

Land at Red Furlong Farm,
Poundon,
Buckinghamshire

Preliminary Ecological Appraisal

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We assist our clients to deliver a measurable net gain in biodiversity.

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Executive summary

Griffin Ecology Ltd. have been appointed by the client to undertake a Preliminary Ecological Appraisal of an area of land, buildings and hardstanding yard, approximately 8.4ha in total size, located off Bicester Road in Poundon, Buckinghamshire. This survey has been undertaken in order to inform a planning application for the temporary change of use of the site to accommodate a training centre for the operatives of heavy plant machinery required for the construction of HS2. The buildings on site, with exception of the smallest of these, have planning permission for Class 1B use.

The purpose of this survey report is to identify and provide a description of the habitats present at the site at the time of the survey and to identify the potential for the presence of protected and notable species to use these habitats. This information would then serve to determine the ecological constraints and opportunities and inform the need for any further ecological surveys to fully understand the potential ecological impacts which may result from the proposed development in line with legislation.

The site has no statutory or non-statutory designations for nature conservation within its boundary or adjacent to them and no such designated sites are expected to be affected by the proposed works.

When considering the proposals, the existing extent of semi-improved grassland as well as the mosaic provided by scattered bramble scrub, ephemeral and tall ruderal vegetation will be lost to facilitate the proposed. These habitats are considered to offer value to reptiles and amphibians. Suitable GCN breeding habitat is present on site within the two ponds identified. However, these features will be retained and protected as part of the proposed. The loss of suitable terrestrial habitat is unavoidable and as such direct impacts to GCN are considered likely given the presence of suitable habitat on site and the sites location within an identified "red" risk zone as dictated by the NatureSpace Partnership. In consideration of this, the application should be supported by a district level licence enabling a derogation to relevant legislation relating to GCN.

Two trees, associated with the hedgerow H2, have been identified to offer potential for roosting bats and nesting birds. These habitats will be retained and protected within the proposed. However, a sensitive approach to works should be adopted and maintained to ensure indirect impacts are minimised where possible.

The proposals include the temporary loss of improved grassland to facilitate a heavy plant training centre for HS2. It is understood that this habitat will be restored following the agreed operational period and as such any loss of opportunities provided by this habitat such as those provided to foraging bats, birds and badger would be temporary in nature.

Following the implementation of a District Level Licence for GCN and the implementation of the recommended ecological mitigation measures, ecological impacts resulting from the proposed are not considered significant.

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1. Introduction

1.1 Background

Griffin Ecology Ltd. have been appointed by the client to undertake a Preliminary Ecological Appraisal of an area of land, buildings and hardstanding yard, approximately 8.4ha in total size, located off Bicester Road in Poundon, Buckinghamshire. This survey has been undertaken in order to inform a planning application for the temporary change of use of the site to accommodate a training centre for the operatives of heavy plant machinery required for the construction of HS2. The buildings on site, with exception of the smallest of these, have planning permission for Class 1B use.

For the purposes of this report the site refers to the land within the red line boundary as shown in Figure 1.

1.2 Site Description

The site (central grid reference SP 65112 25969) is located off Bicester Road, Poundon in Buckinghamshire and is comprised of an existing complex of large steel framed buildings and their surrounds as well as a parcel of neighbouring grazed pasture. The surrounding rural landscape offers a mosaic of agricultural land interspersed by pockets of woodland. This landscape is considered well connected by an established network of hedgerows.



Figure 1: Site Boundary

1.3 Survey Purpose

This report has been compiled to provide a preliminary assessment of the potential ecological constraints and opportunities associated with the habitats and features of the site and within the surrounding landscape. In doing so, an assessment of the habitats present on site and their potential to support protected and notable species has been undertaken.

This information also seeks to identify the need for any further ecological surveys, where appropriate, aiming to fully understanding the potential ecological impacts which may result from the proposals in line with appropriate planning policy and legislation.

1.4 Proposed Plans

Griffin Ecology Ltd. have been provided with Illustrative Layout Plan (Dwg No. PT/10557.01 Rev B) prior to compiling this report. It is understood that proposals will include the temporary change of use of this land for use as a heavy plant training facility to provide training in relation to the construction of HS2.

1.5 Relevant Planning Policies

The National Planning Policy Framework (NPPF) section 15 sets out applications to conserve and enhance the natural environment.

Paragraph 170 of the NPPF states:

“Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;”*

“d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;”

Paragraph 175 states:

“When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;”

“d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.”

2. Methodology

2.1. Zone of Influence

A Zone of Influence is defined by the CIEEM as the area over which ecological features may be subject to significant effects as a result of the proposals and associated activities (CIEEM, 2016). To define the total extent of the study area subject to this appraisal, the proposals have been reviewed to establish the special scale at which ecological features could be affected. The appropriate radii for the various elements of this assessment have been defined in the relevant sections of this report. These distances have been determined based on professional judgement following review of the proposals and taking account of the characteristics of the site and within the surrounding landscape.

2.2. Desk Study

A biological record search has been undertaken by Buckinghamshire and Milton Keynes Environmental Records Centre (BMERC) which sought to gain an understanding of statutory and non-statutory designations as well as protected and notable species within a 1km radius of the site.

The Multi-Agency Geographic Information for the Countryside (MAGIC) website has also been accessed for information on notable habitats and statutory designated sites within a 2km radius of the site.

