Ecological Consultants
Environmental and Rural Chartered Surveyors

Preliminary Ecological Appraisal

Land East of New House Lane, Winmarleigh, PR3 0JT

Green at Heart BEN GOLD

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ACCURACY OF REPORT

This report has been compiled based on the methodology as detailed and the professional experience of the surveyor. Whilst the report reflects the situation found as accurately as possible, all of the protected species this survey covers are wild and can move freely from site to site. Their presence or absence detailed in this report does not entirely preclude the possibility of a different past, current or future use of the site surveyed.

We would ask all clients acting upon the contents of this report to show due diligence when undertaking work on their site and/or in their interaction with protected species. If protected species are found during a work programme, and continuing the work programme could result in their disturbance, injury or death, either directly or indirectly an offence may be committed.

If in doubt, stop work and seek further professional advice.

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Author	Bradley Foster	Date	27/02/2024
Checked by	Andrew Gardner	Date	28/02/2024
Report Version	1		
Field data entered	☒		
Report Reference	9076		

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1. EXECUTIVE SUMMARY

Envirotech NW Ltd were commissioned in February 2024 to carry out a Preliminary Ecological Appraisal of Land East of New House Lane, Winmarleigh. It is proposed a new stable building with turn out and sand paddock is constructed on site.

A data search and desk study of the site and an area within 2km of the site were undertaken to establish the presence of protected species and notable habitats.

The site was then visited by a licenced ecologist from Envirotech NW Ltd on 7th February 2024. A full botanical survey of the site was initially undertaken and this was followed by surveys to establish the presence or absence of notable species at the site or in proximity such that they may be affected by the proposed development.

The plant species assemblages recorded at the site are all common in the local area and are considered to be of low ecological value, the site currently utilised as an open field of horse grazed pasture.

None of the hedgerows around the site perimeter were considered important under the Hedgerow Regulations (1997) owing to failing to contain the necessary number of woody species and/or characteristics per unit length.

A dead Ash tree located along the northern boundary of the sites possesses a number of limb breaks, tear outs and potential cavities for use by roosting bats and cavity dwelling birds. A pre-fell inspection of the tree should be undertaken if it is to be removed from the site. It is our understanding that all trees and hedgerow are to be retained.

A total of nine ponds are located within a 250m radius of the red line boundary, comprising a mix of seasonal pools of standing water, agricultural field ponds and garden ponds. Two of these ponds (Ponds 6 and 8) were considered suitable for use by GCN. Resultingly, there is the potential that GCN/amphibians may be present within the local area.

Natural England's Rapid Risk Assessment Tool determined impacts on GCN to be possible. A series of Reasonable Avoidance Measures (RAMS) have been provided to ensure the favourable conservation status of GCN is maintained both during and after the development. It is also proposed a naturally wet depression in the east of the site is formalised into an established pond. A licence application is not considered necessary at this time.

Whilst bats, nesting birds and amphibians are known to occur in the local area, there was no conclusive evidence of any specifically protected species regularly occurring on the site or the surrounding areas which would be negatively affected by site development following the mitigation proposed.

Contractors will be observant for protected species and all nesting birds. Should any species be found during construction, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

2. INTRODUCTION

2.1 Background

In February 2024 Envirotech NW Ltd were commissioned by ML Planning Consultancy Limited to carry out a Preliminary Ecological Appraisal of Land East of New House Lane, Winmarleigh, central grid reference SD 47664 47640 (Figure 1). A site investigation was undertaken and a report compiled which includes recommendations for any future actions and or mitigation required.

The survey was requested in connection with the proposed construction of a new stables building with turn out and sand paddock.

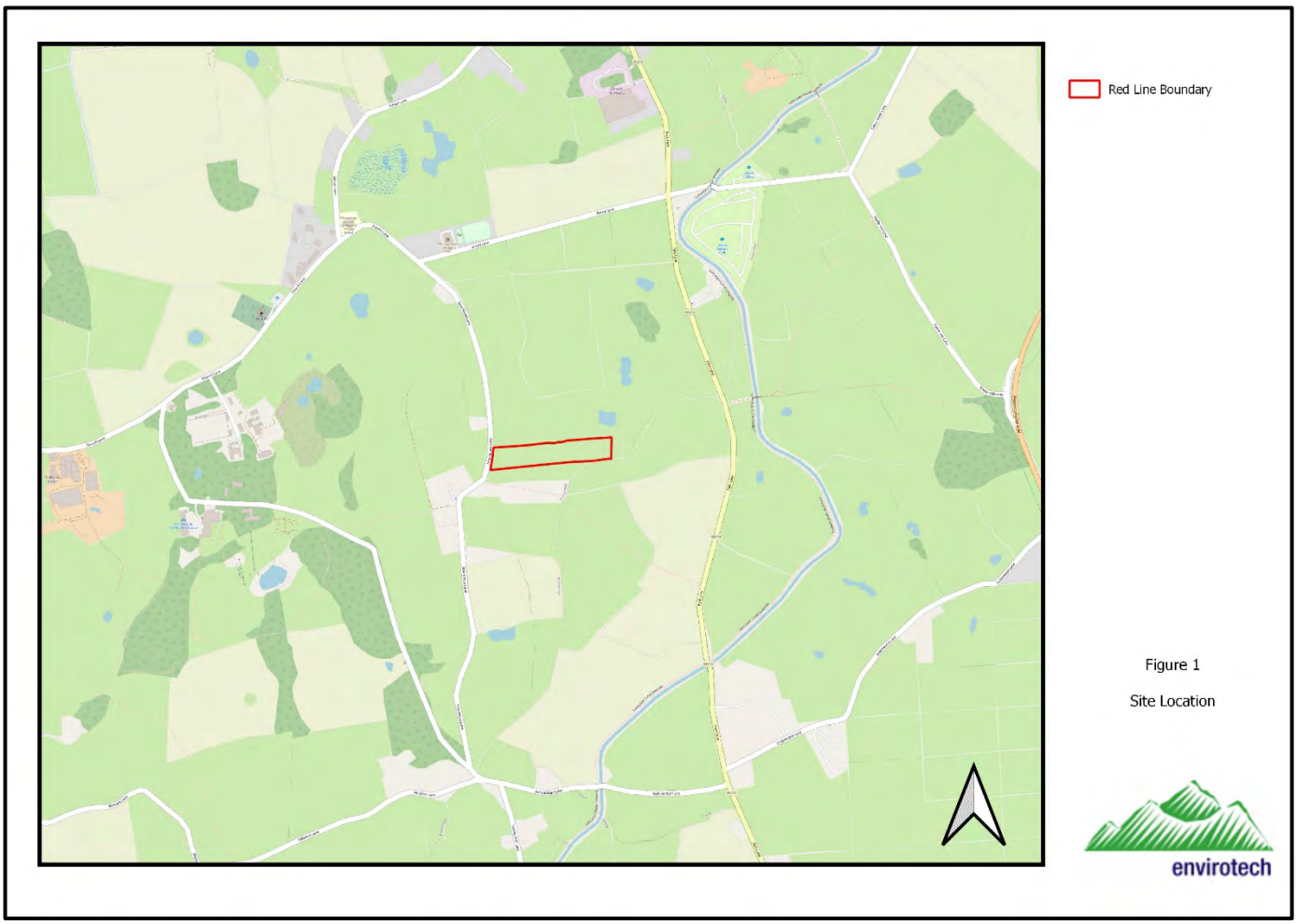

Figure 1

Site Location

2.2 Objectives

The main objectives of the study were:

- The completion of a UKHabs Version 2 (UKHab Ltd (2023)) survey including the preparation of a vegetation and habitat map of the site and the immediate surrounding area.
- The survey and assessment of all habitats for statutorily protected species.
- An evaluation of the ecological significance of the site.
- The identification of any potential development constraints and the specification of the scope of mitigation and enhancement required in accordance with wildlife legislation, planning policy and other relevant guidance, and;
- The identification of any further surveys or precautionary assessments that may be required prior to the commencement of any development activities.

