dense hedgerows, which combine to form a now rare association of individually restricted habitats.</p> <p>The flushes areas have developed a short-sedge fen community with abundant star sedge <i>Carex echinata</i>, common sedge <i>C. nigra</i> and carnation sedge <i>C. panicea</i>. There are no clear dominants and the rich flora includes a number of scarce species including marsh helleborine <i>Epipactis palustris</i>, flea sedge <i>C. pulicaris</i> and common cottongrass <i>Eriophorum angustifolium</i>. Elsewhere, other waterlogged soils less affected by water movement support marshy grassland dominated by flote-grass <i>Glyceria fluitans</i>, Yorkshire fog <i>Holcus lanatus</i>, marsh-marigold <i>Caltha palustris</i>, rushes <i>Juncus</i> and yellow flag <i>Iris pseudacorus</i>. This community is also species-rich and includes bog pimpernel <i>Anagallis tenella</i>, marsh lousewort <i>Pedicularis palustris</i>, bristle club-rush <i>Isolepis setacea</i> and marsh valerian <i>Valeriana dioica</i>.</p> <p>Most of the site is comprised of species-rich unimproved neutral grassland, especially on the more freely-draining slopes. Grasses are abundant, such as meadow foxtail <i>Alopecurus pratensis</i>, sweet vernal-grass <i>Anthoxanthum odoratum</i>, crested dog’s-tail <i>Cynosurus cristatus</i>, rough meadow-grass <i>Poa trivialis</i> and quaking grass <i>Briza media</i>, but the sward is herb-rich; sneezewort <i>Achillea ptarmica</i>, lesser knapweed <i>Centaurea nigra</i>, meadow vetchling <i>Lathyrus pratensis</i> and creeping buttercup <i>Ranunculus repens</i> are all locally dominant. Overall, the site supports an exceptional number of</p>

Site Name	Approximate distance and direction from the site	Reason for designation
Hook Heath Meadows SSSI	0.9km south	<p>grassland species which require long continuity of habitat, including the rare corky-fruited water-dropwort <i>Oenanthe pimpinelloides</i>.</p> <p>The juxtaposition of habitats and abundant nectar sources, coupled with light grazing and sheltered aspect, make this a very significant site for invertebrates, particularly hoverflies which include two notable species <i>Xylota tarda</i> and <i>Helophalus trivittatus</i>.</p> <p>Hook Heath Meadows comprise an intimate mixture of woodland and agriculturally- unimproved acid pasture lying within a shallow river valley over London Clays. Many of the habitats present are now rare in lowland Britain through agricultural intensification. Their close juxtaposition here is of particular value as an invertebrate habitat.</p> <p>The grasslands vary greatly depending on localised drainage conditions. The more free-draining areas support a mildly acid variant of the knapweed/crested dog's- tail <i>Centaurea nigra</i>/Cynosurus <i>crispatus</i> grassland type which comprises a wide range of fine grasses, a number of sedges including carnation sedge <i>Carex panicea</i>, oval sedge <i>C. ovalis</i> and hairy sedge <i>C. hirta</i>, and a good representation of broad- leaved herbs, such as sneezewort <i>Achillea ptarmica</i>, meadow thistle <i>Cirsium dissectum</i> and corky-fruited water-dropwort <i>Oenanthe pimpinelloides</i>, all declining species in Hampshire. Areas influenced by surface waterlogging support vegetation of the crested dog's-tail/marsh marigold <i>Cynosurus crispatus</i>/<i>Callitriche palustris</i> type, with an abundance of taller broad-leaved perennials present, whilst the wettest areas, flooded for extended periods are dominated by the flote grass <i>Glyceria fluitans</i>.</p> <p>The meadows support a considerable number of plant species indicative of long periods of unintensified traditional grassland management: 15 species have been recorded, a notably high total for such a relatively small site. Of particular note – and additional to those mentioned above – are bog pimpernel <i>Anagallis tenella</i>, the marsh orchids <i>Dactylorhiza incarnata</i> and <i>D. praetermissa</i> (plus hybrids), dyer's greenweed <i>Genista tinctoria</i> and marsh lousewort <i>Pedicularis palustris</i>. Additionally the meadows contain a colony of the rare long-winged conehead <i>Conocephalus discolor</i> in an atypical inland locality.</p> <p>Wet alder coppice and large hedges bound the site. The woodland/grassland boundary thus formed is very sheltered and accordingly supports a rich assemblage of invertebrates, with a particularly diverse hoverfly fauna: <i>Leucozana glauca</i>, <i>Pyrophaena rosarum</i>, <i>Volucella inflata</i> and <i>Xylota tarda</i> are amongst the more notable species present.</p>

2.3.2 Ancient Woodlands

There are numerous blocks of ancient woodland located within a 2km radius of the site. These comprise ancient semi-natural and ancient replanted woodland. The closest blocks are detailed in Table 2. below.

Table 2: Ancient woodlands within 2km radius of the application site

Woodland Name	Approx. distance and direction from the site	Reason for designation
Hazel Hook Coppice	0.173km N	This 6.74ha block is designated for its ancient replanted and ancient semi-natural woodland.
Sheepwash/Tattle/Dunslan	0.255km E	This 49.72ha block is designated for its ancient replanted and ancient semi-natural woodland.
Hobern Coppice	0.54km W	This 2.96ha block is designated for its ancient replanted woodland.