2.3. Site Visit

The site has been visited by suitably qualified ecologist, Casey Griffin (Principal Ecologist, MCIEEM - level 2 bat survey licence: 2016-23916 and GCN survey licence: 2015 – 17059 CLS - CLS), on Thursday 6th May 2021. The walkover survey took approximately 2 hours in total with weather conditions at the time recorded.

2.4. Preliminary Ecological Appraisal

A walkover survey of the site has been carried out in accordance with standard Phase 1 Habitat Survey methodology detailed within JNCC Phase 1 Habitat Survey Handbook (JNC, 1993). The survey has covered all accessible areas of the site as well as surrounding habitats, where accessible. This survey seeks to identify, describe and map habitats present within the bounds of the site.

The habitats identified during the Phase 1 survey have then been evaluated against the CIEEM EIA evaluating habitats and species guidelines (2016) in order to give them a scale of importance from low to high value within a geographical context. Such criteria include size, species diversity, and presence of species or habitats.

The method for this assessment is based on the guidelines published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018). These guidelines provide a robust framework for ecological assessment, however, have been extended to record details on the actual or potential presence of any protected or notable species or habitats.

2.5. Protected Species Survey

A general assessment has been undertaken, during the informing walkover survey (covering the extent of the site and the adjoining habitats where accessible) to enable the surveying ecologist to search for any evidence of protected species activity or potential for the site to support protected and/or notable species.

Bats – Buildings and trees have been searched for suitability to support roosting bats in accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition (BCT, 2016). The wider site has been assessed for its suitability to support foraging and commuting bats.

Nesting birds – the site has been searched for areas of habitat and structures that could be used for constructing a nest or for foraging, as well as any evidence of current or historic nesting.

Reptiles – the site has been searched for areas that could be used for sheltering, hibernating, basking, foraging and breeding (Froglife, 1999).

Amphibians – two ponds exist within the bounds of the site with a further eight potentially connected ponds within a 500m radius of the proposed site boundary. All ponds on site and within a 500m radius of the site boundary, where accessible, have been subject to a Habitat Suitability Index Assessment (HSI) with the aim of assessing suitability for use as breeding habitat for great crested newt (GCN). In addition, terrestrial habitat on the site has been assessed for suitability to support amphibians.

Badger (*Meles meles*) – the site and adjacent habitats (where accessible) have been searched for areas that might be used for foraging and sett building. Incidental foraging signs, tree scratching, paths, dung pits, latrines and setts have been recorded if found (Harris et al., 1989).

Notable mammals – the site has been searched for evidence and suitable habitat for BAP/Priority Species mammals (Cresswell et al., 2012).

Invertebrates – the site has been searched for areas of habitat that may be used for shelter, and include food plants and species suitable for egg-laying.

Invasive species – the site has been searched for evidence of species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

All other protected species have been scoped out of the survey work due to an absence of records and lack of suitable habitat within the surrounding landscape.

The potential of the site to support protected or notable species has been assessed through field observations and desk study information. The likely presence of a species is ranked as follows:

Negligible – while presence cannot be absolutely discounted, the site supports very limited or poor-quality habitat for a species or species group.

Low – habitats within the site are of poor to moderate quality for a given species or species group, but presence cannot be discounted based on the national distribution, opportunities within the surrounding landscape and the results of the desk study.

Moderate – habitats within the site are of moderate quality and provide opportunities for a given species or species group. The desk study has returned historic records and suitability is identified within the surrounding landscape.

High – habitats within the site are of high quality for a given species or species group. The desk study returns historic records of local occurrence.

2.6. Survey limitations

The Preliminary Ecological Appraisal was undertaken at a time of year when not all botanical species are evident, however, sufficient botanical species have been observed to confidently identify and classify habitat types within the site and assess their value.

As is the nature of ecology surveys, this study serves to provide only a “snapshot” of the conditions prevailing at the time of survey.

3. Results

3.1 Desk Study

The desk study has revealed the no statutory or non-statutory designated sites of conservation concern with the 2km search radius. The search of the MAGIC Map Application further indicates no EPSM licence applications have been granted within a 1km radius of the site.

3.2 Preliminary Ecological Appraisal

The site has been visited by suitably experienced and licensed surveyor Casey Griffin BSc Hons. MCIEEM on 6th May 2021.

An annotated Phase 1 habitat survey map is provided in appendix 2 of this report. This illustrates the location of all habitat types recorded at the site together with target notes depicting features of ecological interest. Habitats have been classified using Phase 1 methodology (JNCC, 1993) and given a scale of importance.

3.2.1 Weather Conditions

The weather conditions recorded during the site visit are as follows:

Table 1: Weather conditions at the time of the survey

Parameter	Recorded Figure
Temperature	12°C
Cloud cover	60%
Precipitation	Light intermittent rain
Wind speed (Beaufort scale)	2

3.2.2 Habitats

Buildings

The site includes three modern steel-framed barns two for which are permanent structures with the third a temporary structure. The buildings are set within an existing hardstanding curtilage and occupy largely rectangular footprints. The location of these buildings is illustrated within figure 2 overleaf.



Figure 2: Buildings

B1 & B2; are large agricultural type buildings supported by a steel frame with half-height block walls and finished with profiled metal sheeting which also extends over the large pitched roofs. Skylights and windows provide for a relatively light internal environment. The large single space provided within these buildings result in good air circulation. No enclosed voids are recorded. B1 was not occupied at the time of survey, however, B2 functioned as a workshop facility with sand blasting activity underway during the survey.



