



TECHNICAL NOTE:

- **(BASIC LEVEL) PRELIMINARY ECOLOGICAL APPRAISAL**
- **GREAT CRESTED NEWT eDNA TEST**
- **BIODIVERSITY NET GAIN (BNG) ASSESSMENT**

SITE NAME & ADDRESS	Eatoughs Farm, Fleet Street Lane, Ribchester, Lancashire PR3 3XE
DEVELOPMENT PROPOSAL	Construction of riding arena and stables
PLANNING REFERENCE	Not yet registered
DATE	24 July 2025
AUTHOR	Ryan Knight BSc (Hons) MCIEEM - Principal Ecologist

INTRODUCTION & BACKGROUND

Knight Sky Ecology Ltd was commissioned to provide ecological services to support the proposed development on land at Eatoughs Farm. The commission included a basic level Preliminary Ecological Appraisal (including desk study and site-based assessment) and a Biodiversity Net Gain (BNG) assessment which included the following documents:

- The Statutory Biodiversity Metric calculation tool (hereafter referred to as ‘the metric tool’)
- Habitat condition assessment
- UK Habitat Classification map – Baseline (Figure 1)
- UK Habitat Classification map – Post-development (Figure 2)

This technical note has been produced to accompany the above listed information and provide an overview of the BNG assessment results along with a baseline of all relevant ecological information for the site. Details of post-development species enhancements in the form of bird and bat boxes are also provided.

In England, the primary legislation for the statutory framework for BNG is principally set out under Schedule 7A (Biodiversity Gain in England) of the Town and Country Planning Act 1990. This legislation was inserted into the 1990 Act by Schedule 14 of the Environment Act 2021, and was amended by the Levelling Up and Regeneration Act 2023.

Under the statutory framework for BNG, subject to some exceptions, every planning permission is subject to a condition that the biodiversity gain objective is met (“the biodiversity gain condition”). This objective is for development to deliver at least a 10% increase in biodiversity value relative to the pre-development biodiversity value of the on-site habitat. This increase can be achieved through on-site biodiversity gains, registered off-site biodiversity gains or through statutory biodiversity credits.

Since the advent of mandatory net gain, every development proposal which is not exempt from BNG requires a certain level of ecological information to feed into the metric tool and ensure compliance with both national and local policy frameworks. This obligation extends to certain minor developments that would often not have previously required ecological input.



A small sites metric (SSM) tool was developed for such sites and for use by applicants without input from ecologists. However, the SSM tool remains little used.

In response to the unprecedented demand for ecological services driven by BNG, Knight Sky Ecology has developed an appropriately scaled survey approach tailored to minor development proposals. The level of ecological information presented in this document is considered proportionate to the scale of the project, the existing site conditions and the limited complexity of potential impacts that may arise as a result of the construction of the development.

METHODS

The ecology data including the metric tool along with the pre and post development habitat maps have been based on the red line planning boundary provided by the agent. The red line has had to include a lengthy proportion of the existing road access. All land within the red line boundary excluding road access is referred to as 'the site'.

The latest version of the metric tool and User Guide (July 2025) have been accessed from:
<https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>

Desk Study

The Multi-Agency Geographic Information for the Countryside (MAGIC) mapping tool (Available from: <https://magic.defra.gov.uk/>) was used to search for ecological information contained within the following datasets:

- Statutory designated sites for nature conservation (e.g. Sites of Special Scientific Interest (SSSI)) including SSSI Impact Risk Zones - to assess for likely impacts on SSSI.
- Priority habitats (as listed within Section 41 of the Natural Environment and Rural Communities Act 2006) within a 250m radius.
- Granted European Protected Species (EPS) mitigation licenses and survey licence returns for great crested newts within a 1km radius.

Geospatial datasets for Biological Heritage Sites and the Lancashire Ecological Network were accessed from [here](#).

Basic initial information about the site and surrounding area was also obtained from aerial imagery and Ordnance Survey maps in order to provide further contextualised information to the site survey findings.

Site Surveys

General Walkover and Habitat Survey

A site walkover was undertaken on 20th May 2025 by Ryan Knight MCIEEM (Full member of the Chartered Institute of Ecology and Environmental Management).

The aim of the site visit was to gather sufficient baseline information of the habitats within the site and to identify any habitats or features of potential ecological significance. All habitats within the site were described and mapped using UK Habitat Classification (UKHab) Version 2 definitions (UKHab Ltd, 2023).

In addition, the site visit included a search for incidental evidence of protected / notable species and an assessment of the sites potential to support protected / notable species.