2.3.3 Priority habitats

The data search revealed records of the following priority habitats within a 2km radius of the site.

- Deciduous woodland.
- Coastal and floodplain grazing marsh.
- Good quality semi-improved grassland (non-priority).
- Purple moor grass and rush pasture.
- Woodpasture and Parkland.

2.3.4 Protected species

The data search revealed records of the following protected species with a 2km radius of the site. The date of survey record is included in brackets.

- Great-crested newt *Triturus cristatus* - 1825m ESE (2015). Negative results were returned from ponds 700m N (2019), 750m NE (2019), 1685m SW (2019) and 1835m SE (2019).
- Bats – brown long-eared *Plecotus auritus* - 1485m NE (2015) and common pipistrelle *Pipistrellus pipistrellus* and brown long-eared 1825 SW (2017).
- Hazel dormouse *Muscardinus avellanarius* – 1700m SSE (2016), 1885m E and ESE (2015).

3. Habitats

3.1 Methodology

A field survey was carried out on the 5th October 2021 by Trevor Codlin MCIEEM of Phillips Ecology. During the survey, all broad habitat types were identified and a list of characteristic plant species within each habitat type was compiled. These habitats are described below in accordance with Phase 1 habitat terminology.

3.2 Limitations

The survey was carried out in October when many vascular plants will have gone past their peak and as such were no longer visible. In addition, a part of the site comprises an agricultural field, which had been harvested and was currently left to stubble, however, it was possible to make an assessment due to the vegetation present on the marginal areas. Finally, the survey was undertaken after a 24-hour period of torrential rain, and as such there was significant flooding in the local area.

3.3 Existing records

The data search revealed that there are five priority habitats within a 2km radius of the site. These include deciduous woodland, coastal and floodplain grazing marsh, good quality semi-improved grassland (non-priority), purple moor grass and rush pasture, wood pasture and parkland, none of which are associated with the site.

3.4 Results

The following Phase 1 habitat types were recorded within the survey site.

3.4.1 *Defunct hedgerow (J2.2)*

The western boundary of the site is best described as a defunct hedgerow, but it is little more than a strip of low scrub, bordering Pigeon House Lane (Figure 1). It is dominated by bramble *Rubus fruticosus* agg, bracken *Pteridium aquilinum* and common nettle *Urtica dioica* with occasional blackthorn *Prunus spinosa* and dog-rose *Rosa canina* agg. Grasses and herbs include perennial rye-grass *Lolium perenne*, cock's-foot *Dactylis glomerata*, false oat-grass *Arrhenatherum elatius*, Yorkshire fog *Holcus lanatus*, mugwort *Artemisia vulgaris*, hedge bindweed *Calystegia sepium*, creeping thistle *Cirsium arvense*, broad-leaved dock *Rumex obtusifolius*, hogweed *Heracleum sphondylium*, dandelion *Taraxacum* agg., hedge bedstraw *Galium mullugo*, bristly oxtongue *Picris echioides* and spear thistle *Cirsium vulgare*. Occasional oak *Quercus* sp. saplings are present.



Figure 1: Defunct hedge forming western boundary

3.4.2 *Cultivated/disturbed land (J1)*

The northern part of the site comprises an arable field, which at the time of the survey had been cultivated and left to stubble (Figure 2). Vegetation included red dead-nettle *Lamium purpurem*, white clover *Trifolium repens*, scentless mayweed *Tripleurospermum inodorum*, groundsel *Senecio vulgaris*, common field speedwell *Veronica persica*, creeping thistle, ragwort *Senecio jacobaea*, Redshank *Persicaria maculosa* and broad-leaved dock.

The uncultivated field margins included the same variety of species as above but also included bitter-sweet *Solanum dulcamara*, false oat-grass, annual meadow grass *Poa annua*, spear thistle, bristly oxtongue, hogweed, mugwort, garlic mustard *Alliaria petiolata* and nipplewort *Lapsana communis*.



Figure 2: Northern part of the site.



Figure 3: Vegetated earth bank (3.4.2)

3.4.3 *Earth bank (J2.8) with tall ruderal (C3.1)*

There are two earth banks located on the site, these form part of the boundary between the arable field and buildings/bare ground (Figure 3). The two banks are separated with one located next to the road but at a right angle to it, and the other just to the east but staggered so that the two banks do not join. Both are densely vegetated with tall ruderal herbs dominated by common nettle. Other species include hedge bindweed, creeping thistle, broad-leaved dock, hogweed, bramble., cleavers *Galium aparine*, red dead-nettle, white dead-nettle, teasel *Dipsacus fullonum*, perennial sow-thistle *Sonchus arvensis*, redshank, cleavers, groundsel, creeping buttercup *Ranunculus repens*, ragwort and yarrow *Achillea millefolium*.

3.4.4 Standing water (G1)

During the survey an area of standing water was present between the westernmost bund and the grainstore (Figures 4 and 5). The area is evidently frequently disturbed, and it was considered that the standing water was actually a result of the torrential overnight rain rather than the presence of a permanent area of standing water. A review of historic aerial imagery highlighted that in 2019 the area was disturbed ground, appeared to be used as a dung/waste area that had recently been cleared, the spoil present suggests that it is still used as such.