B1: Eastern Elevation



B2: Eastern Elevation



B1: Internal

B3: is a temporary steel-framed structure finished with a waterproof plastic heavy sheeting fastened directly to the steel frame structure of the building. This building is well-sealed as a result of its construction with limited natural light spill internally.



B3: Western elevation



B3: Internal

Bramble scrub

Established areas of both scattered and continuous bramble scrub are noted to the south of the hardstanding curtilage. This habitat has established atop the earth banks where disturbance through management has been less frequent. Dominated by bramble (*Rubus sp.*), this habitat offers limited species diversity and is considered common and widespread being easily recreated. The dense structure of this habitat is however, likely to provide a suitable sheltering and foraging resource to local species birds, herpetofauna, small mammals and invertebrates. This habitat when considered as part of the existing mosaic of habitats provided on site is considered to offer moderate ecological value within the context of the site but unlikely to offer ecological value at a greater than local level.

Tall ruderal

Small areas of tall ruderal encroachment are noted to exist between hedgerows and scrub as they transition into grassland or ephemeral vegetation. This habitat offers a good diversity of species including abundant common nettle (*Urtica dioica*), cow parsley (*Anthriscus sylvestris*) and creeping thistle (*Cirsium arvense*) and occasional rosebay willowherb (*Epilobium angustifolium*), fat hen (*Chenopodium album*) and rarely occurring oxeye daisy (*Leucanthemum vulgare*), burdock (*Arctium minus*) and teasel (*Dipsacus fullonum*).

Tall ruderal habitat is not an uncommon habitat and can be easily recreated. In this instance as this habitat forms part of a habitat mosaic on site it is considered to provide moderate ecological value within the context of the site.

Species poor semi-improved grassland

Two small parcels of species poor, semi-improved grassland are noted within the land associated with the buildings. Although displaying signs of historic improvement and management through grazing or mowing, the sward length was approximately 30cm in height at the time of the survey. Botanical diversity is low with the sward dominated by rank grasses with occasional herbaceous species including creeping buttercup (*Ranunculus repens*), broad leaved dock (*Rumex obtusifolius*) and, cleavers (*Galium aparine*). This habitat comprises common and widespread species and as such does not constitute an important ecological feature and is unlikely to offer ecological value at a greater than local level.

This habitat, however, is likely to support good diversities of common and widespread invertebrates and as such provide a foraging resource for species such as herpetofauna, badger, birds and bats.

Improved grassland

A large parcel of grazed pasture makes up a good portion to the site to the west of the existing buildings. No grazing livestock were recorded at the time of the survey. However, evidence of recent grazing by sheep was recorded by the surveying ecologist. The sward length was approximately 10cm - 15cm in height at the time of survey. As is typical for this type of habitat, botanical diversity is low with the sward dominated by rank grasses with rarely herbaceous species including creeping buttercup (*Ranunculus repens*) and white clover (*Trifolium repens*). This habitat is common and widespread locally and as such does not constitute an important ecological feature and is unlikely to offer ecological value at a greater than site level.

This habitat, however, is likely to support good diversities of common and widespread invertebrates and as such provide a foraging resource for species such as badger.

Ephemeral vegetation

Areas of ephemeral vegetation, patchy in nature, have encroached onto areas of the existing hardstanding curtilage around the buildings and along the existing access. This habitat offers a good species diversity although temporary in nature and likely to be succeeded within a short period of time. The sward included abundant ribwort plantain (*Plantago lanceolata*), broadleaved plantain (*Plantago major*), chickweed (*Stellaria media*), colts foot (*Tussilago farfara*), lesser trefoil (*Trifolium dubium*), with occasional germander speedwell (*Veronica chamaedry*), cocksfoot grass (*Dactylis glomerata*), broadleaved dock (*Rumex obtusifolius*), hawkweed (*Hieracium sp.*), and common vetch (*Vicia sativa*).

This habitat offers a sparse structure, with sheltering opportunities limited as a result of the frequent patches of exposed bare earth, and is indicative of the shallow stoney soil present. As is the nature of this habitat type, the vegetation present lacks a clear dominant species but instead consists of a mixture of low-growing plants. This habitat is considered to offer low ecological value within the context of the site. In addition, this habitat is common and widespread, being easily recreated where derelict urban sites exist and therefore its wider ecological value is limited.

Hedgerows

Managed hedgerows exist along the boundaries of the land parcels on site. Figure 3, below, illustrates the location of the hedgerows.



Figure 3: Hedgerow map

H1: appears relatively recently established and likely to be less than 20 years in age. This hedgerow offers a length of some 290m with an average height of 2m and average width of 1.5m. This hedgerow runs the length of the northern and western boundaries of the parcel of land associated with the buildings on site. Species include abundant hawthorn (*Crataegus monogyna*) with occasional elm (*Ulmus sp.*), blackthorn (*Prunus spinosa*) and rarely occurring willow (*Salix sp.*).



H1

H2 some 170m in length, this hedgerow runs the length of the southern boundary to the parcel of grazed pasture. This hedgerow displays evidence of regular management through flailing and provides an average height of 2m and an average width of 2.5m. A total of three ash standards and a single willow standard are recorded within the features, of which a single ash and the willow have been identified to offer suitability for use by roosting bats. Species include dominant blackthorn and hawthorn with rarely occurring ash and willow.