3. METHODOLOGY AND SOURCES OF INFORMATION

3.1 Data Search

The Envirotech dataset, National Biodiversity Network (NBN) and the Multi-Agency Geographic Information for the Countryside (MAGIC) were searched to establish the presence of any records of statutorily protected, notable or rare species, and any designated sites of international, national, regional or local importance within a 2km radius of the site boundary.

The Envirotech dataset is compiled from extensive field surveys from the period 2004-present, as well as records obtained from third parties during this time.

Google Earth and Google Street View were consulted to establish the presence of any features of ecological importance within the local area.

Due to the scale of development, in accordance with CIEEM guidelines, a data search of the county records centre was not required. The likely presence and impact on protected species could be adequately determined from the level of data search undertaken.

3.2 Vegetation and Habitats

A vegetation and habitat map was produced for the site and the immediate surrounding area. The mapping is based on the UKHabs V2 survey and reporting methodology.

Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the Wildlife and Countryside Act (1981) and indicators of important and uncommon plant communities. All plant nomenclature follows Stace (2019).

Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the Wildlife and Countryside Act (1981), namely Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*) on terrestrial habitat and aquatic species such as floating pennywort (*Hydrocotyle ranunculoides*), water hyacinth (*Eichhornia crassipes*) and New Zealand pygmyweed (*Crassula helmsii*).

The survey was also informed by questioning the landowner/site agent to ascertain the recent history of the site.

Habitats of Principal Importance (HPI) were cross referenced with Natural England's inventory against the site boundary and where found ground truthed.

3.3 Timing and Personnel

During the visit, weather conditions were suitable for the survey types undertaken being.

The site and surrounding land were visited on 7th February 2024 by: -

- (BF) Mr Bradley Foster MEnv (Hons)
  Natural England Bat Class Licence (Level 1 Agent)
  Natural England Barn Owl Licence (Agent)
  Natural England Great Crested Newt Licence (Level 1 Agent)

4. SPECIES SURVEY METHODOLOGY

4.1 Amphibian

Great crested newts (*Triturus cristatus*) are protected under Schedule 2 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and Schedule 5 of the Wildlife & Countryside Act (1981).

Where relevant, water-bodies located within or adjacent to the study area were identified and where access was possible were assessed for their potential to support great crested newts.

The criteria used in the assessment are based on those contained in the Herpetofauna Workers Manual and Oldham et al, 2000, and in applying these criteria a precautionary approach was adopted. Following the criteria developed by Oldham et al (2000), the HSI tool developed for use with great crested newts and forming part of Natural England's Licensing process was used to determine the suitability of ponds for great crested newts.

Where relevant, pond assessments were undertaken in order to determine which water-bodies, based on their potential to support great crested newts, should be subject to presence/absence surveys.

As identified from OS and satellite mapping, are total of nine ponds are located within a 250m radius of the site's red line boundary. Ponds sufficiently connected to the site- judged to be within 250m of the core development area- were surveyed for their potential use by GCN (where access was allowed).

4.2 Badger

Badgers (*Meles meles*) and their setts are protected under the Protection of Badgers Act (1992). This legislation arises from animal welfare issues (rather than on the basis of nature conservation grounds) and protects badgers from being killed, injured or disturbed whilst occupying a sett.

A disturbance to badgers in their setts may occur as a result of construction operations. Natural England recommends that the use of heavy machinery in proximity of a sett entrance should be avoided, with a 'disturbance free-zone' being established.

The degree of disturbance attributed to construction activity is a function of the background level of activity badgers are accustomed to and that which will be attributed to a proposed activity. The "disturbance free zone" is therefore site specific.

The survey for badgers comprised an assessment of all suitable habitat within and outside the study area boundary (where this was possible) to a distance of 30m for indications of use by badgers.

Signs of badgers which were searched for included:

- Setts - 'D' shaped entrances at least 25cms wide and wider than they are high with large spoil mounds
- Discarded bedding at sett entrances (this includes grass and leaves)

- Scratching posts on shrubs and trees close to a sett entrance
- The presence of badger hairs which are coarse, up to 100mm long with a long black section and a white tip
- Dung pit latrines and footprints
- Habitual runs through vegetation and beneath fences
- Hedgehog carcases

4.3 Bats

All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act (1981), and are included on Schedule 2 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, as a Protected Species. Taken together, these pieces of legislation make it an offence to:

- Intentionally or recklessly kill, injure or capture bats;
- Deliberately or recklessly disturb bats (whether in a roost or not);
- Damage, destroy or obstruct access to bat roosts.

The Bat Conservation Trust Collins, J. (ed) (2023) issued guidelines on bat survey methodology, a key feature of their recommendation is for the undertaking of a pre-survey assessment – an initial desk-study and a walkover assessment of the survey area and its surrounding area to identify the relative value of the habitats present for bats and likely commuting routes. This is to be followed by a survey program that is appropriate to the likely level of bat activity within the survey area to be determined by and based on the experience of the surveyor.

The potential value of the survey area for foraging bats was assessed through consideration of two main factors: professional knowledge of bat ecology and foraging behaviour in combination with the geographical location, topography and habitats present within the survey area and surrounds.

Where relevant, all trees and structures on and within the survey area boundary were assessed for their potential to support roosting or hibernating bats. This comprised a close inspection of all trees and buildings on the site to allow an assessment of their potential to be used by bats to be made by a licensed surveyor.

Trees were all assessed in accordance with Collins, J. (ed) (2023) but categorised as 1* - 3 in accordance with Hundt (2012). Collins, J. (ed) (2023) does not provide roost classification criteria. The schedule of risk provided by Hundt (2012) is considered most appropriate in this case.

4.4 Birds

All breeding birds, other than pest species, are protected under the Wildlife and Countryside Act of 1981 when building a nest, rearing young or sitting on eggs. Some bird species, such as barn owl (*Tyto alba*), are protected when near an active nest site. Several birds are listed as Species of Principal Importance (SPI).

Bird species and behaviour was noted during the site survey. All areas were covered equally in order to avoid the subjective survey of better quality 'bird habitat'.

4.5 Brown Hare

The brown hare (*Lepus europaeus*) is a SPI.

The survey method involved walking boundaries and surveying with binoculars. The survey was conducted at a suitable distance to ensure that the hares were not disturbed. Generally, surveys were undertaken throughout the early afternoon and evening when hares are thought to be most active and feeding.

Where present the number of brown hares in each field or hedgerow was recorded, together with the nature and use of the field, climatic conditions and time of day. The presence of forms and faeces where present were also recorded.

4.6 Invertebrates

A general assessment was made of the study area's suitability for supporting invertebrates during the survey. The study area's lack of habitat diversity, species-poor composition and uniformity of vegetation structure (i.e., lack of variation in height and microtopography) resulted in our belief that a low diversity of invertebrates would be likely to occur across the site.

4.7 Reptiles

All native reptiles are protected in Britain under the Wildlife and Countryside Act of 1981. It is an offence to intentionally kill, injure, sell or advertise to sell any of the six native species.

The survey for these species was based on assessing the habitat type and suitability of the site. This comprised an assessment of satellite imagery for the site and surrounding area as well as comparison of the results from the records searches with habitat types. The general habitat at the site was evaluated in terms of its suitability to reptiles for foraging or breeding.

Habitat at the site was not considered sufficiently suitable for a full presence/ absence survey to be warranted.

4.8 Survey limitations

The survey was undertaken in winter. At this time of year plant species are less easily identified and the activity of some species is reduced.

Due to the habitats present on site there were no significant constraints in respect of identifying the botanical interest of the site.

The duration, extent and scope of the surveys were considered sufficient to plan appropriate mitigation and recommend additional precautionary survey work required prior to the commencement of work.

No significant survey limitations were encountered.

5. RESULTS

5.1 Data Search

Envirotech and NBN hold no records of protected or notable species for the site. There are however records of protected or notable species within 2km (Figure 2). These are discussed in the relevant sections below.