Figures 4 & 5: Disturbed ground and standing water between western earth bank and grain store

However, the vegetation does suggest that the area, or at least part of it, is occasionally inundated and may hold water periodically, with common reedmace *Typha latifolia*, common duckweed *Lemna minor* and knot-grass *Polygonum aviculare* present. Other species present includes creeping thistle, hedge bindweed, redshank, common nettle and a willowherb *Epilobium* sp. species. Woody species include willow *Salix* sp. and oak *Quercus robur* sapling.

3.4.5 Bare ground (J4)

A gravel access track and turning area is located to the south of the proposed development area, beyond which lies the grain store.

3.4.6 Buildings (J3.6)

There are several existing buildings on the site, for ease of reference these have been numbered one to seven, the locations are detailed in Figure 8. The only building that will be impacted by the proposals directly, is the dilapidated cattle shed (Building 7) (Figures 6 & 7), although the existing Grainstore (Building 1) is situated between two new buildings and therefore indirect impacts associated with any protected species that may use that building have also been considered. Further details of the buildings are detailed in Section 5 below.



Figures 6 & 7: Dilapidated cattle shed, external and internal view (Building 7)

3.5 Assessment

Overall the vegetation on site is considered to be typical of an agricultural setting, and comprising a species assemblage that was considered common and widespread with no significant assemblages of rare or noteworthy species. The vegetation was considered to be of low botanical value.

4. Protected and notable species assessment

The scope of works, data search and habitat assessment have informed the scope of the protected and notable species assessment. On this basis, the following protected and priority species have been considered further within this report:

- Bats
- Badgers
- Hazel dormice
- Hedgehogs
- Reptiles
- Great-crested newts
- Breeding birds

The surveyed site has been assessed for its potential to support the above named protected species based upon the criteria in Table 4.

Table 3: Protected species grading criteria

Grading criteria	Justification
<i>Negligible</i>	Site is entirely unsuitable for species. Presence of species highly unlikely.
<i>Low</i>	Minimal suitable habitat present or, if present, highly degraded/fragmented. Minimal linkage to suitable habitat beyond site. Presence of species unlikely.
<i>Moderate</i>	Presence of some suitable habitat features for species. Surveyed site within/close to known range or known occurrence but factors such as isolation/fragmentation may reduce potential. Presence of species is more likely than not.
<i>High</i>	Presence of optimal habitat features for species. Surveyed site within known range/close to known occurrence. Excellent connectivity to optimal habitat. No justification for discounting presence of species.
<i>Confirmed presence</i>	Species confirmed on site through direct sighting, presence of field signs (e.g. scat, hair, prints, nest, eggs, habitation etc.) or through desk-based assessment.

5. Bats

5.1 Methodology

5.1.1 Survey Description

There are several farm buildings located on the site, but the proposals will only directly impact the dilapidated cattle shed, Building 7. No other building will be directly impacted

and as such they were not investigated internally. However, a preliminary assessment of the external features of the grainstore (Building 1), for its suitability to support bats, was carried out since this building is situated between the proposed new straw barn and new cattle sheds.

The survey did not depart from the Bat Conservation Trust’s (BCT) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition) which states that “A preliminary roost inspection survey is a detailed inspection of the exterior and interior of a structure to look for features that bats could use for entry/exit and roosting and to search for signs of bats”.

The external features of the structures which will be modified by the proposed works in such a way that bats or their roosts could be impacted (directly or indirectly) if present, were systematically inspected in detail to compile information on potential and actual bat access points and roosting places, such as lifted or broken roof materials, loose brickwork and open eaves. This included a thorough search for evidence of bat activity such as bat droppings, urine splashes and fur staining.

The interiors of the buildings, where accessible, were inspected in order to identify potential or actual access points and roosting places and to record any evidence of bat activity or bats themselves.

5.1.2 Survey Equipment

Survey equipment comprised.

- High-powered torch
- Binoculars (8x magnification)
- Camera

5.2 Limitations

The only limitation was the torrential rain in the previous 24hr period, which would have washed away any bat evidence from the exterior of the building. No other limitations were encountered during the course of the survey.

5.3 Assessment methodology

The suitability of the building for supporting bat roosts will be assessed against the guidelines within Table 4 which have been adapted from the BCT Good Practice Guidelines.

Table 4: Suitability assessment guidelines

Suitability Description of Roosting Habitats

<i>Negligible</i>	Structure has no reasonable likelihood of supporting roosting bats i.e. no suitable roosting features present.
<i>Low</i>	A structure which could be used opportunistically by individual bats i.e. one or more potential roost sites which do not provide sufficient space, shelter, protection,

Suitability Description of Roosting Habitats

	appropriate conditions (e.g. temperature, light, humidity) and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats.
<i>Moderate</i>	A structure which could be used by bats but is not likely to support a roost of high conservation status (e.g. maternity roost). This structure would support features which exhibit suitable size, shelter, protection, conditions and surrounding habitat for roosting bats.
<i>High</i>	A structure which is obviously suitable for supporting larger numbers of bats, on a regular basis and for longer periods of time.

The site’s suitability for supporting commuting and foraging bats will be assessed against the guidelines within Table 5 which have been adapted from the BCT Good Practice Guidelines.

