PRELIMINARY ECOLOGICAL APPRAISAL

SEPTEMBER 2021

Dinmore Manor – Wellington Quarry Extension
Haywood Lane
Wellington
Herefordshire
HR4 8DZ

URBAN GREEN

QUALITY MANAGEMENT

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NON-TECHNICAL EXECUTIVE SUMMARY

Herefordshire Quarries are proposing to develop land off Haywood Lane in Wellington, Herefordshire (hereafter referred to as 'the site'). The proposals include the extension of an existing quarry for the extraction of sand and gravel in three phases. The site is also to be restored with proposed plans to be provided at a later date.

Urban Green have been appointed to complete a Preliminary Ecological Appraisal of the site. The objectives of the assessment are to identify habitats on site and determine the suitability for any 'protected and/or notable' species may occur on site, with consideration of potential impacts on nearby designated sites. Further ecological surveys and mitigation are recommended to aim to minimise potential impacts on ecology, due to the proposed development.

Following the survey work, the key recommendations are summarised in the following table:

Current Site Use and Adjacent Site Use	The site currently consists of arable fields bordered by hedgerows. An active quarry is present immediately adjacent to the east of the site and the A49 borders the site to the west.
Potential Impacts on Designated Sites	The River Lugg SSSI and River Wye SAC are located 300m north of the site and the site is hydrologically connected to these designated sites. There is a risk of a negative impact to the designated sites as a result of the development. A Habitats Regulations Assessment will be conducted to assess the impacts that the development will have on these designated sites. A Construction Environmental Management Plan and Drainage Strategy will also be implemented during the extraction phases to minimise and control for adverse impacts to these designated sites.
Habitats	The site comprised predominantly arable fields which were bordered by hedgerows, with patches of tall ruderal vegetation also present. A watercourse is present adjacent to the southern border.
Ecological Constraints	The following potential ecological constraints were identified during the assessment: • Hedgerows are present within the site, and; • Suitable habitat is present to support common amphibians, wintering & breeding birds, bats, brown hare, hedgehog, otter, and badger.
Recommended Ecological Mitigation	The following mitigation measures are recommended to minimise potential impacts due to the proposed development: • Mitigation recommendations have been provided for wintering & breeding birds, and bats. • It is recommended that a camera trap is installed along Wellington Brook to monitor its level of use by otter prior to works commencing. • Precautionary Working Methods to be followed during the construction phase for common amphibians, polecat, brown hare, hedgehog, otter, and badgers. • Vegetation removal and ground clearance should be completed outside of the breeding bird season (March to September, inclusive). If this is not feasible, a Nesting Bird Check is to be completed by a qualified ecologist no more than 48 hours before removal is due to commence.
Further Surveys and Reports	A Habitats Regulations Assessment, including Stage 1 and Stage 2 is to be completed. No further surveys are deemed necessary to inform the proposed planning application.

Recommended Ecological Enhancements	The National Planning Policy Framework (NPPF) (2021) highlights the requirement for planning policies and decisions to conserve and enhance the natural environment. The proposed development provides the opportunity to enhance the site and ecological enhancements have been recommended. A Biodiversity Net Gain assessment is to be conducted to assess the change in value to the environment provided by the proposed scheme.

CONTENTS

1 Introduction

1.1 Background to the Scheme

Herefordshire Quarries are proposing to develop land off Haywood Lane in Wellington, Herefordshire (hereafter referred to as 'the site'). The proposals include the extension of a pre-existing quarry for the extraction of sand and gravel, and also include the restoration of the site (final plans to be confirmed).

The author of the report is Mark Blacker, MSc, ACIEEM, Senior Ecologist at Urban Green. Mark has experience providing ecological consulting services for a range of development schemes across the UK, including residential, commercial, and large infrastructure schemes.

A Scoping Opinion relating to this project was received from Herefordshire Council on 31st March 2021 (Herefordshire Council, 2021). The information requested by this Scoping Opinion has been covered within this report and meets the requirements of this document.