The nearest non-statutory protected sites are small coppices of semi-natural deciduous woodland, which are located adjacent and opposite the site. The Lancaster Canal Biological Heritage Site (BHS), in addition to multiple corridors of the Lancashire Woodland Ecological Network are also located within 350m (Figure 3).

The nearest statutory protected site is Winmarleigh Moss SSSI, located 2500m west of the site. Mapped major feeding areas for Pinkfooted Geese *(Anser brachyrhynchus)* and Whooper Swan *(Cygnus cygnus)* are also located to the north, south and west of the site (all of which are >300m away). Whilst these areas possess no statutory protection *per se*, they are regarded as Functionally Linked Land (FLL) for Natura 2000 sites (Figure 4).

Figure 2

Protected and
Notable Species

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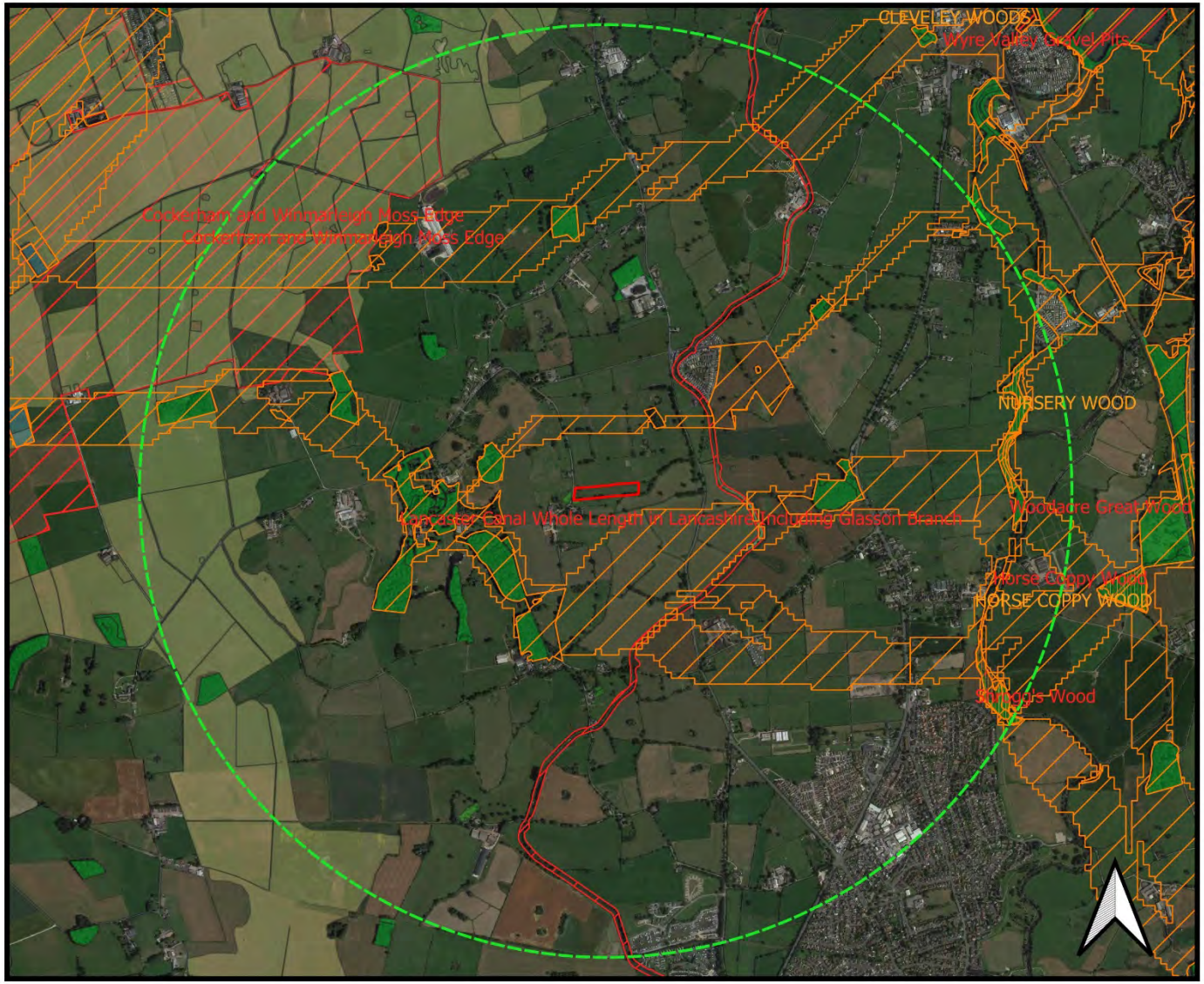

Figure 3

Mapped Habitats of Principal Importance and Non-statutory Protected Sites

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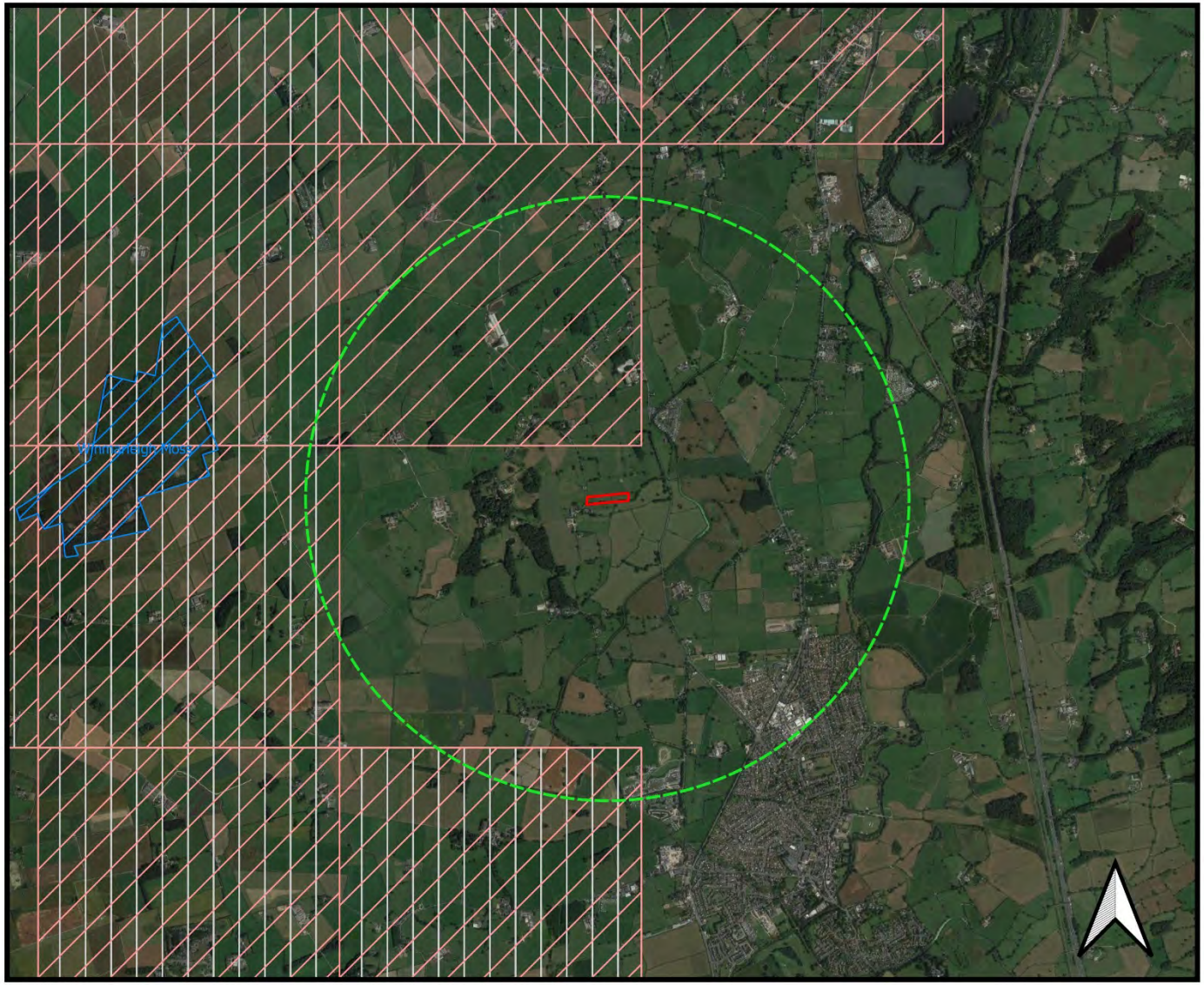

Figure 4

Protected Sites
and Habitats

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6. UKHabs V2 SURVEY RESULTS

6.1 Habitat Results

A panoramic view of the site and surrounding land is shown below on Figure 5.