H2

H3 runs the length of the western boundary at 290m in length. An average height of 1.5m is recorded with an average width of 1m, this hedgerow displays evidence of regular management through flailing. A number of standard hawthorn are recorded along the length of this feature. In addition a large gap of around 15m is noted where the hedgerow passes a derelict building. Species include dominant blackthorn and hawthorn.



H3

H4 runs the length of the northern boundary of the grazed pasture at some 320m in length. An average height of 1.5m is recorded with an average width of 2m, this hedgerow displays evidence of regular management through flailing. A total of four standards are recorded along the length of this feature. Species include dominant blackthorn and hawthorn with rarely occurring willow and ash.



H4

H5 runs the length of the eastern boundary of the grazed pasture, parallel to the road. An average height of 2.5m is recorded with an average width of 2m, this hedgerow displays less evidence of regular management and contains a number of standards. Species include abundant blackthorn and hawthorn with rarely occurring elm, elder and ash.

The hedgerow habitat, offered within the context, of the site is considered likely to provide nesting opportunities for locally common and widespread species of garden and farmland birds. Two mature standards, associated with H2 are also considered likely to provide some limited bat roosting opportunities within woodpecker holes and fissures within the bark.

Hedgerows are a priority habitat (NERC Act, 2006) and provide valuable connectivity through the landscape and between habitats, making them a valuable resource for a range of wildlife. Following the walkover survey undertaken on the 6th May 2021, it is concluded that the hedgerows on site offer valuable connectivity across the site as well as value to sheltering and foraging species likely to be present within the surrounding landscape. As such the hedgerows on site have been afforded **high** ecological value within the context of the site and afforded ecological value at a local level.

Semi-natural broad leaved woodland

A small pocket of semi-natural broadleaved woodland is located to the southern most corner of the site, within which a small pond is located. This woodland block offers a semi-mature canopy including standards of oak (*Quercus robur*), ash, birch (*Betula sp.*) and willow with a sparse bramble understorey. Ground flora was also sparse. The canopy structure, provided by this habitat, offers good opportunities for nesting birds and terrestrial mammals such as badger as well as opportunities for common and widespread invertebrates, however, no suitable bat roosting opportunities were noted by the surveying ecologist.

Broadleaved woodland is a priority habitat (NERC Act, 2006) and provides a valuable resource for a range of wildlife. This habitat is considered to offer high ecological value within the context of the site and although small in size is likely to offer value at within a local context.

Ponds

Two small ponds are recorded within the site boundary. Pond 1, located within the small block of woodland is subject to heavy shading as a result, however, pond 2 is located within the parcel of grazed pasture and likely to be subject to some level of disturbance by grazing livestock.

Ponds are a priority habitat (NERC Act, 2006) and a valuable resource for a range of species and when associated with an established network, as is the case in this instance, provide ecological value within a local context.

3.3. Protected Species

Bats

The search undertaken by BMERC reveals a number of bat records within a 1km radius of the site. These include indeterminate pipistrelle (*Pipistrellus sp.*), soprano pipistrelle (*Pipistrellus pygmaeus*), indeterminate myotis (*Myotis sp.*), brown long-eared (*Plecotus auritus*) and Western barbastelle (*Barbastella barbastellus*). These records are associated with Twyford Lodge some 800m to the east of site. Most of these records are for commuting and foraging individuals recorded between 2008 and 2015, however, a indeterminate pipistrelle roost is noted some 806m to the east of the site at Twyford Lodge.

The buildings and mature trees on site have been inspected, where possible, by the licenced surveying ecologist for suitability for use by roosting bats.

The intrusive inspection of the buildings has revealed no evidence of bat activity such as droppings and feeding remains. These buildings do not provide any suitable roof space where long-eared species are provided sheltered, secured conditions for roosting. In addition the construction of these buildings offer no suitable roosting opportunities for crevice dwelling species where they may be able to conceal themselves within a dry and stable cavity or crevice.

When assessing the three buildings on site in line with the Bat Conservation Trust's "Bat Surveys for Professional Ecologists, Good Practice Guidelines" (Collins, 2016) and considering Table 4.1 which attributes suitability for bat roosting based on features offered and habitat present within the locality. The buildings are considered to offer negligible suitability to support bat roosting.

A ground based inspection of the trees on site revealed two mature standards associated with H2 to offer features within which bats may roost, such as rot holes, die back and fissures within the bark. This inspection revealed no evidence of any associated bat roosting such as droppings or staining by urine accumulation. However, based on the features present these two standards are afforded low to moderate bat roosting suitability.

The hedgerows and grassland on site, when considered within the wider rural landscape, provides opportunities for foraging and commuting bats, although the value directly attributed to the site is limited by the relative small size and extent of habitats present. Should established bat roosting sites exist nearby, these roosts are likely to be heavily dependent on foraging opportunities within their Core Sustainance Zones (CSZs) (BCT; Core Sustainance Zones: Determining zone size; 2016) of which the site will form a small part of.

When considered in line with the Bat Conservation Trust's "Bat Surveys for Professional Ecologists, Good Practice Guidelines" (Collins, 2016) which affords suitability based of suitable features offered and habitat present within the locality, the site is afforded low suitability for foraging and commuting bats.