1.2 Site Context

The site is located at National Grid Reference SO 50358 48208 and comprises a total area of approximately 20.8ha (see Figure 1).

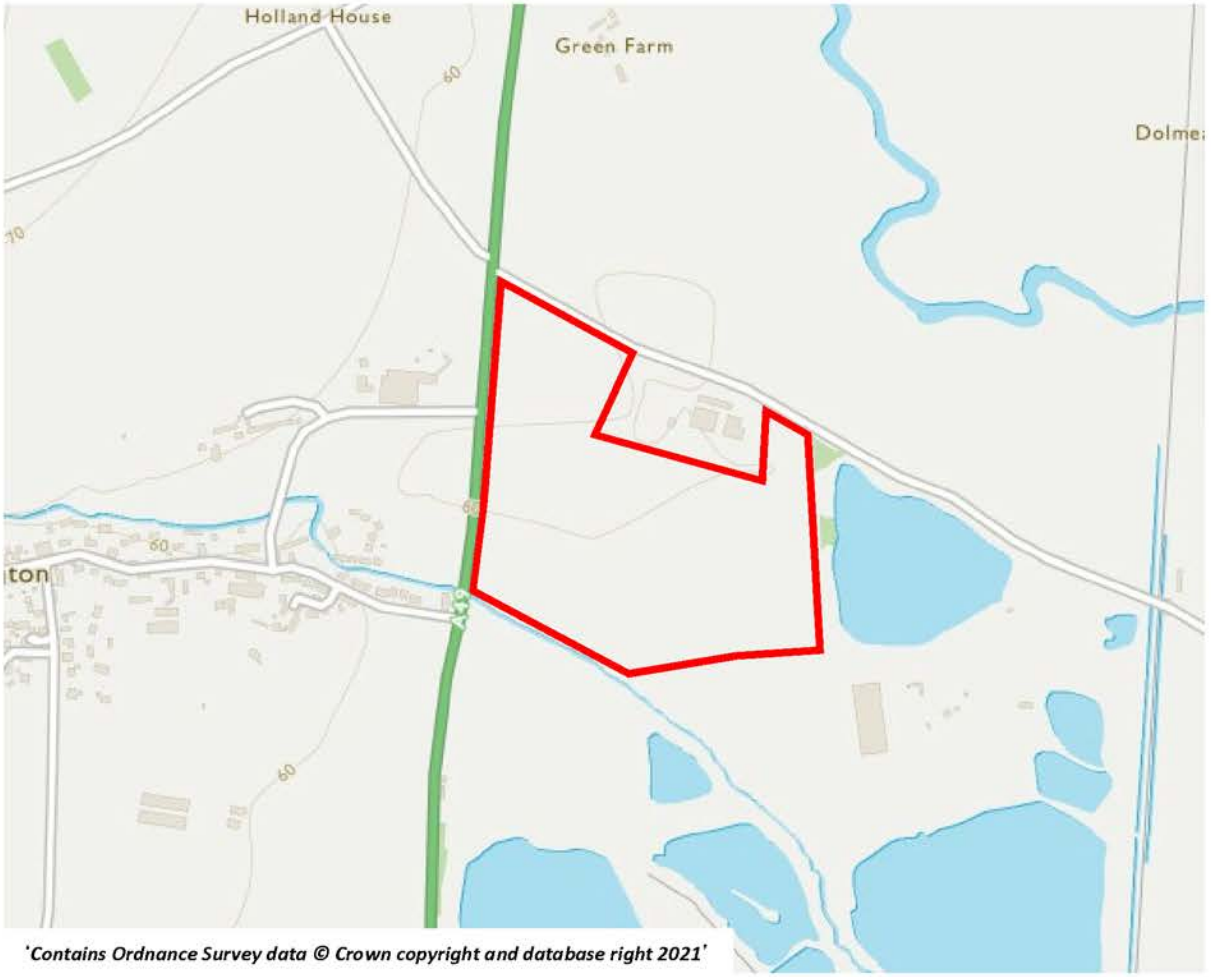

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Figure 1 – Site Extent

The site is located to the southeast of the junction between the A49 and Haywood Lane. The A49 forms the western boundary of the site and Wellington Brook forms the south-eastern boundary and

Haywood Lane forms the northern boundary. The River Lugg is present approximately 300m northeast of the site and a train line is located approximately 500m east of the site. Wellington Village is located immediately to the west of the A49.