The site comprises an open paddock of horse grazed pasture, bound to the south and west by native hedgerow and to the north by a scattered line of trees. The site is surrounded by open farmland intersected with hedgerow, tree lines and scattered coppices.

See Figure 6 for the UK Habs V2 Plan and Table 1 for the descriptive Target Notes.

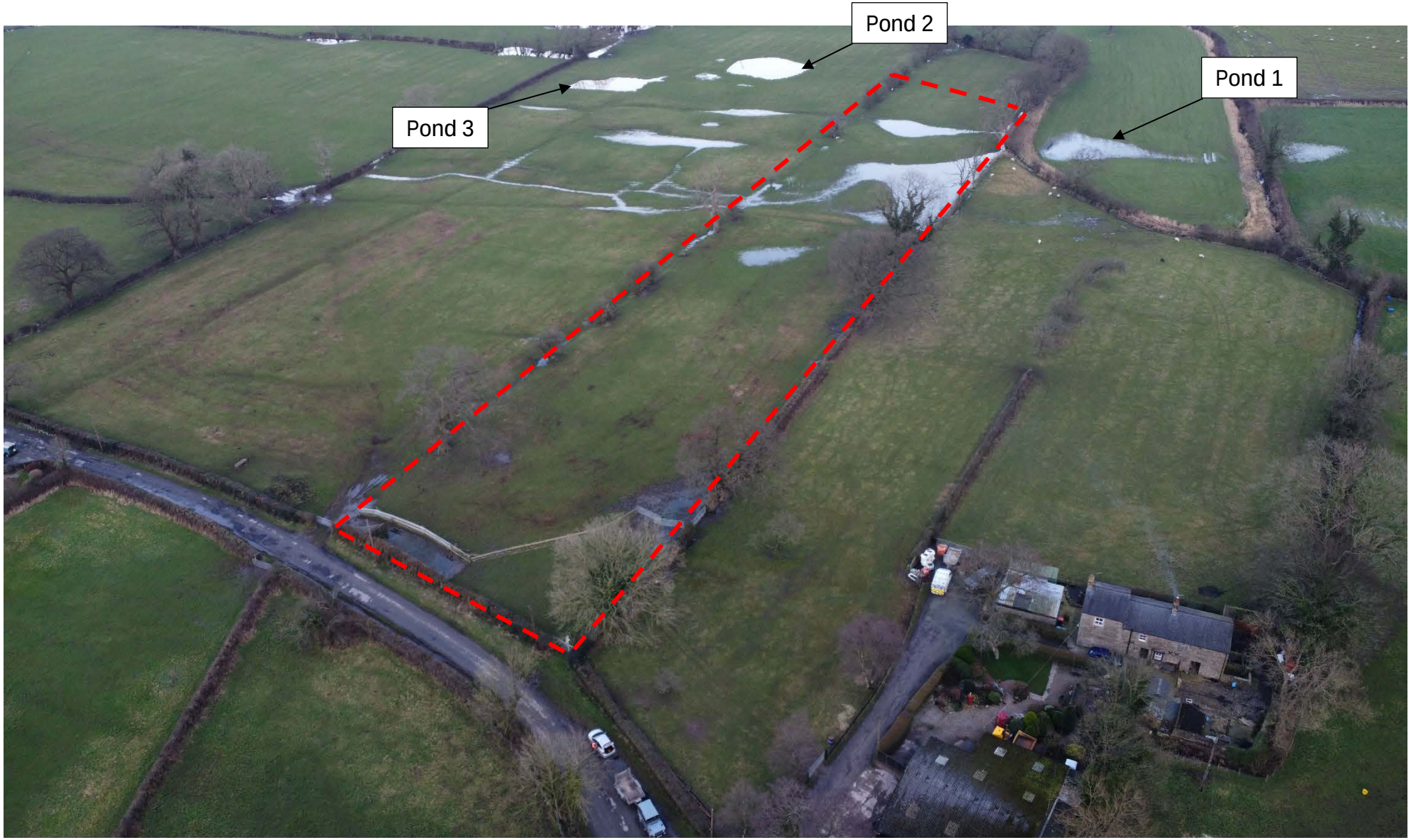

Figure 5- *Panoramic view of the site (looking north-east) from a height of approximately 120m. Ponds 1-3 (as indicated by OS and satellite mapping) are also labelled.*

Target Note	Description	Comment
TN1	Hedgerow 1	Bounding the west of the site is a length of species-rich native hedgerow. Woody hedgerow species consist of Hawthorn *(Crataegus monogyna),* Holly (*Ilex aquifolium),* Elderberry (*Sambucus nigra)* and Beech *(Fagus sylvatica).* This hedgerow and the adjacent roadside verge are highly managed, comprising a short and stocky line of boundary vegetation. No groundflora was along the inside of the hedgerow, although Coltsfoot *(Tussilago farfara),* Cleavers *(Galium aparine),* Cow Parsley *(Anthriscus sylvestris),* Hogweed *(Heracleum sphondylium),* Nettle *(Urtica dioica),* Snowdrops *(Galanthus Sp.)* and Lords and ladies *(Arum maculatum).*
TN2	Line of Trees	Bounding the north of the site is a scattered line of trees (gaps between individual trees and shrubs exceeding 20m in multiple locations). Woody species range from prominent Hawthorn shrubs through to mature Oak (*Quercus sp*.) and Ash *(Fraxinus excelsior).* This length of the site is unfenced and therefore completely open to the adjacent field. Trees are centred in a shallow linear depression, although no standing water was located here during the survey.
TN3	Modified Grassland	The site currently consists of an open horse grazed paddock, which is part-fenced in the very south-west corner. The grass consists of a uniformly short sward, which whilst not lush, is dominated by a common assemblage of course grasses. Species consist of Perennial Ryegrass (*Lolium perenne),* Annual Meadow Grass *(Poa annua)*, Common Bent (*Agrostis capillaris*) and Red Fescue *(Festuca rubra),* with perennial herbaceous herbs consisting of White Clover (*Trifolium repens*), Broad-leaved Dock (*Rumex obtusifolius*), Creeping Buttercup (*Ranunculus repens*), Chickweed *(Stellaria media) and* Lesser Celandine (*Ficaria verna*). Herbs are not particularly frequent, with grasses contributing >80% of the sward. The western half of the field is heavily rutted and scattered with horse manure.
TN4	Hedgerow 2	Bounding the south of the site is a hedgerow dominated by Hawthorn. Trees are interspersed along and within 1m of the hedgerow, with trees becoming more frequent from west to east. As along the northern boundary of the site, trees consist of predominantly mature Oak and Ash.
TN5	Deadwood	A prominent dead Ash tree is located midway along the northern boundary of the site, providing a valuable resource for roosting bats, cavity-dwelling birds and saprophytic insects.