Nesting Birds

The preliminary ecological appraisal undertaken in March 2021 revealed no evidence of active or historic bird nesting activity, however, the canopy structure provided within the hedgerows and associated mature standards as well as the small pocket of woodland are likely to offer opportunities for nesting birds. As such, the site is afforded high value to nesting birds. Opportunities for ground nesting species such as skylark (*Alauda arvensis*) also exist within the grassland habitats provided on site.

Reptiles

The data search returned no historic records for reptiles within the 1km search radius. This is thought likely as a result of under recording rather than a lack of presence given the abundance of suitable habitat locally. The typical 3D habitat type associated with common lizard is not present within habitats on site, however, habitats on site do offer some opportunities for sheltering and foraging reptiles within the rough semi-improved grassland, tall ruderal vegetation and the woodland pocket. Grass snake (*Natrix helvetica*), known to regularly use watercourses and waterbodies as a resource, may exploit the waterbodies on site as a foraging resource. Grass snake commute over large distances and as such may exploit suitable habitats on site whilst dispersing through the wider landscape. As such the site is afforded low to moderate suitability for reptiles.

Badger

The data search, undertaken to inform this survey, returned no records of badger within the 1km search radius. However, the walkover survey revealed a well worn mammal path at the base of H1 and in addition direct evidence of badger was recorded with a snagged badger hair at the base of the fence line associated with H1. No evidence of badger or setts have been noted during the walkover survey of the site and surrounding habitats. The habitats on site are considered likely to provide foraging opportunities for this species but are more likely to form a small part of a wider territory. Overall the site is considered to offer low-moderate value to badger.

Notable mammals

The farmland and open countryside provided within the surrounding landscape is likely to offer value to species such as brown hare (*Lepus europaeus*) and hedgehog (*Erinaceus europaeus*). Sheltering and foraging opportunities for these species are present within the habitats on site.

The data search returned no records for these species, however, given the occurrence of suitable habitat in the locality, this is most likely attributed to under recording rather than a lack of presence. As such the site is considered to offer moderate value to hedgehog and brown hare.

Invertebrates

The habitats on site are likely to support a range of common and widespread invertebrates. There is no indication that a notable assemblage is present. Overall the site is considered to offer low value to invertebrates.

Amphibians

The desk study reveals the site to lay within a “red risk” zone for great crested newt (GCN), in addition the data search revealed a total of ten GCN recorded within the 1km search radius. The closest of these records is associated with a pond some 250m to the south of the site. No other amphibian records have been returned within the data search by BMERC.

Eight, potentially connected ponds are located within a 500m radius of the site boundary, in addition to the two ponds located within it. Figure 6, aims to illustrate the location of ponds with a 500m radius.