Table 5: Suitability assessment guidelines

Suitability Description of Foraging/Commuting Habitats

<i>Negligible</i>	Negligible habitat features on site likely to be used by commuting or foraging bats.
<i>Low</i>	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitats. Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not parkland situation) or a patch of scrub.
<i>Moderate</i>	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such tree, scrub, grassland or water.
<i>High</i>	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 tree and woodland edge. High quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

5.4 Results

5.4.1 Building assessment

There are seven buildings located at Lyeheath Farm (Figure 8), including the farmhouse (2), offices (3 & 4), barns (5 & 6), dilapidated cattle shed (7) and a grain store (1). Only Building 7 will be directly impacted by the proposals, all other are located outside of the

proposed development footprint, and therefore have not been assessed in detail in this report.



Figure 8: Location of buildings on the wider site

However, an external examination of the grain store was carried out in order to assess its potential for supporting bats, and consideration was given the potential impacts on any flight lines or foraging routes that might be present, and potentially impacted by the proposals.

Dilapidated Cattle Shed

This building comprises three structures, a steel framed structure with a corrugated asbestolux type pitched roof, with the ridge orientated from north-west to south-east (Figures 6 & 7). A lean-to section, again with a corrugated asbestolux type roof is attached to the southern elevation and another lean-to section, with a corrugated metal roof is attached to the northern elevation.

The building is open plan with no internal roof void and the side elevations are largely missing. Where they are present, railway sleepers form the lower section and corrugated metal sheeting, the upper section.

Table 6: Record of bat features or evidence of activity on the dilapidated cattle shed

Suitability	Evidence
<p>Exterior The condition of the building is such that most of the side panels were missing and as such there was limited opportunity for bats to roost.</p> <ul style="list-style-type: none"> - The only potential feature was where the asbestos lip overlaps the roof to the gable end. 	<p>No evidence of roosting activity was recorded on the external elevations of the buildings during the survey.</p>
<p>Interior Given that the side elevations were mainly missing, bats could freely enter the covered area to forage or seek out potential roosting locations.</p> <ul style="list-style-type: none"> - The open and drafty nature of the building is considered to render the building unsuitable for bat roosting, and no suitable locations were observed. 	<p>No evidence of roosting activity was recorded on the internal elevations of the buildings during the survey.</p>

Grain Store

This building comprises a large steal framed, corrugated metal and concrete panelled structure, with a shallow pitched roof (Figures 7 and 8). The roof ridge is orientated northwest to south-east with the main roller-shutter access located on the south-eastern elevation.



Figure 9: South-east elevation of grain store

Figure 10: Southern elevation of grain store

The interior was not accessed but it is presumed that it will be open plan in line with its use for the storage of grain.

Table 7: Record of bat features or evidence of activity on the grain store

Suitability	Evidence
<p data-bbox="256 371 355 398">Exterior</p> <p data-bbox="379 371 855 434">The following suitable access/egress and roosting features were recorded externally:</p> <ul style="list-style-type: none"> <li data-bbox="379 472 855 640">- The only potential roosting locations identified were where a metal lip overlaps the gable ends, and behind a wooden plinth which supports guttering on the side elevations. <li data-bbox="379 678 855 808">- Access/egress locations are present where concrete panelling meets corrugated metal sheeting, around the roller shutter door 	<p data-bbox="879 371 1428 472">No evidence of roosting activity was recorded on the external elevations of the buildings during the survey.</p>

5.4.2 Foraging potential

The site is located in a rural setting along a country lane with no street lighting. Linear foraging features exist across the landscape in the form of mature hedgerows, with standard trees, ditches and streams and patches of scrub. The site itself, lacks any structured vegetation and as such is likely to provide limited value as a foraging resource for bats, although the wet area could have a higher insect abundance and as such attract foraging animals during peak emergence times.

5.5 Assessment

When considered against the criteria set out in Table 4 the dilapidated cattle shed is considered to offer a negligible suitability for bat roosting, due to its poor condition and the open and drafty nature of the structure. It is considered that the buildings condition would negate the suitability of the external feature identified.

The grain store is assessed as having a low suitability to support roosting bats, in that whilst there are features present that might be used for roosting or allowing bats access, it is considered that the conditions are not likely to be suitable to support a high-status roost.

Phillips Ecology do have experience with buildings such as these being used by foraging bats, particularly in poor weather, but this would depend on what is being stored in the building at the time, and whether large numbers of prey items would be present. The design of the grain store, and use of concrete side panels, is designed to lower the temperature within the barn thereby reducing insect development. This will likely render it unsuitable for a high status roost, such as a maternity roost, and as such any bats that do roost within it would not be significantly impacted by the presence of new buildings either side.

With regard to potential indirect impacts of the proposals on any bat roosts that may be present in the grain store, it is considered that the development of the new cattle sheds

and straw barn would not impede any emerging bats, since sufficient space will be present between the two buildings to enable any bats to emerge for the northern and southern elevations unhindered.

With regard to foraging bats, when considered against the criteria set out in Table 5, the site is considered to support low suitability for foraging and commuting bats. This assessment is based on the size of the site and general lack of structured and diverse habitat features.

In the context of the wider landscape, the mature hedgerow with standard trees running along Pigeon House Lane, is likely to form the main foraging resource and commuting route for the local bat populations. As such the site is assessed as low potential for foraging and commuting bats.