1.3 Purpose of this Report

This report has been produced to set out the methods, results, and conclusions of a PEA. The purpose of the PEA report is to be identify habitats on site and determine the sites potential value for protected and/or notable fauna and flora, with the addition of potential impacts on designated site. This will inform the need for any further ecological surveys and/or mitigation to minimise the potential impacts on ecology on site and within the local area.

Further information and details of UK legislation for those species which are formally protected is defined in Appendix 1, which are considered throughout the assessment.

The National Planning Policy Framework (NPPF) (2021) and other Local Planning Policies are considered with the PEA. Ecological enhancements are advised to be in line with relevant Planning Polices.

2 Previous Surveys

2.1 Extended Phase 1 Habitat Survey

An Extended Phase 1 Habitat Survey was conducted onsite by REC in 2018. The survey covered a larger site area of approximately 31.6ha in size, where the site partially lies within the original survey boundary

Habitats present within the survey area consisted of:

- Arable fields;
- Poor semi-improved grassland;
- Improved grassland;
- Broad-leaved plantation woodland
- Two small ponds and a large fishing lake;
- Hedgerows;
- Tall ruderal; and
- Scattered scrub.

The fishing lake was assessed as unsuitable to support great crested newts (*Triturus cristatus*) and other amphibians due to being stocked with fish and having high levels of waterfowl present.

The site was assessed to provide value to nesting birds through the site hedgerows and trees, as well as limited opportunities for ground nesting birds in the field parcels. The fields were also assessed to provide value to wintering bird species.

No evidence of badger (*Meles meles*) activity or water vole (*Arvicola amphibius*) presence was observed within the site, and the site was not assessed to provide value to these species.

Otter (*Lutra lutra*) prints were observed on the River Lugg, which was present adjacent to the site, however the river provided limited holt construction and resting opportunities.

The site was assessed to provide limited suitability to brown hare (*Lepus europaeus*), hedgehog (*Erinaceous europaeus*), and polecat (*Mustela putorius*).

One tree was assessed to provide moderate bat roosting potential and two trees were assessed to provide low bat roost potential. The site itself was assessed to provide moderate value to commuting and foraging bats through the internal site hedgerows. Further bat activity surveys were undertaken (see Section 2.3).

The site was not considered suitable to be of value to reptiles due to the species poor, managed nature of the site. The site was assessed to provide low value to invertebrates through the hedgerows and trees present on site.

As a result of the survey, the following recommendations were made:

- A Construction Environment Management Plan (CEMP) should be prepared to include protection measures for the river corridor and other retained habitats on site.
- Tree protection fencing should be used to protect retained trees.

- A nesting bird check should be carried out prior to the removal of vegetation.
- A pre-works inspection for the presence of otter.

2.2 Birds

2.2.1 Wintering Bird Survey

Wintering bird surveys were undertaken on site February, March, December 2017, and January 2018.

A total of 41 species were recorded within, immediately adjacent, or passing over the site during the surveys. Out of all the species recorded, 19 of them were assessed of being of conservation importance, including ten species on the amber list, and nine species on the red list.

The development was potentially assessed to have a negative impact on local populations of skylark (*Alauda arvensis*) and house sparrows (*Passer domesticus*).

2.2.2 Breeding Bird Survey

Breeding Bird Surveys were undertaken in April, May, June, and July 2017.

A total of 42 species were identified within, immediately adjacent to, or passing over the site during the survey. Out of the species recorded, 14 of them are classified as species of conservation concern, with seven included on the amber list, and seven on the red list.

Species assessed to be breeding or probably breeding on site comprised house sparrow, skylark, yellowhammer (*Emberiza citrinella*), yellow wagtail (*Motacilla flava*), dunnock (*Prunella modularis*), mallard (*Anas platyrhynchos*), meadow pipit (*Anthus pratensis*), mute swan (*Cygnus olor*), and willow warbler (*Phylloscopus trochilus*).