Great Crested Newt Environmental DNA (eDNA) Test

The horse arena is proposed to be sited directly adjacent to a field pond. Therefore, it was considered prudent to undertake a water test for great crested newt (GCN) Environmental DNA (eDNA) within this pond. In aquatic environments eDNA is diluted and distributed in the water where it persists for 7-21 days. Research has shown that the DNA from a range of aquatic organisms can be detected in water samples at very low concentrations using qPCR (quantitative Polymerase Chain Reaction) methods (Biggs *et al.*, 2014¹). It is a useful method to determine the presence or absence of GCN in waterbodies.

An eDNA survey was completed on the pond on 20th May 2025. Water samples were taken from the pond at 20 evenly spaced points around the pond perimeter. These water samples were then combined into a single container, with six samples being extracted from this and placed into tubes containing a DNA preservative. These tubes were then sent to the SureScreen Scientifics laboratory for analysis in accordance with the Natural England guidelines (Biggs *et al.*, 2014).

¹ Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.



RESULTS

BASELINE CONDITIONS

Nationally Designated Sites

The Impact Risk Zones for SSSI (SSSI IRZs) indicate that the proposed development is unlikely to have a harmful effect on terrestrial SSSI and the Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or Ramsar sites that they underpin. Consultation with Natural England is not required (Natural England, 2023²).

Locally Designated Sites

None identified within 1km.

Priority & Irreplaceable Habitats

There are no priority or irreplaceable habitats on the site. Excluding hedgerows, the nearest priority habitat is an area of deciduous woodland located 250m north. There are not considered to be any potential pathways for impacts to occur on any priority listed habitats.

Lancashire Ecological Network

The site is not located within the network.

Habitat Degradation

None identified.

Habitats

Photos which provide a general overview of the site and supporting data for the metric tool are provided in Appendix A. Figure 1 in Appendix B provides an overview of the habitat baseline as existing in May 2025.

u1b6 – Other developed land

The red line boundary for the site includes the existing access road, entrance and driveway.

g4 – Modified grassland

Both the stables and horse arena are proposed to be sited within an agriculturally improved pasture field. The species composition across the field is listed as follows:

- Rye grass (abundant - 50% of field sward)
- Meadow foxtail (abundant)
- Creeping buttercup (abundant)
- Yorkshire fog (occasional)
- Dandelion (occasional)
- Broad-leaved dock (occasional to locally abundant)
- Rough meadow grass (occasional to frequent)
- Sweet vernal grass (rare)

In addition to the two proposed development areas, a triangular shaped field to the direct west is to be used for BNG purposes. This field also comprised species poor, modified grassland.

² Natural England (2023). Natural England's Impact Risk Zones for Sites of Special Scientific Interest. User Guidance. Version: v4.1. Issue Date: 7 March 2023.



The combined biodiversity value of the existing habitats within the development boundary is **0.31 habitat units**.

Hedgerows

There were no hedgerows within the site boundary.

Watercourses

There were no watercourses within the site or within 10m.

GCN

The water samples returned negative results for GCN eDNA. The test result should be considered as evidence of GCN absence. A GCN report is provided in Appendix C. The pond is likely to be used for breeding by other, more common amphibians including common toad which are a priority listed species (NERC Act 2006).

It should also be noted that the wider area contains numerous field ponds including a further six within 250m of the site. No EPS licenses or survey licence returns for GCN were identified within 1km.

Protected and Notable Species of Fauna

The field was largely unsuitable to support ground nesting birds and the development proposals do not require the removal of any trees, hedgerows or scrub. Based on the data obtained, no other ecological constraints are likely to be encountered. This is due to the likely absence of certain species from the site or it has been assessed that the works will not significantly affect the distribution or abundance of any notable species or result in actions that may be in breach of the relevant legislation.

HABITAT ENHANCEMENTS AND / OR CREATION

Habitats

Figure 2 in Appendix B provides a UK Habitat Classification map of the site as proposed. The development layout includes the horse arena, stables, tack-room / feed-store and hardstanding.

During the project design stage, Knight Sky Ecology advised the application was required to provide some set aside land within the development plans for BNG purposes. With respect to the low distinctiveness habitats to be lost, the planting of native trees was considered to be the most feasible and practical option to achieve net gain on-site.

Therefore, the metric tool has accounted for the planting of 18 native trees within a field area. The combined value of the created habitats post-development would be **0.34 habitat units**.

EVALUATION AND SUMMARY

HABITATS

The development proposals will result in a net gain of biodiversity value for habitats comprising **0.03 habitat units (11.08%)**. The assessment can confirm that no designated sites, irreplaceable habitats, priority habitats or habitats of medium or high distinctness will be impacted. The site is not within an ecological network.

The development will therefore meet the biodiversity net gain condition for habitats as the 10% net gain would be achieved. The time to target condition of the trees is 27 years.



The information contained within this document and the metric tool demonstrates that the mandatory BNG condition is more than capable of being discharged successfully at the site.