6. Badgers

6.1 Methodology

The survey involved a detailed investigation of the site to identify evidence of badger residence, foraging or territorial activity. This includes badger setts, latrine sites, dung piles, well-used trails, prints and hairs. Particular emphasis was placed on locating badger setts, paths and signs of territorial activity such as dung piles and latrines.

6.2 Limitations

The only limitation identified was the fact that the field had been recently mown, thereby removing any evidence of badger activity. However, marginal area were still undisturbed and therefore it is considered that the survey will not have been invalidated.

6.3 Results

Within the site boundary the only potential evidence of badger was some mammal digging on the vegetated earth bunds. There was no evidence to suggest this was badger, and it could as likely have been rabbit *Oryctolagus cuniculus* or fox *Vulpes vulpes*. However, a badger latrine was located along the northern boundary of the arable field, within 100m of the bund, and mammal trails were present around the margin suggesting that badgers are foraging around the field margins and towards the earth bunds. No evidence of a badger sett was located.

6.4 Assessment

Evidence of badger, in the form of a territorial latrine, was located along the northern field margin, outside of the red line boundary, and mammal digging was located on the earth bunds within the site. Whilst there was no direct evidence that the digging was that of a badger, it is considered badgers will forage across the site, and therefore the assessment considers them to be present, but as a foraging species only.

7. Dormice

7.1 Methodology

An assessment was made of the suitability of habitat on site to support hazel dormice. Key habitats are woodland, scrub and hedgerows, particularly where these offer dense vegetation within which to nest/hibernate and key resources such as hazel nuts, fruiting/nectar-rich plants (e.g. hawthorn, bramble) to provide a continuum of food resources throughout the active season and honeysuckle *Lonicera periclymenum* (for nesting material). Landscape-scale habitat linkages such as hedgerows are fundamental for dormouse presence where small scale or sub-optimal habitats are recorded within a site.

7.2 Limitations

Limitations were not encountered during the course of the survey.

7.3 Results

The majority of the site lacks mature vegetation and therefore is considered unsuitable for dormice. However, there is a low vegetated bund that extends along the western boundary of the site, bordering Pigeon House Lane. In isolation this provides a very limited resource for dormouse, but on the western side of Pigeon House Lane (opposite side to the proposed development), a mature hedgerow with trees is present. It is considered that this hedgerow provides the mature and structured habitat that the species favours, and therefore there is the potential for individual dormice to venture onto the site to forage, should they be present in the wider landscape.

7.4 Assessment

Whilst there is the potential for dormice to venture onto the site to forage from suitable offsite habitats, it is considered that the potential for this is low, and restricted to the low scrubby section of hedgerow bordering the eastern side of Pigeon House Lane which is outside the footprint of the works.

8. Hedgehogs

8.1 Methodology

The site was assessed for its suitability to support hedgehogs based on the presence of favoured habitats such as woodland edges, hedgerows, grassland and suburban habitats.

Hedgehogs are most abundant within gardens, parks and amenity land close to or within human settlements. They are generally scarce in areas of coniferous woodland, marshes and moorland, probably because of a lack of suitable sites and materials for the construction of winter nests (Morris, 2006). Any evidence of hedgehog activity such as prints or droppings would be recorded.

8.2 Limitations

Low detections rates are associated with evidence of hedgehog activity; therefore, absence of evidence does not confirm the absence of hedgehogs. For this reason, the assessment of the likely presence/absence of hedgehogs has largely been informed by the species' local distribution and the habitats within the site and local area.

8.3 Results

The agricultural setting of the site with a network of marginal habitats and mature hedgerows, is considered to provide suitable habitat for hedgehogs to reside and move around the local landscape. The site is considered to have the potential to support foraging hedgehog although no direct evidence was noted.

8.4 Assessment

There is considered to be moderate potential for hedgehog to occur on site.

9. Reptiles

9.1 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, brash 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.

9.2 Limitations

Limitations were not encountered during the course of the survey.

9.3 Results

The site is typical of a working farm, with ploughed fields, marginal areas, bare ground vegetated bunds and ruderal weeds and scrub. Some of the marginal areas have limited potential to support common reptile species, most likely common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis*. Typically, reptile species do not persist well in agricultural settings and as such it is considered that any populations present would be small and restricted to field margins, particularly where they are less disturbed. No evidence of reptile activity was recorded.

9.4 Assessment

There is considered to be low potential for reptiles to occur on site.

10. Great Crested Newts

10.1 Methodology

Great crested newts (GCN) are only present in their breeding ponds during the spring and early summer – for the rest of the year, they will be dispersed across the surrounding

area, generally in grassland, scrub, woodland and hedgerows, although they may be found in gardens and brownfield sites. They can travel some distance from their breeding ponds, and as a general rule, developments within 500m of such a pond may have the potential to have an impact on GCN, although to a certain extent, this does depend on any intervening habitat or barriers to dispersal.

An assessment was made of any waterbodies and terrestrial habitat within the site for their suitability to support populations of amphibians. Suitable waterbodies will generally be characterised by the presence of good quality water, diverse macrophyte cover and an absence of fish. For the great crested newt, each waterbody is normally assessed using the Habitat Suitability Index (HSI) system (Oldham et al., 2000) and assigned a grading score between zero (poor suitability) and 1 (excellent suitability).