TN6	Standing Water	Grassland gets progressively damper from west to east, an ephemeral pool of standing water present towards the eastern end of the site. This pool of standing water is shallow and appears contaminated with manure.
TN7	Field Ponds	A number of agricultural field ponds are located in the adjacent fields north and south of the site. These features are discussed in further detail in section 6.3, although all of these waterbodies closely resemble the shallow pool of standing water documented in TN6.
Table 1 *Details of Target Notes.*		

Figure 5

UK Habitats Survey Map

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	The site consists of an open area of modified grassland currently utilised as a horse paddock.
	Grass is short and uniform throughout, dominated by a common assemblage of course grasses.
	Hedgerow 1 appears to be heavily managed/flailed, but contains a good mix of native woody species. Whilst this hedgerow is heavily grazed along its inner length, the base of the hedgerow along New House Lane possesses ecologically valuable species such as Cow Parsley and Lords and Ladies.

	A small section of grassland is fenced off in the south-west corner of the site.
	Looking west down the tree line to the north of the site. Species range from prominent Hawthorn through to mature Oak and Ash. A dead Ash tree located within the tree line possesses a number of structural features for potential use by bats and cavity dwelling birds.
	Hedgerow 2 bounds the south of the site, the shrubby component of the hedge dominated by Hawthorn. Scattered trees become more prominent from west to east, with trees consisting of mature Oak and Ash.

	A shallow ephemeral pool of standing water is located towards the eastern end of the site.
	Grassland (especially in the east of the site) is heavily waterlogged.

Table 2 *Photographs*

6.2 Vegetation

Details of the plant species found on site are included in the target notes. Species recorded are all commonly occurring and undoubtedly occur elsewhere in similar habitats in the local area.

The modified grassland has a low species diversity and ecological value, consisting of a ubiquitous area of open pasture; the field dominated by a low diversity of predominantly course grasses. Species and habitat structure are indicative of regular grazing and disturbance. Whilst the grassland is not necessarily '*lush*', there is evident improvement given the current use of the site as a horse-grazed paddock. This habitat does not constitute a Habitat of Principal Importance (HPI).

Hedgerow 1 consists of a heavily managed/flailed assemblage of woody species formed from Hawthorn, Elder, Holly and Beech. There is a good mix of native groundflora species that includes Cow Parsley, Snowdrops and Lords and Ladies on the outside of the hedgerow along New House Lane.

Hedgerow 2 consists of a long hedgerow dominated by Hawthorn. Native trees consisting of Oak and Ash are located throughout and within 1m of this habitat, becoming more frequent from west to east. No prominent groundflora was located along this hedgerow, being heavily grazed either side of its boundary. All hedgerows are a HPI and should be retained in any proposed scheme. Where lengths need to be lost, they should be transplanted or new hedges planted as compensation. At this stage, both Hedgerows 1 and 2 are to be retained.

The tree line bounding the north of the site consists of a scattered line of intermittent broad-leaved trees and shrubs, ranging from prominent Hawthorn through to mature Oak and Ash. Gaps regularly exceed 20m; this habitat unfenced and therefore open to the adjacent field. A dead Ash tree located midway along this tree line possesses a number of suitable roost features for use by roosting bats and cavity-dwelling birds.

None of the hedgerows are classified as important under the Hedgerow Regulations (1997) (See Appendix 1).

There is no evidence of Japanese knotweed, giant hogweed or Himalayan balsam on the site. No other invasive or notable weed species listed on Schedule 9 (Section 14) of the Wildlife and Countryside Act (1981) (as amended) was identified within the site or adjacent land.

6.3 Amphibian

There are 29 records of four species of amphibians within 2km of the site. These records relate to Common Toad *(Bufo bufo),* Common Frog *(Rana temporaria),* Smooth Newt () and Great Crested Newt *(Triturus cristatus).*

There are nine records of GCN within a 2km radius of the site, the nearest of these records 700m north of the site.

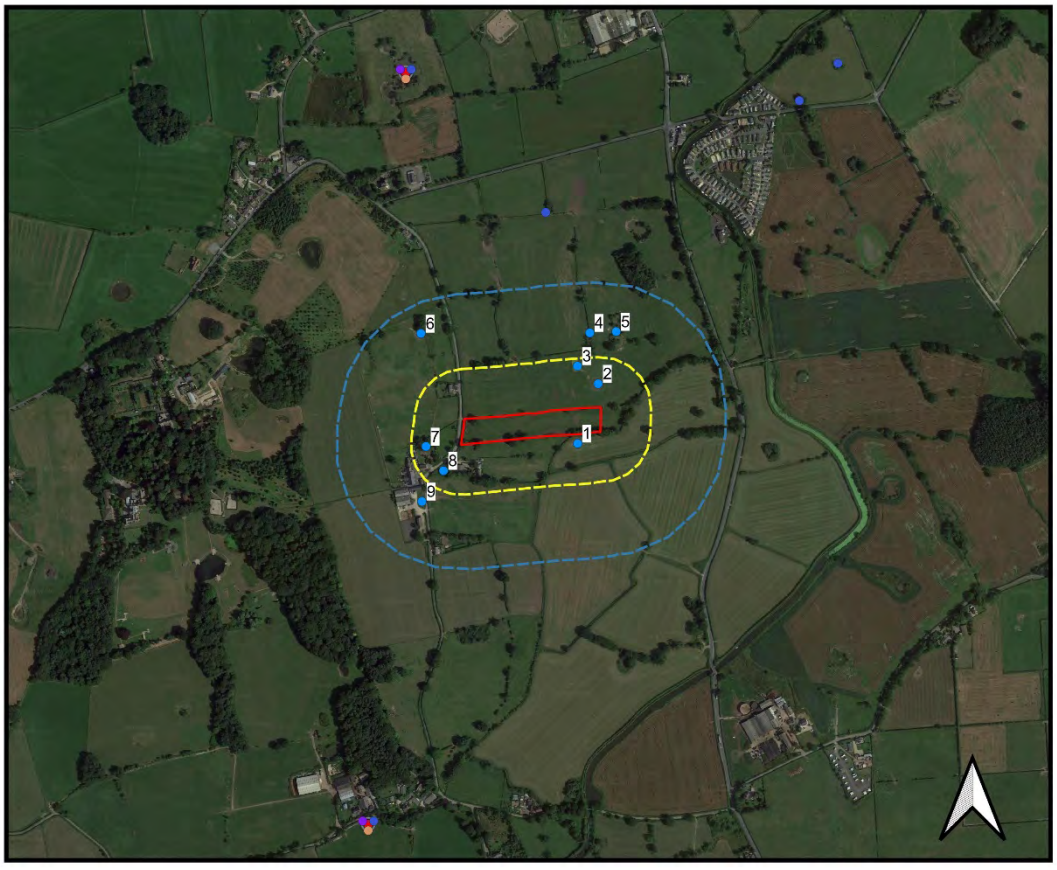
The core development area has a mostly low value to amphibians being open and exposed, the site consisting of open pasture. Boundary hedgerows could potentially be utilised as refuges and/or hibernacula, but these are heavily grazed; the tree line north of the site noticeably gappy.

Structural diversity at ground level across the site is very poor. There are no areas with log, rubble piles or compost heaps which would be particularly favourable to amphibians.

Amphibians would be unlikely to attempt to cross the site as it comprises an area that is mostly open with uniform length grass. Whilst not a physical barrier to the dispersal of amphibians, the site is regarded as being a potentially hostile environment to them.

As identified from OS and satellite mapping, are total of nine ponds are located within a 250m radius of the site's red line boundary (Figure 6). Ponds sufficiently close to the site- judged to be within 250m of the core development area- were surveyed for their potential use by GCN (where access was allowed). The core development area was judged to be the western end of the site boundary where the proposed stable building and associated infrastructure are to be sited.

For this reason, Ponds 4 and 5 have been screened from the survey owing to being located 260 and 300m north-east of the core development area respectively. Ponds 8 and 9 could not be accessed from the ground, although they were observed from a drone within the relevant land



ownership boundary. Ponds 1, 2, 3, 6 and 7 were fully assessed. Images of each pond are shown below in Table 3.