GCN & OTHER AMPHIBIANS

The eDNA returned negative results for the pond. With respect to the negative result and the low suitability of the habitat within the development site for GCN (modified grassland), it is considered that GCN do not present a significant ecological constraint to the development proposal.

With respect to the potential presence of other amphibians (including the priority listed common toad), good practice working measures to avoid impacting amphibians are provided below.

RECOMMENDATIONS

BNG - POST-CONSENT REQUIREMENTS & RECOMMENDATIONS

The statutory framework for biodiversity net gain requires a Biodiversity Gain Plan (BGP) to be submitted and approved by the planning authority to discharge the biodiversity gain condition prior to the commencement of development. The BGP should detail the measures undertaken to achieve the required 10% net gain as stated in the metric tool.

The post-development habitat plan has been based on the layout plan designed by the agent with the addition of habitats which can be most feasibly be achieved within the site. A habitat management plan (proportionate to the scale of habitat enhancements) is recommended. Each local planning authority has developed their own mechanism for determining if the post-development landscaping constitutes significant or non-significant net gain.

AMPHIBIANS – MITIGATION

- The grassland within the footprint of both development areas should be cut to around 150mm or closely grazed before the commencement of the works to reduce the suitability of the habitat for amphibians.
- Construction storage compounds and vehicles should keep to the hardstanding areas within the farm.
- Trenches and other excavations should be back-filled before nightfall, or a ramp should be left within a trench to allow amphibians to easily exit.
- Stored materials (that might act as temporary resting places) should be raised off the ground, e.g. on pallets.
- The planting of whip trees within the adjacent field parcel is considered unlikely to harm any amphibians.

SPECIES ENHANCEMENTS

The development proposal presents a good opportunity to deliver ecological enhancements for bats and birds in accordance with national and local policy. Details of the **1 bird box** and **1 bat box** to be installed at the site are provided in Tables 1.1 and 1.2 respectively.

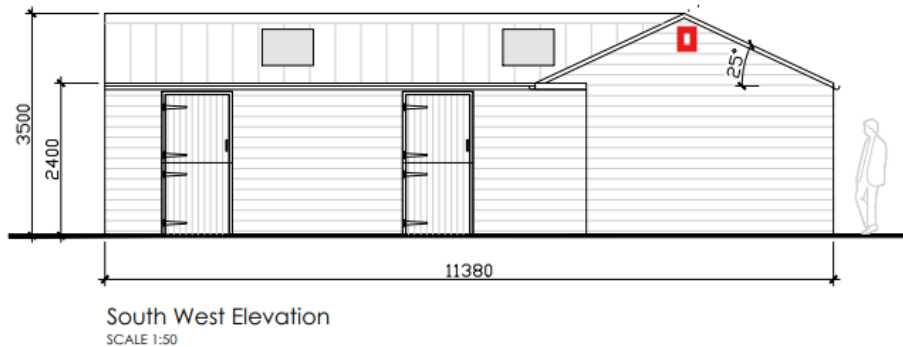


Table 1.1. Bird box models and siting advice

Location & positioning	One box can be fixed onto the building and positioned at least 2.5m in height on the north elevation. SCALE 1:50 North West Elevation SCALE 1:50			
Models	The following model can be used: <table><tr><td>Vivara Pro Seville 32mm WoodStone Nest Box</td><td></td><td> These nestboxes are manufactured from WoodStone which is a mix of concrete and FSC certified wood fibres and are guaranteed for 10 years. Available from https://www.nhbs.com/ </td></tr></table> In the event that a certain bird box model is unavailable for purchase, a suitable like for like replacement will be sourced.	Vivara Pro Seville 32mm WoodStone Nest Box		These nestboxes are manufactured from WoodStone which is a mix of concrete and FSC certified wood fibres and are guaranteed for 10 years. Available from https://www.nhbs.com/
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Maintenance	Where required, cleaning of the boxes should be undertaken from <u>October to January</u>, outside of the nesting bird season (<u>March to August inclusive</u>). Rubber gloves must be worn. The old nesting material which accumulates after every breeding season and the droppings from earlier in the season should be removed along with any egg shells or unhatched eggs.			