10.2 Limitations

The HSI for great crested newts is a measure of habitat suitability. In general, ponds with high HSI scores are more likely to support great crested newts than those with low scores. However, in isolation, the system is not sufficiently precise to allow the conclusion that any particular pond with a high score will support newts, or that any pond with a low score will not do so (Oldham et al., 2000).

10.3 Results

There are no permanent areas of standing water located on the site. However, during the survey an area of standing water was present on the site, which was considered to be a result of the torrential rain which had fallen in the preceding 24hr period. A review of online imagery (Google Earth Pro) highlighted that no pond was present in September 2019, and that the area was shown to be bare earth.

The quality of the water suggested that the area was used to store dung, prior to it being spread over local fields, and as such water quality was poor. However, it was evident that a small part of the area may hold some water, as some more aquatic species were present.

Given the presence of standing water on the site a Habitat Suitability Index (HSI) assessment was carried out on the area of standing water. This assessment returned a score of 0.33, thereby assessing the area of standing water as having poor suitability for supporting great-crested newts.

10.4 Assessment

The only area of standing water on the site was considered to be a result of torrential rain during the preceding 24-hour period, and as such it is considered that there would be a negligible potential for the site to support great-crested newts.

11. Breeding birds

11.1 Methodology

An assessment was made of the site's suitability to support breeding 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 were recorded.

11.2 Limitations

The survey was undertaken outside of the breeding season and during the autumn migration. The assessment relied upon a combination of species present, suitability of habitat and inactive nests, whilst being mindful that some species may just passing through or over the site.

11.3 Results

During the survey 15 species of birds were recorded either on the site or flying over it, these are detailed as follows, wren *Troglodytes troglodytes*, pied wagtail *Motacilla alba yarrelli*, pheasant *Phasianus colchicus*, mistle thrush *Turdus vicivorus*, skylark *Alauda arvensis*, jay *Garrulus glandarius*, barn swallow *Hirundo rustica*, house martin *Delichon urbica*, robin, *Erithacus rubecula*, chiffchaff *Phylloscopus collybita*, meadow pipit *Anthus pratensis*, long-tailed tit *Aegithalos caudatus*, wood pigeon *Columba palumbus* and goldfinch *Carduelis carduelis*.

Of these the meadow pipit and house martin are included on the amber list of birds of conservation concern, and the mistle thrush and skylark are included on the red list. The survey was undertaken during the peak autumn migration, and it is considered that the meadow pipits and house martins were in fact passage birds, and as such not considered to be breeding on the site. However, the mistle thrush and skylark were considered to be resident birds, and likely to be using the site for foraging and in the case of skylarks, potentially nesting also.

Of the other green listed species recorded it is considered that wren, robin, goldfinch and long-tailed tit could nest in the vegetation present, with pied wagtail, jay, barn swallow, wood pigeon likely to nest on the wider site, for example pied wagtail and barn swallow in the farm buildings. However, no evidence of previous nesting activity was recorded within the dilapidated cattle shed.

11.4 Assessment

The site is located in a rural setting, with the landscape made up of agricultural land interspersed with a network of hedgerows with mature trees, bordering field edges and country lanes. Farm buildings are present in the wider site and beyond the footprint of the proposed development. The vegetation on site is limited and likely to support only small numbers, 1-3 pairs of the species, that could use the site for nesting.

12. Discussion and Assessment of Impacts

12.1 Relevant legislation and policy

Circular 06/2005 identifies that applicants should not be required to provide information on protected species unless there is a reasonable likelihood that they will be present and affected by the proposed development. The site is considered to support habitats with suitability and potential for protected species and these may be affected by the proposed development. Therefore, the proposal triggers 'reasonable likelihood' under the Circular.

The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (commonly referred to as the Habitats Regulations) may apply should protected species be confirmed on site.

In the case that a European protected species is found to be present and impacted by the proposal, the local planning authority will be required to engage with the Habitat Regulations. Permission will be granted unless:

- a) the development is likely to result in a breach of the Habitats Regulations, and
- b) is unlikely to be granted an EPS licence from Natural England to allow the development to proceed under a derogation from the law (under licence).

When considering whether Natural England would not be unlikely to grant a licence for the identified impact, the local planning authority must consider the three tests which are set out in the Habitat Regulations:

1. the consented operation must be for 'preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment' (Regulation 53(2)(e));
2. there must be 'no satisfactory alternative' (Regulation 53(9)(a)); and
3. the action authorised 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range' (Regulation 53(9)(b)).

Natural England will grant a licence if the development proposal is able to meet the three tests.

12.2 Designated sites

The proposal will not result in the direct loss of any designated sites. Nor will it result in the direct loss of any habitat that could be considered functionally linked supporting habitat for any designated site. As such it is considered that the proposals will have a negligible impact on designated sites.

12.3 Habitats

The main habitats which will be directly impacted by the proposals are arable land, vegetated bunds and low scrub. As the vegetation to be removed is easily replicable and of low botanical value, it is considered that there will be a negligible impact to habitats of ecological importance such as priority habitats or noteworthy plant species.

12.4 Bats

The proposals will not result in the direct or indirect loss of any bat roosts, however they will result in the loss of a small area, of what is considered to be sub-optimal, foraging habitat for bats. The site is located in a rural setting and the adjacent habitats, such as the mature hedgerow with trees, are likely to form the primary foraging resource for any bat species present. As such the proposals are considered to have a negligible impact on both roosting and foraging bats.