	Pond 1 (surveyed field pond) Pond 2 (surveyed field pond) Pond 3 (surveyed field pond) Pond 4 (field pond >250m from the core development area and therefore excluded from further survey) Pond 5 (field pond >250m from the core development area and therefore excluded from further survey)
	Pond 1 consists of an ephemeral pocket of standing water of negligible potential for use by GCN.
	Pond 2 consists of an open and exposed field pond.

	Bird droppings, potentially from Mallard *(Anas platyrhynchos)* are located around the edge of Pond 2, suggesting heavy grazing pressure.
	Water quality is judged as being poor within Ponds 1-3 given their location within pasture.
	Pond 6 (surveyed field pond)

	Pond 6 is surrounded by a mix of Common rush (*Juncus effusus*), Hard rush *(Juncus inflexus),* Compact Rush *(Juncus conglomeratus)* and rudimentary Bramble *(Rubus fruticosus agg)* scrub. Surrounding habitat is considered to be of a moderate quality for use by GCN given the presence of mature Oak trees, saplings, a prominent drainage ditch and tussocks of rushes and grassy mounds.
	Pond 7 (surveyed garden pond) Pond 8 (inaccessible wooded pond)
	Pond 7 is surrounded by a good mix of suitable refugia that includes marginal vegetation, cut lumber, exposed tree roots and stone flags.

	Pond 7 does however receive discharge from the surrounding pasture fields- a notable biofilm located on the pond surfaces, which was accompanied with a foul smell. A large degree of sediment and organic sludge was deposited on the base and banks of the pond.
	Pond 9 (inaccessible lawn pond)

Table 3- *Panoramic images of Ponds 1-9*

Following the criteria developed by Oldham et al (2000), the HSI tool developed for use with GCN and forming part of Natural England's Licensing process was used to determine the suitability of Ponds 1, 2, 3, 6 and 7 for great crested newts. The HSI was developed as a tool to aid fieldworkers to give ponds and their surrounding habitat a numerical score in terms of their suitability for great crested newts. See Table 4.

Pond 1	1	2	3	6	7
Location	1	1	1	1	1
Pond area	0.4	1	0.8	0.6	0.6
Pond drying	0.5	0.5	0.5	1	1
Water quality	0.01	0.01	0.01	0.33	0.01
Shade	1	1	1	1	0.8
Fowl	0.01	0.01	0.01	0.67	0.67
Fish	1	1	1	1	1
Ponds	1	1	1	1	1
Terrestrial habitat	0.33	0.33	0.33	0.67	0.67
Macrophytes	0.3	0.3	0.3	0.3	0.5
HSI	**0.27**	**0.29**	**0.29**	**0.70**	**0.50**

Table 4 *Results of Habitat Suitability Index*.

Within the Natural England Method Statement application form for great crested newt Licences, guidance states the following approach (Natural England, 2008):

'If a pond has a very low HSI score (say <0.5) then there would typically be a minimal chance of great crested newt presence. Hence, with due care and in limited circumstances, the HSI might be used in the absence of newt survey to help conclude that an offence is highly unlikely and therefore work could proceed in that area without a licence. This application of the HSI should only be used where the predicted impacts - were newts to be present - would be low (eg, development at least 100m from pond, permanent habitat loss <0.5ha or temporary habitat loss <5ha). The developer and consultant should realise that there would still be a risk of committing an offence, but it would typically be so low as to be negligible. Obviously, note that if HSI >0.5, this is not confirmation of newt presence; a newt survey would be required to confirm this'.

Pond scores range between 0.27 (poor) and 0.7 (good). Ponds 1, 2 and 3 are generally considered inhospitable for use by GCN given their open and exposed nature, poor water quality and distance from suitable terrestrial habitat (these being ephemeral field ponds).

Pond 6 consists of a small field pond surrounded by rushes and rudimentary scrub- linked by tree lines and a prominent drainage ditch. Whilst the pond contains minimal macrophytes and is surrounded by a wider area of open pasture, this feature is considered suitable for use by GCN.

Pond 7 consists of a moderate-sized garden pond surrounded by Bulrush (*Typha latifolia*), Yellow Iris (*Iris pseudacorus*), Common Reed *(Phragmites australis),* Willow (*Salix sp*.) and tall stands of False oat grass *(Arrhenatherum elatius)*, providing opportunities for both concealment and egg laying. In addition to this, the pond perimeter possesses a number notable refugia such as coarse tussocks, exposed tree roots and stone flags. However, this pond takes water from the surrounding pasture fields- a prominent biofilm located across the pond's surface at the time of surveying. This was accompanied with a foul smell and heavy sedimentation. It is likely that this pond's poor water quality impedes use by GCN.

Whilst Pond 8 could not be inspected from the ground, aerial imagery suggests this pond is suitable for use by GCN given its semi-natural form and the proximity of marginal vegetation and a small coppice of woodland.

As a precautionary approach, Natural England's rapid risk assessment tool was used for the site (Figure 7). This tool takes a worst-case scenario approach by assuming Great Crested Newts are present in all ponds considered, factoring in their distance from the proposal and the area of land lost or damaged (either permanently or temporarily).

The area of land judged to be permanently lost/damaged as a result of the proposal was estimated at 0.174ha, which was taken from the proposed site plan shown on Figure 9. This area considers construction of the stable building, turn out paddock and sand paddock.

Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.5
Land 100-250m from any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.1
Land >250m from any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.005
Individual great crested newts	No effect	0
	Maximum:	0.5
Rapid risk assessment result:	**AMBER: OFFENCE LIKELY**	

Figure 7- *Natural England's Rapid Risk Assessment Tool*

The amber offence relates to a maximum notional probability of 0.5 that great crested newts will be disturbed, injured, killed, or their resting/breeding places damaged or destroyed as a result of the development.

The rapid risk assessment tool has however been developed as a general guide only and is rather simplistic. The tool uses a coarse assessment approach, often resulting in the over or under-estimation of some risks. This assessment tool also fails to consider site specific details such as the timing and duration of works, terrestrial habitat quality or the detailed layout of the development with respect to newt resting and dispersal. It also assumes the development proposal concerned will proceed without any precautionary mitigation. Resultingly, it should never be utilised as a substitute for a site-specific risk assessment informed by survey.

Whilst GCN are highly mobile species (traversing distances of up to 1km), most individuals remain within 50m of known breeding ponds and rarely venture beyond 100m (excluding high quality linear features such as railway lines or linear belts of woodland). Whilst areas of rough grassland, scrub, coppices of woodland and well-defined tree lines are all located in the local area, the majority of ponds within 250m are surrounded by predominantly open pasture. Resultingly, the dispersal of amphibians to and from these features for breeding is considered to be low, although possible.

A large proportion of the ponds within a 250m radius of the site consist of shallow, seasonal pools of standing water. Whilst these features are highly unlikely to be of use by GCN, more mobile species of amphibian such as Common Frog *(Rana temporaria)* are known to opportunistically utilise temporary bodies of standing water for egg laying.

Whilst the proposed development is highly unlikely to result in the permanent loss of or a substantial negative effect on any waterbodies, considerations regarding the methods, duration and/or timing of works should all be made.

On balance, we consider that the risk to great crested newts and their foraging/resting habitat can be adequately minimised with the use of reasonable avoidance measures.

6.4 Badger

There are no records of badger within 2km of the site.

Badger setts do not occur on site and a lack of feeding signs or runs across the site would suggest that they do not occur within 30m of site boundaries.

The proposed development will not impact on any existing badger runs or setts. The porosity of the surrounding fields to the passage of badgers will not be affected.

6.5 Bats

There are 87 records of five species of bat within 2km of the site, with records relating to Brandt's *(Myotis brandtii),* Brown Long-Eared *(Plecotus auritus),* Noctule *(Nyctalus noctula),* Soprano Pipistrelle *(Pipistrellus pygmaeus)* and Common Pipistrelle *(Pipistrellus pipistrellus)*.