Table 1.2. Bat box models and siting advice

Location and positioning	One box can be placed under the roof eaves on the south-west elevation at a height of at least 2.5m.  South West Elevation SCALE 1:50								
Bat Box Models	Bat box models along with the locations for purchasing are provided below. There can be a considerable waiting time for delivery for certain models, therefore, two options have been provided. <table><tr><td>Elisa Bat Box</td><td></td><td> These boxes are manufactured from wood and concrete and provide an ideal summer roost space for a variety of bat species, including pipistrelles, Daubenton's, noctule bat, and brown long-eared bat. Available from: https://www.nhbs.com/ </td></tr><tr><td>Beaumaris Woodstone Bat Box</td><td></td><td> This bat box is also made entirely from WoodStone. The Beaumaris box has a single narrow cavity which makes it suitable for crevice roosting bats such as common pipistrelle. Available from: https://www.nhbs.com/ </td></tr></table>			Elisa Bat Box		These boxes are manufactured from wood and concrete and provide an ideal summer roost space for a variety of bat species, including pipistrelles, Daubenton's, noctule bat, and brown long-eared bat. Available from: https://www.nhbs.com/	Beaumaris Woodstone Bat Box		This bat box is also made entirely from WoodStone. The Beaumaris box has a single narrow cavity which makes it suitable for crevice roosting bats such as common pipistrelle. Available from: https://www.nhbs.com/
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APPENDIX A: PHOTOS

Photo 1.
View south
towards
proposed location
of horse arena.



Photo 2.
General view of
field.





Photo 3.

Site entrance and view towards location of proposed stables (recently planted trees not included in site boundary).



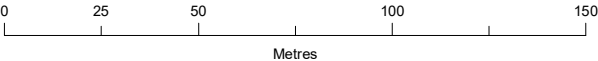


APPENDIX B: FIGURES (NEXT PAGE)

- **FIGURE 1. UK HABITAT CLASSIFICATION MAP (BASELINE)**
FIGURE 2. UK HABITAT CLASSIFICATION MAP (POST-DEVELOPMENT)



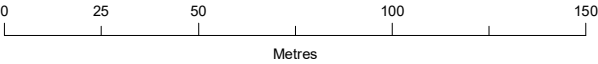
Survey Information	
	Site boundary (2,786.1m ²)
UKHab Habitat Survey	
	g4 - Modified grassland (597.8m ²)
	u1b6 - Other developed land (2,188.3m ²)
	32 - Scattered tree, newly planted



PROJECT TITLE							
EATOUGHS FARM, RIBCHESTER							
DRAWING TITLE							
Figure 2: UK Habitat Classification Map (Post-Development)							
VER	DATE	REMARKS	Drawn	Checked			
1.0	24/07/25	Post-Development	MP	RK			
DRAWING NUMBER:							
KSEcology/EatoughsFarm/Post-Development							
SCALE	1:1,950	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG
Source: Ordnance Survey © Crown copyright 2025, All rights reserved. Licence Number 100049837.					 KNIGHT SKY ECOLOGY		



Survey Information	
	Site boundary (2,786.1m ²)
UKHab Habitat Survey	
	g4 - Modified grassland (1,546.9m ²)
	u1b6 - Other developed land (1,239.2m ²)



PROJECT TITLE							
EATOUGHS FARM, RIBCHESTER							
DRAWING TITLE							
Figure 1: UK Habitat Classification Map (Baseline)							
VER	DATE	REMARKS	Drawn	Checked			
1.0	24/07/25	UKHab	MP	RK			
DRAWING NUMBER:							
KSEcology/EatoughsFarm/UKHab							
SCALE	1:1,950	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG
Source: Ordnance Survey © Crown copyright 2025, All rights reserved. Licence Number 100049837.			  KNIGHT SKY ECOLOGY				



APPENDIX C: GCN REPORT

Folio No: 1753-2025
Purchase Order: 236
Contact: Knight Sky Ecology
Issue Date: 06.06.2025
Received Date: 22.05.2025

GCN Report

Technical Report



SureScreen Scientifics

Folio No: 1753-2025
Purchase Order: 236
Contact: Knight Sky Ecology
Issue Date: 06.06.2025
Received Date: 22.05.2025

GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
GCN25 5455	Eatoughs Farm - P1	SD 62850 35659	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Amy Bermudez

Approved by: Vanessa Hind

Methodology

The samples detailed above have been analyzed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample tube which then undergoes DNA extraction. The extracted sample is then analyzed using real-time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded. Analysis of eDNA requires attention to detail to prevent the risk of contamination. True positive controls, negative controls, and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added analytical security.

SureScreen Scientifics Ltd is ISO9001 accredited and participates in Natural England's proficiency testing scheme for GCN eDNA testing.

Interpretation of Results

Sample Integrity Check:

When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results. Any samples which fail this test are rejected and eliminated before analysis.

Degradation Check:

Pass/Fail. Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

Inhibition Check:

Pass/Fail. The presence of inhibitors within a sample is assessed using a DNA marker. If inhibition is detected, samples are purified and re-analyzed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result:

Presence of GCN eDNA (Positive/Negative/Inconclusive)

Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.

Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with the WC1067 Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.

Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.

Inconclusive: Controls indicate inhibition or degradation of the sample, resulting in the inability to provide conclusive evidence for GCN presence or absence.