12.5 Badgers

No direct evidence of badger activity was recorded on the site, however a badger latrine was located in a field margin that formed the northern boundary of the field. Some mammal digging was found on the vegetated bunds, but this could not be directly attributed to badger. It is therefore considered that the proposals will result in the loss of a small area of potential foraging habitat, and as such the impacts are assessed as low.

During the construction phase, particularly if deep excavations are left uncovered or filled with water these could prove hazardous to badgers.

12.6 Hazel dormouse

The proposal will not result in the loss of habitat which is considered to be suitable for dormice. Therefore, no impacts on dormice are anticipated.

12.7 Hedgehog

No evidence of hedgehog was recorded, but the site supports suitable habitat. Impacts on hedgehog will be associated with the loss of foraging and potentially roosting habitats. In addition during the construction phase, particularly if deep excavations are left uncovered or filled with water these could prove hazardous to hedgehogs.

12.8 Reptiles

Typically reptiles do not persist well in agricultural environments due to the continually changing ground conditions. A small area of marginal vegetation is present along the northern site boundary, but this is likely to be shaded much of the time by the adjacent grain store and mature trees bordering Pigeon House Lane. The proposals will result in the loss of a small amount of suitable habitat, should reptiles prove to be present, but this is considered unlikely.

12.9 Great crested newts

Impacts on great crested newts are not anticipated given the absence suitable waterbodies on the site.

12.10 **Breeding birds**

The proposals will result in the loss of a small area of scrub, some vegetated bunds and arable land. The habitats present provide limited nesting and foraging opportunity for birds due to the amount available and as such impacts are considered likely to be low.

The removal of this habitat has the potential to damage or destroy active bird nests if carried out during the breeding bird season which is generally seen as extending from March to the end of August, although may extend longer depending on local conditions.

13. Requirement for further surveys

Further surveys are required where there is a reasonable likelihood that a protected species will be present and impacted by the proposed development. An assessment into the requirement for further surveys is presented below, however in summary, no further surveys are considered necessary.

13.1 Designations

No further surveys are considered necessary.

13.2 Habitats

No further surveys are considered necessary.

13.3 Bats

No further surveys are considered necessary for roosting bats.

The affected areas of habitat within the site are considered to be unexceptional in the context of the local area as a foraging or commuting resource. Therefore, further survey is considered unnecessary for understanding impacts on foraging and commuting bats subject to the precautionary mitigation measures set out in Section 14.

13.4 Badgers

Subject to the precautionary mitigation measures set out in Section 14, no further surveys are considered necessary.

13.5 Hazel dormice

As impacts on dormice are not anticipated, no further recommendations relating to dormice are considered necessary.

13.6 Hedgehog

Subject to the precautionary mitigation measures set out in Section 14, no further surveys are considered necessary.

13.7 Reptiles

Given the very limited potential for reptiles to be present, no further surveys are considered necessary.

13.8 Great Crested Newts

As impacts on great crested newts are not anticipated, no further recommendations relating to great crested newts are considered necessary.

13.9 Breeding birds

Subject to the precautionary mitigation measures set out in Section 14, no further surveys are considered necessary in respect of breeding birds.

14. Mitigation recommendations

14.1 Bats

In order to limit any effects on foraging and commuting bats, external lighting should be limited to only that which is absolutely necessary for safety and security purposes. The brightness of the lighting should be as low as possible and kept at a low level and directed away from all boundaries. Lighting on sensors should not be so sensitive that foraging bats trigger them.

14.2 Badgers

In order to avoid harm to badgers during the construction works, any trenches will either be covered at night or fitted with a soil or plank ramp to enable any badgers which fall in to leave on their own accord.

14.3 Hedgehogs

In order to avoid harm to hedgehogs during the construction works the following precautionary measures will be employed:

- Any accumulations of brash, including those already existing, will be dismantled by hand in a sensitive and careful manner.
- No bonfires will be made or lit on site.
- All trenches will be left covered at night. They must be checked in the morning before they are filled in.

14.4 Reptiles

Given the limited potential for reptiles to be present it is not considered necessary to carry out further detailed surveys and no precautionary measures are recommended.

14.5 Breeding birds

Care should be taken that the development does not disturb breeding birds. The bird nesting season is taken to be March to August inclusive. Any removal of suitable nest habitat (including the existing brash piles) will either need to be undertaken outside of this period or else checked by an experienced ecologist to ensure that no nesting birds are present within 24 hours of its proposed removal. If occupied nests are present then the nest must not be removed, and clearance can only recommence once the nest becomes unoccupied of its own accord.

15. Enhancements

The delivery of biodiversity enhancement on development sites is promoted by the National Planning Policy Framework (NPPF) and Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006.

Where opportunities exist it is best practice to provide enhancement features which encourage greater biodiversity within development sites in accordance with the NPPF and Local Planning Authority's responsibilities under the NERC Act.

Given that the proposals will only occupy approximately a third of the site there is a significant opportunity to enhance the site for biodiversity. The application of the mitigation hierarchy; avoid, mitigate, compensate and enhance provides some sound principles to be followed. Enhancement measures should look to build on the ecological features of the local area, thereby providing additional habitat for species that are already present in the local area, such as farmland birds.