The foraging habitat on site is of a predominantly low value for bat species, the open pasture offering minimal foraging opportunities for bats given its uniform characteristics and exposed nature.

Hedgerows 1, 2 and the tree line bounding the site do however provide linear habitat features. Hedgerow 2 is particularly well-established (especially at its eastern end) and possesses a high structural diversity, providing foraging and commuting routes for bats in the local area. Whilst these areas of the surrounding land are the most structurally diverse, they are not considered exceptional in the local area.

More extensive areas of medium and high-quality habitat occur locally, such as the extensive mosaic of ponds, copses and enclosed woodland 400m west of the site towards Winmarleigh.

It is not considered there would be significant degradation of foraging habitat as a result of the proposal. All suitable boundary vegetation currently on site will be retained.

All trees around the site perimeter were also assessed in accordance with Collins ed. (2016) and assigned a risk category. Most trees on site were considered category 2 (low) or category 3 (negligible) risk, with the exception of the dead Ash tree located along the tree line bounding the north of the site. This tree possesses limb breaks, tear outs and potential cavities suitable for use by roosting bats. Risk categories from Hundt (2012) and the requirement for mitigation for each tree category are shown on Figure 8.

We consider bat species are highly unlikely to rely on the site for feeding but may occur in the local area. Roosting by bats may occur on site, although this is likely restricted to the dead Ash tree along the tree line to the north.

Tree category and description	Stage 1 Initial survey requirements	Stage 2 Further measures to inform proposed mitigation	Stage 3 Likely mitigation
Known or confirmed roost	Follow SNCO guidance and these guidelines wherever possible, to establish the extent to which bats use the site. This is particularly important for roosts of high risk species and/or roosts of district or higher importance and above		The tree can be felled only under EPS licence following the installation of equivalent habitats as a replacement.
Category 1* Trees with multiple, highly suitable features capable of supporting larger roosts	Tree identified on a map and on the ground. Further assessment to provide a best expert judgement on the likely use of the roost, numbers and species of bat, by analysis of droppings or other field evidence. ***A consultant ecologist is required***	Avoid disturbance to trees, where possible. Further dusk and pre-dawn survey to establish more accurately the presence, species, numbers of bats present and the type of roost, and to inform the requirements for mitigation if felling is required.	Felling would be undertaken taking reasonable avoidance measures[3] such as 'soft felling' to minimise the risk of harm to individual bats.
Category 1 Trees with definite bat potential, supporting fewer suitable features that category 1* trees or with potential for use by single bats	Tree identified on a map and on the ground. Further assessed to provide a best expert judgement on the potential use of suitable cavities, based on the habitat preferences of bats. ***A consultant ecologist required***	Avoid disturbance to trees, where possible. More detailed, off the ground visual assessment. Further dusk and pre-dawn survey to establish the presence of bats, and if present, the species and numbers of bats and type of roost, to inform the requirements for mitigation if felling is required.	Trees with confirmed roosts following further survey are upgraded to Category 1* and felled under licence as above. Trees with no confirmed roosts may be downgraded to Category 2 dependent on survey findings
Category 2 Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.	None. ***A consultant ecologist is unlikely to be required***	Avoid disturbance to trees, where possible. No further surveys.	Trees may be felled taking reasonable avoidance measures. Stop works and seek advice in the event bats are found, in order to comply with relevant legislation.
Category 3 Trees with no potential to support bats	None. ***A consultant ecologist is not required unless new evidence is found***	None.	No mitigation for bats required.

Figure 8 *Tree risk categories from Hundt (2012).*

6.7 Birds

There are 1701 records of birds within 2km of the site.

There are limited opportunities for nesting and foraging birds within the curtilage of the site given its use as open pasture. However, garden birds and those typical of farmland fringes undoubtedly occur in the local area, including the site. For example, there are records for Starling (*Sturnus vulgaris*), Blackbird (*Turdus merula*) and Chaffinch (*Fringilla Coelebs*) within 2km of the site.

Hedgerow 1 is heavily flailed/managed, which somewhat limits its use by nesting birds given its openness and abrupt edges. Use is likely restricted to small opportunistic hedgerow birds such as Dunnock (*Prunella modularis*), Wren (*Troglodytes troglodytes*) and Tit (*Cyanistes sp*.). Hedgerow 2 consists of a long line of well-stocked Hawthorn, possessing a number of prominent Oak and Ash trees both within and within 1m of the hedgerow. This hedgerow is well-established, is of a greater vegetative diversity and will likely be utilised by a range of hedgerow and tree-dwelling birds. Both hedges are to be retained.

The tree line bounding the north of the site is gappy and poorly linked, although Hawthorn shrubs will offer valuable feeding opportunities for Robin *(Erithacus rubecula),* Redwing (*Turdus Iliacus*) and Thrushes (*Turdus sp*.). Larger trees are likely to be of some potential for use by nesting birds such as Woodpigeon *(Columba palumbus)*, the dead Ash tree possessing a number of rot holes suitable for cavity nesting species such as woodpeckers and Tawny Owl *(Strix aluco)*, of which there are records within 2km.

A risk assessment of the site in respect of its future potential for and value to nesting birds could be adequately made. The habitat on site is not considered to be of anything more than of local significance, habitats present are well represented in the local area. The impact on nesting birds is therefore considered likely to be minor.

6.8 Brown Hare

Brown hare are a SPI. There are five records of brown hares within 2km of the site, the nearest record being 1200m north-east of the site.

No indication of brown hares was recorded on the site.

The site boundary has some potential for brown hares to create forms but use of the site is likely to be limited due to its open and exposed nature and regular disturbance.

A risk assessment of the site in respect of its future potential for and value to brown hares could be adequately made. We consider the risk to brown hares is very low.

6.9 Invertebrates

There are 132 notable invertebrate records within 2km of the site.

The standing deadwood in the form of the mature Ash tree along the northern boundary of the site possesses some potential for use by Saproxylic insects such as beetles and various species of fly.

The core development area however comprises a mostly featureless monoculture of improved pasture, with little potential for use by native invertebrates.

Given the poor-quality habitats contained within the site in comparison to the wider area, it is not considered that this site is of any local significance for invertebrates, although common species of butterfly, wasp, ladybird and moth will undoubtedly occur within the local area, as suggested by local records.

6.10 Reptiles

There are no records for reptiles within 2km of the site.

The majority of the site has a very low value to reptiles being devoid of significant ground cover. There are no areas of the core development area which would be particularly favourable to reptiles.

Reptiles may occur along the boundary of the site and this provides linkage across the local landscape. It is however outside the site boundary and is unaffected by the proposal.

As a consequence, precautionary mitigation would be appropriate in respect of construction activities so as to ensure reasonable avoidance measures are taken to avoid the killing or injury of these species.

6.11 Other

The site may be crossed by species such as fox (*Vulpes vulpes*) and rabbit (*Oryctolagus cuniculus*) are known to occur locally.

The boundary hedgerows may provide suitable habitat for small mammals such as field vole (*Microtus agrestis*) and Hedgehog *(Erinaceus Europaeus),* but these areas are small and the sites value to small mammals is limited.

6.12 Statutory and Non-Statutory Sites

Direct Impacts:

There are no statutory or non-statutory sites which are connected to the site such that site development would directly affect the dispersal of species between them or directly impact upon their integrity.

The habitats on site do not represent or are linked to those found in any of the statutory or non-statutory sites locally.

Indirect Impacts:

There are no statutory or non-statutory sites which are connected to the site such that site development would indirectly affect the dispersal of species between them or indirectly impact upon their integrity.

7. MITIGATION/RECOMMENDATIONS

7.1 Compensatory planting and habitat enhancement

7.1.1 The roots of trees on the site and its boundaries should be adequately protected during work in accordance with industry standards. All trees should as far as possible be retained in the scheme. At this stage, it is anticipated all trees will be retained.