2.2.3 Summary

The site was confirmed to have limited suitability for a range of both wintering and breeding bird species, and mitigation recommendations were made including retention of hedgerows and the inclusion of bird boxes within the site.

2.3 Bat Activity Surveys

Bat activity transect surveys were undertaken between June and October 2017 along a pre-planned transect route. All surveys were conducted at dusk in suitable weather conditions.

The surveys recorded low levels of common pipistrelle (*Pipistrellus pipistrellus*) activity on each survey, with other species recorded including soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*), and *Myotis* sp. Bats were recorded foraging and commuting along the boundary features present on site, with no activity recorded through the centre of the site. The fields were therefore assessed to provide negligible value to commuting and foraging bats.

Mitigation recommendations were made based on the results of the surveys, including the retention of site hedgerows, sensitive lighting, and the inclusion of bat boxes within the restoration plans.

3 Methods

The PEA assessment and Report follows the good practice methodology as detailed within the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2019).

3.1 Desk Study

3.1.1 Online Resources and Local Records Centre

Due to the size and low impact of the proposed development and being located within a predominantly rural area adjacent to a pre-existing quarry, a 2km Local Data Search was conducted as it is deemed an appropriate distance for the Zone of Influence.

Sources of information used in the desk study are presented in Table 1.

Table 1 – Desk Study Sources of Information

Source	Date Consulted	Information Sought
MAGIC website (www.magic.gov.uk)	08/09/2021	Locations of statutory designated sites within 1km of the site boundary. Locations of the designated sites within the National Site Network (Ramsar, SAC and SPA) within 5km of the site boundary. Locations of European Protected Species Licences (EPSL) and Class Licences within 1km.
Natural England (https://designatedsites/.naturalengland.org.uk/)	08/09/2021	Relevant statutory designated site citations.
Joint Nature Conservation Committee (JNCC) (https://jncc.defra.gov.uk/	08/09/2021	Information on European wildlife sites. Details of relevant Section 41 species and habitats.
Herefordshire Biological Records Centre	14/09/2021	Locally designated wildlife sites within 1km of site boundary. Records of protected and notable species within 1km of the site boundary.
Catchment Data Explorer	02/09/2021	Summary of data relating to river condition and catchment data, provided The Environment Agency (EA)

MAGIC was also searched to assess whether the site fell within any Impact Risk Zones (IRZ) associated with a statutory designated site or a site forming part of the National Site Network. IRZ's have been identified by Natural England for use by Local Planning Authorities to assess planning applications for likely impacts on these sites and to determine when to consult Natural England for further advice.

3.2 Field Survey

3.2.1 Vegetation

The site was subject to a field survey on 17th August 2021, by Mark Blacker. The weather conditions were 18°c, overcast (7/8 oktas), wind speed 3 Beaufort scale and no rain.

The methods were based on the standard methodology as detailed by *JNCC Handbook for Phase 1 Habitat Survey* (JNCC, 2010). A Phase 1 Habitat Plan has been produced to demonstrate habitats within the proposed development and the surrounding area. The mapping techniques are based on *the Phase 1 Habitat Survey* (JNCC, 2010) guidance. Plant common and latin names were taken from the *Online Atlas of British and Irish Flora* (https://www.brc.ac.uk/plantatlas/), a continually updated directory of plant nomenclature developed in partnership by the Botanical Society of Britain and Ireland, the Biological Records Centre, the UK Centre for Ecology and Hydrology, and the JNCC.

Flora species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and/or uncommon habitats, were searched for during the survey.

Species abundance is described using the DAFOR scale as shown in Table 2. Percentages are an approximate indication rather than a quantitative measure.