Opportunities for enhancement which are proportionate to the scale of the development include:

- There is an opportunity to improve connectivity for wildlife by carrying out some new hedgerow planting and/or planting standard trees within existing hedgerows, where there are none. This could be particularly beneficial to the south of Lyeheath Farm, where the hedgerows either side of Pigeon House Lane could be thickened, and standard trees added. The following species mix could be utilised: blackthorn (25%), hawthorn (25%), dog-rose (10%), elder (10%), field maple *Acer campestre* (10%), dogwood (10%), wild privet (10%) and pedunculate oak standards.
- The provision of one kestrel/barn owl and one little owl nesting box on the site or adjoining land. These could be fitted in the new cattle sheds or on trees along Pigeon House Lane.
- The provision of three bat boxes to be erected on trees along Pigeon House Lane.

16. Conclusion

The extended phase 1 ecological assessment has confirmed that the site supports habitats that are considered common and widespread and as such of low botanical value.

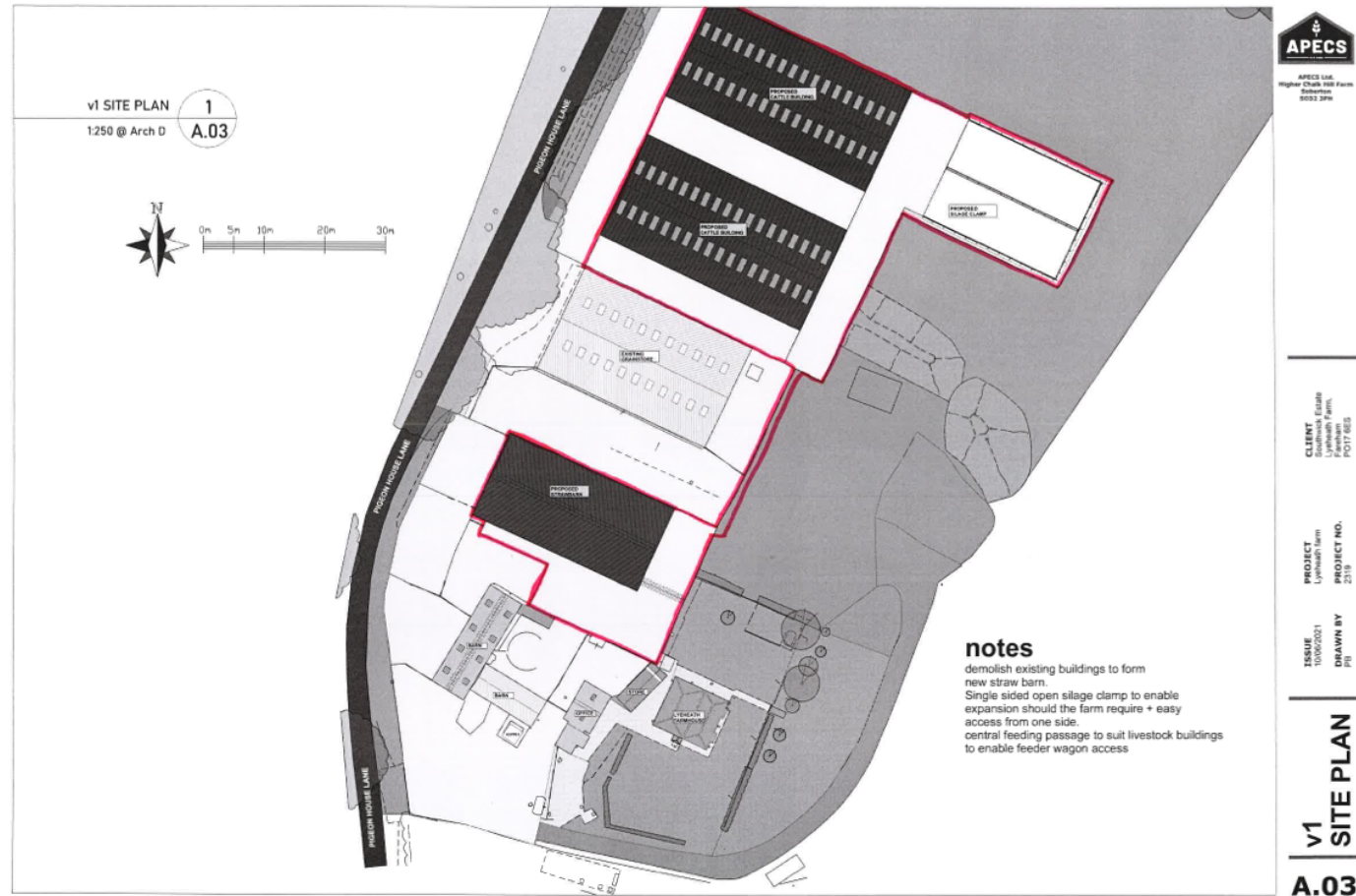
Evidence of badger foraging was located around the field margins, and there is considered to be the potential for hedgehogs, breeding birds and foraging bats to be present. The potential for great crested newts, reptiles, roosting bats and hazel dormouse, is considered to be low or negligible.

Opportunities for enhancements at the site have been recommended.

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Appendix 1 – Proposed Site Plan





07760 208562

info@phillipsecology.co.uk

www.phillipsecology.co.uk

Hampshire office:
Clifton Cottage
Bucks Head Hill
Meonstoke
Hampshire
SO323NA