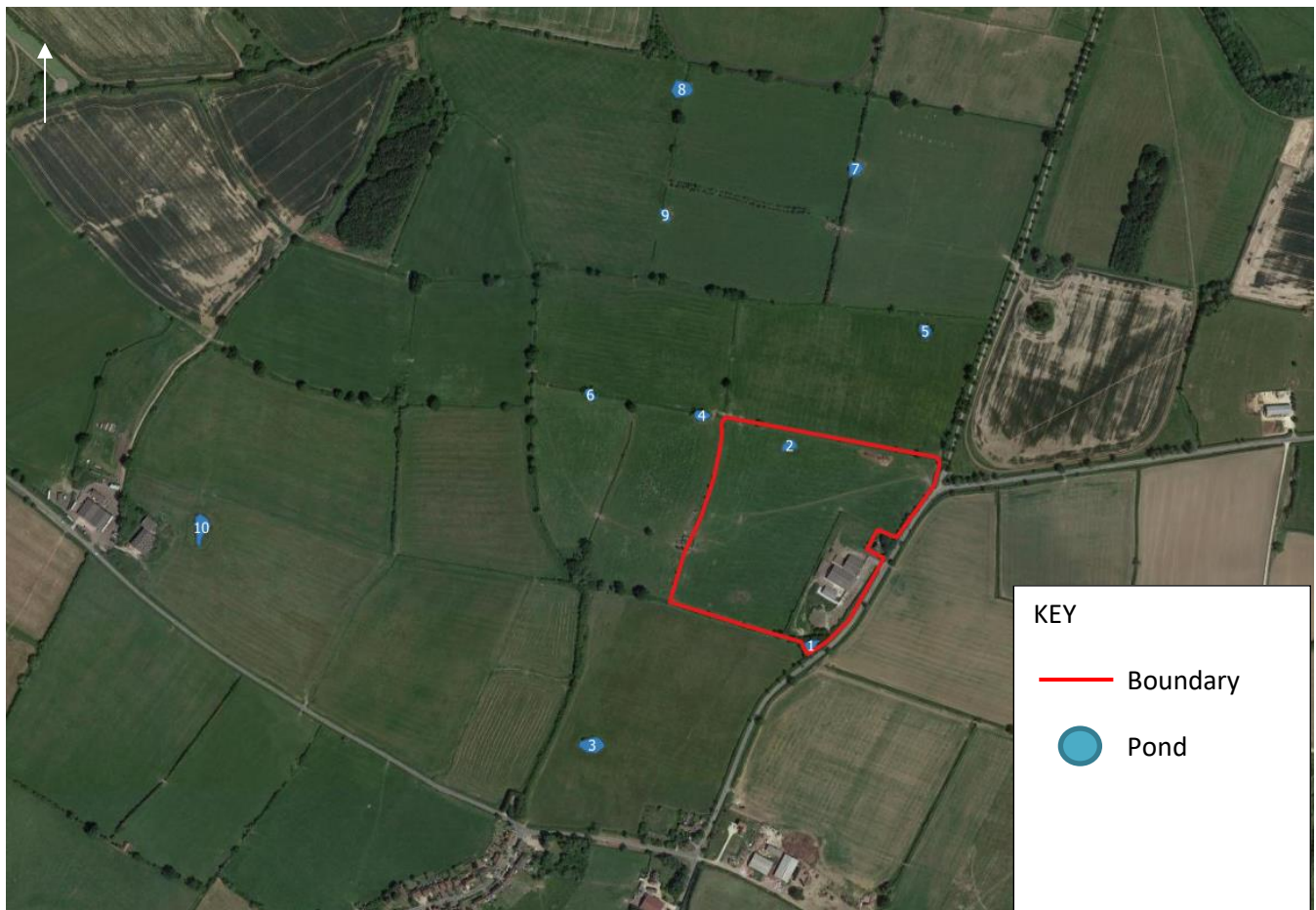


Figure 3: Location of ponds

A Habitat Suitability Index assessment has been undertaken on all accessible ponds within this 500m radius. The details of this assessment are provided below:

Pond 1:

P1 is located to the southern-most corner of the site within the existing block of woodland.

Table 2: HSI assessment results P1

HSI of Pond 1		
Factor	Result	Suitability Index
SI1 – Location	A	1
SI2 – Area	80m ²	0.1
SI3 – Drying	Never	0.9
SI4 - Water Quality	Moderate	0.67
SI5 – Shade	100%	0.2
SI6 – Fowl	Absent	1
SI7 – Fish	Possible	0.67
SI8 – Ponds	16	1
SI9 – Terrestrial	Good	1
SI10 – Macrophytes	10%	0.4

$(SI1 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/9}$ = Suitability for GCN

$(0.0032)^{1/10}$ = poor

This equates to 0.56 and therefore is assessed to offer **below average** suitability for breeding GCN

Pond 2:

P2 is located within the grazed pasture on site.

Table 3: HSI assessment results P2

HSI of Pond 2		
Factor	Result	Suitability Index
SI1 – Location	A	1
SI2 – Area	150m ²	0.4
SI3 – Drying	Sometimes	0.5
SI4 - Water Quality	Moderate	0.67
SI5 – Shade	0%	1
SI6 – Fowl	Absent	1
SI7 – Fish	Possible	0.67
SI8 – Ponds	16	1
SI9 – Terrestrial	Moderate	0.67
SI10 – Macrophytes	30%	0.6

$(SI1 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/9}$ = Suitability for GCN

$(0.0.36)^{1/10}$ = good

This equates to 0.71 and therefore is assessed to offer **good** suitability for GCN

Pond 3:

P3 is located some 250m to the south of the site. The data search revealed a positive eDNA result associated with this waterbody.

Table 4: HSI assessment results P3

HSI of Pond 3		
Factor	Result	Suitability Index
SI1 – Location	A	1
SI2 – Area	400m ²	0.8
SI3 – Drying	Rarely	1
SI4 - Water Quality	Moderate	0.67
SI5 – Shade	60%	1
SI6 – Fowl	Absent	1
SI7 – Fish	Possible	0.67
SI8 – Ponds	16	1
SI9 – Terrestrial	Moderate	0.67
SI10 – Macrophytes	60%	0.9

$(SI1 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/9}$ = Suitability for GCN

$(0.216)^{1/10}$ = excellent

This equates to 0.85 and therefore is assessed to offer **excellent** suitability for GCN

Pond 4:

P4 is located some 20m to the north-west of the site boundary.

Table 5: HSI assessment results P4

HSI of Pond 4		
Factor	Result	Suitability Index
SI1 – Location	A	1
SI2 – Area	80m ²	0.1
SI3 – Drying	Sometimes	0.5
SI4 - Water Quality	Moderate	0.67
SI5 – Shade	100%	0.2
SI6 – Fowl	Absent	1
SI7 – Fish	Possible	0.67
SI8 – Ponds	16	1
SI9 – Terrestrial	Moderate	0.67
SI10 – Macrophytes	10%	0.4

$(SI1 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/9}$ = Suitability for GCN

$(0.0012)^{1/10}$ = below average

This equates to 0.51 and therefore is assessed to offer **below average** suitability for GCN

Pond 5:

P5 is located some 170m to the north of the site boundary.

Table 6: HSI assessment results P5

HSI of Pond 5		
<i>Factor</i>	<i>Result</i>	<i>Suitability Index</i>
SI1 – Location	A	1
SI2 – Area	500m ²	1
SI3 – Drying	Rarely	1
SI4 - Water Quality	Moderate	0.67
SI5 – Shade	60%	1
SI6 – Fowl	Absent	1
SI7 – Fish	Possible	0.67
SI8 – Ponds	16	1
SI9 – Terrestrial	Moderate	0.67
SI10 – Macrophytes	60%	0.9

$(SI1 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/9} = \text{Suitability for GCN}$

$(0.270)^{1/10} = \text{excellent}$

This equates to 0.87 and therefore is assessed to offer **excellent** suitability for GCN

Terrestrial habitat:

Good opportunities for sheltering and foraging GCN are provided within the site where associated with the mosaic of woodland, scrub, tall ruderal and semi-improved grassland. The proposals seek to retain and protect the existing waterbodies on site, however, the loss of the scattered scrub and tall ruderal paired with the temporary loss of grassland on site is likely to result in a adverse effect on any existing GCN population as such a licence is required to facilitate the proposed.