Table 2 – Key to Species Abundance

		Description	Indicative Percentage Ranges
D	Dominant	Covers most of the area	90% or greater
A	Abundant	Very common throughout the area.	50 – 90%
F	Frequent	Common or with many individuals.	20 – 50%
O	Occasional	Occurs in several places but not throughout. Populations are not large.	5 – 20%
R	Rare	Occurs in low numbers in relation to size of area.	Less than 5%
"L" will be used to indicate abundance in a localised area, e.g., LA = Locally abundant			

Any invasive species, including those listed on the revised (April 2010) Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were noted during the field survey when sighted.

3.2.2 Fauna

A site search for field signs of protected and notable fauna was undertaken, and incidental sightings are detailed. The searches completed were as follows:

- Suitability of any ponds to support notable and protected amphibians, and the suitability of the site's terrestrial habitats to support amphibians.
- Suitability of the site to support reptiles by way of habitat structure and refuge piles, as well as links to the wider landscape.
- Search of any watercourses for signs or suitability for white clawed-crayfish (*Austropotamobius pallipes*), water vole (*Arvicola amphibius*) and otter (*Lutra lutra*) by way of burrows, resting places, holts, and foraging signs.
- Suitability of the site to support notable bird species. Bird nests and droppings of notable and protected bird species.

- Suitability of the site to support notable invertebrates.
- Search of the site for any invasive species.
- Badger (*Meles meles*) field signs such as setts, mammal, paths, snuffle holes and latrines.
- Suitability of the site to support notable terrestrial mammals including harvest mouse (*Micromys minutus*) and brown hare (*Lepus europaeus*).

3.3 Bat Assessment

3.3.1 Preliminary Roost Assessment

A Preliminary Roost Assessment (PRA) was carried out on the site trees using a high-powered torch and close-focussing binoculars.

The PRA methodology is based on information contained within the Bat Conservation Trust (BCT) guidelines, 3rd edition (Collins, 2016). The categorisation within this report is based on that set out in Table 3, which is used as a basis for determining the requirement for further surveys.

Table 3 – Suitability of Trees for Roosting Bats (adapted from Collins, 2016)

Category of Suitability	Typical Characteristics	Further Survey Requirements
High Roost Suitability	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. Surveys can be undertaken between May and September, with at least two surveys between May and August.
Moderate Roost Suitability	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but are unlikely to support a roost of high conservation status.	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. Surveys can be undertaken between May and September with at least one survey between May and August.
Low Roost Suitability	A tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate condition and/or suitable surrounding habitat to be used on a regular basis by larger numbers of bats.	No further survey required but precautionary methods of felling recommended.
Negligible Suitability	Negligible habitat features on site likely to be used by roosting bats.	No further work required.

3.3.2 Commuting and Foraging Bats

The site was assessed for its suitability for use by commuting and foraging bats.

The commuting and foraging assessment methodology is based on information contained within the Bat Conservation Trust guidelines 3rd edition (Collins, 2016). The categorisation within this report is based on that set out in Table 4, which is used as a basis for determining the requirement for further surveys.

Table 4 – Suitability of Site for Foraging and Commuting Bats (adapted from Collins, 2016)

Category of Suitability	Typical Characteristics
High Suitability	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting or foraging bats such as; river valleys, streams, hedgerows, lines of trees or woodland edge. Site is close to or connected to known roosts.
Moderate Suitability	Continuous habitat connected to the wider landscape that could be used by commuting bats such as lines of trees, scrub or linked back gardens. Habitat connected to wider landscape that could be used for bats for foraging such as; trees, scrub, grassland, or water.
Low Suitability	Habitat that could be used by small number of commuting bats such as; defunct hedgerow, isolated features not well connected to surrounding habitat or Isolated habitat that could be used by a small number of foraging bats such as a lone tree or patch of scrub.
Negligible Suitability	No features on site suitable for use by commuting and foraging bats.

3.4 The Hedgerows Regulations 1997 Assessment

Hedgerows present on site likely to be impacted by the proposed scheme were assessed against criteria in The Hedgerows Regulations 1997 to determine their "Importance" under the Regulations and therefore their level of protection.

A hedgerow is defined as any boundary line of shrubs or trees that is over 20m in length and is less than 5m wide at the base.