7.1.2 Hedgerows around the site should be retained or improved where possible. Any lengths of intact hedgerow to be removed to facilitate development should be transplanted and or replanted in order that there is no net negative impact on this HPI due to development. The roots of hedgerow plants/trees should be adequately protected during development from compaction/ground disturbance. At this stage, it is anticipated all hedgerow will be retained post-development.

7.1.3 It is proposed a naturally wet depression in the east of the site (as evident on Figure 5) is formalised into an established pond for field drainage. We would advise the following with respect to any pond creation: -

- Avoid linking the pond to any agricultural ditch or stream.
- Do not spread topsoil within or around the pond, as this will pollute the pond through nutrient leaching.
- Avoid stocking the pond with fish or dense thickets of vegetation- ponds naturalize rapidly.
- If planting is essential in the future, use native species of local provenance from a reliable source- a mix of submerged, deep-water, marginal and free-floating plants could all be used (e.g., Spiked water milfoil, Water crowfoot and Frogbit).
- If wildfowl or people end up onsite in considerable numbers, it may be worth protecting colonising vegetation by erecting temporary fencing around some/all of the pond.
- Grassland around the perimeter of the pond should be allowed to grow tall to form dense tussocks rather than being routinely mowed or strimmed. This is a more favourable habitat for sheltering amphibians
- Small piles of lumber and deadwood could be scattered around the perimeter of the pond, so as to provide valuable resting opportunities.

7.2 Amphibians

7.2.1 The following mitigation should be followed in order to minimise the impact of the development proposal on Great crested newts, given the proximity of the site to a number of agricultural field ponds. At this stage, we consider that non-licensed reasonable avoidance measures, in addition to rigorous mitigation can be utilised in order to prevent an offence from being committed: -

- Vegetation clearance should be undertaken between February and October when temperatures are >5oC. This is when amphibians are active/mobile and therefore able to avoid injury

- No features offering potential places of shelter or refuge will be disturbed during the winter hibernation period (October through February) when amphibians are likely to be overwintering and are most vulnerable to disturbance

- All work must take place during daylight hours as amphibians are more likely to be commuting overnight and this will ensure the risk to any amphibians commuting through the site will be minimised

- Any tall grass, brash, rubble or log piles within the site should be hand-searched for sheltering great crested newts prior to construction works beginning (these habitats are unlikely to be removed)

- Where applicable, a sensitive vegetation clearance should then be undertaken, with vegetation strimmed to a height of 25cm, 15cm and 0cm, each separated by 48-hour intervals.

- Vegetation clearance should be undertaken in a directional manner, moving towards suitable areas of retained habitat, with arisings either palletised or removed offsite

- Vegetation clearance should be avoided over prolonged periods of hot dry weather when newt activity is reduced

- The duration of any groundworks should be as short as feasibly possible

- Store any materials used for construction on compacted ground/hard standing only. Otherwise, Great crested newts and other amphibians may hibernate/take refuge within these piles given their protection from frost and flooding

- The creation of any piles of earth, materials and rubble which could form potential artificial hibernacula and refuge should be avoided at all times. It is recommended that any spoil or rubble will be removed immediately to skips, or on hard standing or short grass. This will ensure that no potential amphibian hibernation or resting sites are created

- Backfill any excavation before nightfall or provide ramps to allow newts to exit easily

- Any piles of loose material (e.g., soil) which are to be left on site should be compacted i.e., tracked over by machinery, immediately to reduce the risk of amphibians using the material as a shelter

- Construction traffic should not enter or leave the site during the hours of darkness

- Following completion of works, piles of stone or loggeries could be stacked around the site, such as along the site edges. This would provide suitable refugia for amphibians and reptiles.

- Grassland around the perimeter of the pond should continue to be allowed to grow tall, forming dense tussocks rather than being routinely mowed or strimmed. This is a more favourable habitat for sheltering amphibians. a detailed method statement and programme of mitigation measures being prepared and implemented.

7.2.2 Should GCN be found during work within the construction area all work should cease and the ecological consultant for this project should be consulted prior to work recommencing.

7.2.3 Taking the above mitigation into account, we consider the risk to GCN on site to be low. Work on site under the above methods statement would therefore not be licensable. However, should GCN be found on site, or the extent of works change to involve more invasive works, then a licence application/eDNA testing of the pond may be necessary.

7.3 Badger

7.3.1 Badger setts are known to occur within 2km of the site. These setts will be undisturbed by work but in order to minimise impacts on badgers passing over the site the following points should also be followed.

- All work must take place during daylight hours as badgers are more likely to be commuting over the site at night and this will ensure the risk to any badgers passing through the site will be minimised.

- Should any trenches and excavations be required, an escape route for animals that enter the trench must be provided, especially if left open overnight. Ramps should be no greater than of 45 degrees in angle. Ideally, any holes should be securely covered. This will ensure badgers are not trapped during work.

- All excavations left open overnight or longer should be checked for animals prior to the continuation of works or infilling. Back filling should be completed immediately after any excavations, ideally back filling as an on-going process to the work in hand.

- Boundary fences/walls should incorporate gaps at their base to facilitate the passage of badgers across the site.

7.4 Bats

7.4.1 Work at night should be restricted, new planting within the site should enhance structural diversity and light spill onto the boundary should be minimised.

7.4.2 The dead Ash tree located along the northern boundary of the site should be re-inspected for bats to confirm they remain absent prior to removal/felling.

7.4.3 Overall, it is considered there is more than sufficient scope for mitigation and compensation at the site such that there will be no adverse impact on the favourable conservation status of bats affected by the proposal.

7.5 Birds

7.5.1 Nesting by birds within the development area is considered unlikely to occur. Birds may nest within hedges and tree lines on the periphery of the site however.

7.5.2 Any vegetation to be trimmed or cleared should be checked for nesting birds before it is removed. Ideally this should occur outside the bird nesting period March- September. If vegetation clearance is to occur in the March-September period a check for nesting birds should be conducted first by a suitably qualified individual.

7.5.3 If nesting birds are found at the site all site works shall cease and further ecological advice shall be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.6 Brown Hares

7.6.1 There is no requirement for specific mitigation for this species. However, as a precautionary measure, in the unlikely event that any signs of any brown hare activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.6.2 The points in respect of not working at night and leaving open trenches with means of escape detailed for badgers are also applicable to this species.

7.7 Invertebrates

7.7.1 Creation of a new purpose-built pond will be of inherent value to insects such as Cranefly, Dragonfly and Caddisfly.

7.7.2 Deadwood should be retained on site, either as standing deadwood or as small piles of lumber to the site boundaries.

7.8 Reptiles

7.8.1 There is no requirement for specific mitigation for these species. However, as a precautionary measure, in the unlikely event that any signs of any reptile activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.8.2 The points in respect of not leaving open trenches without means of escape detailed for badgers are also applicable to these species.

Figure 9 *Proposed site plan*

8. REFERENCES

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9. APPENDIX

Feature / Hedge	Length 20m +	Hedge is not bounding the curtilage of dwelling	Hedge established more than 30years	Hedge boundary of protected or common land or land used for agriculture or forestry	ARCHAEOLOGY AND HISTORY	Archaeological feature which is included in the schedule of monuments	Situated wholly or partly within an archaeological site	Boundary of a pre-1600 AD estate	Integral part of a field system	Protected species records	FEATURES	Bank or wall	Gaps less than 10%	Standard trees	Ditch	Parallel hedge	Footpath/ Bridleway	Connection points	Woody species	Average ground flora species	HEDGE CLASSIFIED AS IMPORTANT
1	Yes	Yes	Yes	Yes		No*	No*	No*	No*	No		No	Yes	No	No	No	No	1	4	0	**No**
2	Yes	Yes	Yes	Yes		No*	No*	No*	No*	No		No	Yes	Yes	No	No	No	3	3	0	**No**
	No = Automatic failure					Yes = Automatic pass						7 woody species or 6 woody species + 3 features or 5 woody species + 4 features or highway + 4 woody species and 2 features									

* Historic and archaeological records have not been checked for this site.