The site is considered to offer high suitability for use by GCN and other amphibians.

Invasive Species

No invasive or schedule 9 species have been recorded on site during the walkover PEA survey on the 6th May 2021.

4. Conclusions

The site has no statutory or non-statutory designations for nature conservation within its boundary or adjacent to them and no such designated sites are expected to be affected by the proposed works.

When considering the proposals, the existing extent of semi-improved grassland as well as the mosaic provided by scattered bramble scrub, ephemeral and tall ruderal vegetation will be lost to facilitate the proposed. These habitats, as a result of their limited size are considered to offer limited value within a local context for sheltering and foraging species such as reptiles and amphibians. Suitable GCN breeding habitat is present on site within the two ponds identified. However, these features will be retained and protected as part of the proposed. The loss of suitable terrestrial habitat is unavoidable and as such direct impacts to GCN are considered likely given the presence of suitable habitat on site and the sites location within an identified "red" risk zone as dictated by the NatureSpace Partnership. In consideration of this, the application should be supported by a district level licence enabling a derogation to relevant legislation relating to GCN. Suitable Risk Avoidance Measures (RAMs) should be employed to ensure construction activities, specifically vegetation clearance works are undertaken in a manner to avoid the risk of accidentally killing and/or injuring individual animals.

Two trees, associated with H2, have been identified to offer potential for roosting bats and nesting birds. These habitats will be retained and protected within the proposed, however, a sensitive approach to works should be adopted and maintained to ensure indirect impacts are minimised where possible.

The proposals include the temporary loss of improved grassland to facilitate a heavy plant training centre for HS2. It is understood that this habitat will be restored following the agreed operational period and as such any loss of opportunities provided by this habitat such as those provided to foraging bats, birds and badger would be temporary in nature. Opportunities to secure a net gain in biodiversity should be considered in relation to the re-establishment of this grassland habitat post operation. Enhancement to the floristic diversity through appropriate seeding, of this currently species poor habitat would offer a gain in biodiversity value.

Following the implementation of a District Level Licence for GCN and the implementation of the recommended ecological mitigation measures, ecological impacts resulting from the proposed are not considered significant.

5. Recommendations and Ecological Mitigation Strategy

Licence Application

GCN presence on site remains a risk within suitable habitats and as the site lies within a identified "red" risk zone for this species. As such a District Level Licence (DLL) application should be made to NatureSpace Partnership to ensure an appropriate derogation to legislation relating to GCN and by way of compensation for the loss of suitable GCN habitat as a result of the proposals.

Precautionary Working Methodologies and Mitigation Measures

A Construction Environmental Management Plan (CEMP) should be produced to outline any detailed mitigation following the District Level Licence (DLL) application agreement with NatureSpace and those detailed below. These measures should relate to construction and clearance activities in an effort to minimise impacts resulting from noise, light, vibration and visual disturbance to adjacent and retained and protected habitats on site. This will include the presence of an Ecological Clerk of Works (ECoW) and suitably licensed GCN worker during the clearance phase of works to ensure the implementation of Risk Avoidance Measures relating to GCN (agreed within the DLL for GCN) and reptiles during the proposed development.

Retained Habitats

Woodland

The proposed development zone lies within 10m of the retained woodland pocket at its closest, and as such effort should be made to ensure the risk of accidental traffic movement within the sensitive root protection area of these trees is limited. Heras type fencing should be secured to the boundaries of the construction zone. This fencing will be maintained for the duration of clearance and construction works and only removed once construction is complete.

Hedgerows

The hedgerows on site are considered to offer established vegetated dispersal routes for a range of species including birds, amphibians, badger, reptiles and bats. In this instance, development will seek to retain and protect these features, with the exception of a small section of H1. In the absence of mitigation, there remains a risk of accidental encroachment by construction traffic to retained hedgerows and as such, measures to protect these features should include the provision of Heras type fencing in line with BS5837:2012 (trees in relation to construction).

Pond

The proposed heavy plant training area is located in close proximity to an existing waterbody and as such measures should be implemented to ensure accidental vehicle movement within potential ecologically sensitive areas is avoided. These will include the erection of Heras type fencing, secured along the boundary of the development zone closest to the pond whilst maintaining connectivity to the adjacent hedgerow where possible.

Any stored building materials, plastics or fuels will be appropriately and securely stored to avoid risk of accidental pollution or contamination of the adjacent waterbodies.

Spill kits and drip trays will be located on site at all times and all static plant equipment, when not in use, will be positioned away from ponds and atop hardstanding where possible.

Protected Species

Badger

The informing ecological appraisal reveals no evidence of a badger sett on site or adjacent to it, however, a badger path is confirmed at the base of H1. In addition, suitable foraging and commuting habitat is present within the grassland.

A pre-commencement badger check should be undertaken by a suitably qualified ecologist to ensure badger sett establishment has not occurred within the period preceding development.