A standard procedure for hedgerow surveys in the UK was followed as defined by the Defra (2007) "Hedgerow Survey Handbook". All "essential assessment elements" were recorded in addition to all relevant "optional assessment elements".

The hedgerow was measured and the number of 30m sections for surveying was determined by using Table 5. The number of woody species within each 30m section was recorded. The ground flora was recorded by surveying a 2m by 1m quadrat along the base of the hedgerow at the 10m and 20m interval of each 30m section

Table 5 – Sample method

Length of Hedgerow (metres)	Number of section(s) to survey for woody species and ground flora
0-30	1
31-100	1
101-200	2
+200	3

For a full description of the Hedgerow Regulations 1997 assessment process, please refer to Appendix 2.

3.5 Constraints to the Survey

Whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment.

This PEA does not constitute a full botanical survey. The protected species assessment provides a view of the likelihood of protected species occurring on the site based on the known distribution of species in the local area and the suitability of the habitat. It should not, however, be taken as providing a full and definitive survey of any protected species group.

It was not possible to access P1 and P2 to conduct a Habitat Suitability Index assessment. These ponds were located within a locked fishery and within an active quarry respectively. This has been considered and does not provide a significant constraint to the assessment provided within this report.

Sample grid references provided by the record centre (detailed in Section 4.1.3) in some circumstances returned a wide area in which the record was located. With these records, an accurate distance of the species cannot be fully ascertained, and records have been labelled 'within 2km' where appropriate.

Where a lack of records is found during the desk search for a defined geographical area, it does not necessarily mean that there is a lack of ecological interest; the area may be simply under-recorded.

The conclusions and recommendations detailed in this report are based upon the site redline boundary and the development proposals as outlined by the client at the time of writing. Should there be any changes to the site redline boundary or development proposals at a later stage, this assessment should be reviewed to determine whether any amendments or additional survey work is required.

The findings of this report represent the professional opinion of qualified ecologists and do not constitute professional legal advice. The client may wish to seek professional legal interpretation of the relevant wildlife legislation cited within this document.

3.6 Lifespan of Report

In accordance with CIEEM's Advice Note on the Lifespan of Ecological Reports and Surveys (CIEEM, 2019), the details of this report will remain valid for a period of **18 months** from the date of the survey (i.e., until January 2023). After this date, this assessment should be reviewed to determine whether any updated surveys are required.

3.7 Definitions

For the purposes of this report, the term 'protected and notable species' relates to:

- Species included on Schedules 2 and 4 of *The Conservation of Habitats and Species Regulations 2017*;
- Species included on Schedules 1, 5 and 8 of the *Wildlife and Countryside Act 1981* (as amended), excluding species that are only protected in relation to their sale (see section 9[5] and 13[2]);
- Invasive non-native species included on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended);
- Species of principal importance for the conservation of/maintaining and enhancing biodiversity as required under: Section 41 of the *Natural Environment and Rural Communities Act 2006* (England), Section 7 of the *Environment (Wales) Act 2016*, Section 2[4] of the *Nature Conservation (Scotland) Act 2004*;
- Local species of importance as identified within various local biodiversity action plans; and,
- Badgers, which are protected under the *Protection of Badgers Act 1992*.

4 Baseline Ecological Conditions

4.1 Desk Study

4.1.1 Site Location

The site lies within a predominantly rural area of Herefordshire, with an active quarry present immediately adjacent to the eastern site boundary. There are multiple waterbodies within the quarry, with the closest located adjacent to the eastern site boundary. The A49 is adjacent to the western site boundary, and Haywood Lane is present adjacent to the northern site boundary. The village of Wellington is present immediately west of the A49, whilst Hereford is present approximately 7.4km south of the site.

Wellington Brook is present adjacent to the southwestern border of the site and the River Lugg is present approximately 300m north of the site. Habitats in the surrounding area consist of agricultural fields bound by hedgerows, with isolated patches of woodland. It is anticipated these habitats will provide suitable foraging, resting, and commuting resources within the local area for a variety of wildlife, such as birds, bats, and other terrestrial mammals.