There remains a risk that badger may pass through or forage within the construction zone, therefore all pits, trenches, footings, etc. on site that exceed 1m in depth will be provided with a means of escape for any badgers that may become entrapped in these features. Suitable planks of wood used as ramps in any features exceeding 1m in depth will suffice, and should be angled appropriately to ensure any badgers can exit safely.

Reptiles and amphibians

The rough grassland, tall ruderal and ponds provided on site as well as the habitats associated with the neighbouring landscape are considered likely to support species such as grass snake, common frog, smooth newt and common toad.

- Two log piles should be created within retained habitat near to the waterbodies on site to accommodate the translocation of herpetofauna including grass snake.
- Prior to formal site clearance activity any stored materials and the base of the portion of H1 to be removed should be hand search and cleared under the supervision of the appointed ECoW. Any herpetofauna found sheltering will be moved by hand, by the ECoW to the receptor site. Handling should be kept to a minimum and latex gloves should be avoided.
- The rough grassland and tall ruderal vegetation on site, will be cut to a height of no greater than 15cm upon completion of any destructive searches, and then cut to a height of no greater than 5cm 2 days later.
- Once the destructive search and habitat manipulation is completed, construction work can commence.
- Should any non-protected species be discovered on site these will be moved safely by hand by the on-site ecologist to the nearby retained vegetation. Handling should be kept to a minimum and latex gloves should be avoided.

Bats

Two mature trees with H2 have been identified as offering bat potential. These will be retained and protected as part of the development work. However, to prevent disturbance (noise and vibration) to bats should roosting be taking place, the hedgerow will be appropriately fenced in line with BS5837 (trees in relation to construction).

The habitats on site are likely to provide some foraging and commuting value to local bats and as such lighting during construction and operation should be avoided to prevent disturbance to bat species. If lighting is necessary this should be directed away from potential bat habitats such as hedgerows, ponds and woodland pocket. If lighting, temporary or permanent, is required this will be kept at a minimum level for safety and security and the lux-level of lamps should be as low as possible. Light emitted should be in the warm-white spectrum and be high pressure sodium (rather than halide, or other) with covers shielding down. Covers should be made from glass rather than plastic as this minimises the amount of UV light, reducing the attraction effect of the lights on insects.

Nesting birds

Vegetation clearance works have the potential to disturb, kill or injure nesting birds, their chicks and/or their eggs, and/or to destroy the nest(s) should these works be undertaken during the nesting bird season (March - September). Therefore, where feasible these works will be undertaken outside of the nesting bird season. Should works be unavoidable during this period then a nesting bird survey will be undertaken/supervised by the ECoW to ensure no nests or dependent young are present prior to works.

Should nesting birds be identified, then any potential disturbance works must halt in that area and the ECoW will monitor nesting activity. Development works can resume once the chicks have fledged and are no longer reliant on the nest.

If nesting birds are found to be present prior to or during works, a suitable buffer of no disturbance must be maintained around the nest(s) until all of the young have naturally fledged and are no longer dependent on the nest.

6. References

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Appendix 1 - legislation

Legislation & Planning Policies

A number of UK and European policies and legislation deal with the conservation of biodiversity.

Protected habitats & species

The Wildlife and Countryside Act 1981 (as amended by the Countryside Rights of Way Act 2000) Section 9 protects great crested newt and all UK species of bat and their resting places from disturbance, damage and destruction. The Conservation of Habitats and Species Regulations 2010 additionally lists great crested newt and all UK species of bat as European Protected Species, and additionally prohibits killing or injury of individuals, as well as protecting their resting places from disturbance and destruction.

Common reptiles (grass snake, adder, common lizard and slow worm) are listed under Schedule 5 of the Wildlife and Countryside Act (as amended) and are protected from killing and injury.

The Wildlife and Countryside Act 181 (as amended) provides protection to all species of wild bird and their nests. Under Section 1 it is an offence to intentionally or recklessly take, damage, destroy, or otherwise interfere with nests or eggs, or to obstruct or prevent any wild bird from using its nest.

Under the Protection of Badgers Act 1992 it is an offence to disturb, kill, injure or take a badger or to disturb, damage, obstruct access to, allow a dog to access or destroy a sett.

Priority habitats & species

The NERC Act 2006 places a duty on public authorities to conserve biodiversity. Additionally, this Act states that a list of priority species and actions must be drawn up and published, to contain species and habitats of principal importance for the purpose of conserving biodiversity. These lists of Priority Species and Priority Habitats, which encompass the previous UK Biodiversity Action Plan (BAP) habitats and species, are those identified as being the most threatened and requiring conservation action. Priority habitats and species were chosen based on international importance, rapid decline and high risk. The list contains over 1000 habitats and species in total.

Invasive species

Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) contains introduced species which have been identified as having a severe economic and ecological impact through their introduction. It is an offence to release or allow to escape into the wild any species which is listed under Part I or Part II of Schedule 9, or any species which is not native.

Appendix 2 – Phase 1 Map



Title: Phase 1 Habitat Map
 Site: Land at Red Furlong Farm
 Date: May 2021

- Key**
- Site boundary
 - Hedgerows
 - phase 1**
 - Broadleaved woodland
 - Continuous bramble scrub
 - Scattered bramble scrub
 - Improved grassland
 - Poor semi-improved grassland
 - Tall ruderal
 - Pond
 - Ephemeral vegetation
 - Buildings
 - Hardstanding
 - Muck heap
 - satellite

OpenStreetMap