4.1.2 Designated Sites

One site forming part of the National Site network was present within 5km of the site, and two statutory designated sites and no non-statutory designated sites were present within 1km of the site, as detailed in Table 6.

Table 6 – Designated Sites within the Search Areas

Designated Site	Approx. Distance from Site	Details
Statutory designated sites		
River Wye Special Area of Conservation (SAC)	300m north	The River Wye has a geologically mixed catchment passing through both upland and lowland habitats. This river is designated for the extensive range of flora that the river supports, including rare water crowfoot (*Ranunculus* sp.) and pondweed (*Potamogeton* sp.) species. This river is also designated for the populations of diverse protected fauna that are present within the river, including white-clawed crayfish, sea lamprey (*Petromyzon marinus*), brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*), twaite shad (*Allosa fallax*), atlantic salmon (*Salmo salar*), bullhead (*Cottus gobio*), and otter.
River Lugg Site of Special Scientific Interest (SSSI	300m north	The designation for this site overlaps with the SAC designation for the River Wye SAC. This site is designated for the populations of White-clawed crayfish, otter, atlantic salmon, bullhead, twaite shad, and brook lamprey that it supports.

Designated Site	Approx. Distance from Site	Details
Wellington Wood SSSI	900m north west	Wellington Wood is a large block of ancient semi-natural broadleaved woodland on part of the southern slopes and plateau of a hill to the north of Hereford. This wood is designated for the diverse range of canopy and ground flora species that are supported within the woodland including large-leaved lime (*Tilia platyphyllos*).

The site also falls within the Impact Risk Zone of both the River Lugg SSSI and Wellington Wood SSSI, as detailed in Table 7.

4.1.3 Flora and Fauna

The following section summarises protected and/or notable species records that have been recorded within 1km of the site.

Vascular Plant

One record of large-leaved lime (*Tilia platyphyllos*) was returned within the desk study, recorded approximately 1.6km north east of the site from 1988. This species is a priority species on the Herefordshire LBAP.

Invertebrates

The desk study returned 39 records of protected or notable invertebrates within 2km of the site. Species present comprised cinnabar (*Tyria jacobaea*), beaded chestnut (*Agrochola lychnidis*), brown-spot pinion (*Agrochola litura*), banded demoiselle (*Calopteryx splendens*), golden-ringed dragonfly (*Cordulegaster boltonii*), hornet (*Vespa crabro*), brown hawker (*Aeshna grandis*), deep brown dart (*Tetrix undulata*), deep-brown dart (*Aporophyla lutulenta*), silver washed fritillary (*Argynnis paphia*), and the beautiful demoiselle (*Calopteryx virgo*).

All species records returned are listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

Amphibians

The desk study returned 24 records of great crested newt within 2km of the site, with the closest record present approximately 800m south of the site from 2006returned from the same location approximately 1.5km south east of the site from 2015. This is a European protected species and is listed on Annex IV of the Habitats Directive. This species is also listed on section 41 of the NERC Act 2006 and as a priority species within the Herefordshire LBAP.

The desk study returned 38 records of smooth newt (*Lissotriton vulgaris*) within the desk study; the closest record was located approximately 1.3km south east of the site from 2009. This species is listed as a species of conservation concern on the Herefordshire LBAP.

The desk study returned four records of palmate newt (*Lissotriton helveticus*) within 2km of the site, with the closest record located approximately 1.7km east of the site from 2006. This species is listed as a species of conservation concern on the Herefordshire LBAP.

One record of a common frog (*Rana temporaria*) was returned within the desk study, located approximately 1.5km south east of the site from 2015. This species is listed as species of conservation concern on the Herefordshire LBAP.

The desk study returned 12 records of common toad (*Bufo bufo*) within 2km of the site, the closest record was located approximately 600m south of the site from 2011. This species is listed on Section 41 of the NERC Act 2006 and is listed as a species of conservation concern on the Herefordshire LBAP.

A MagicMap search returned no granted EPSL relating to great crested newts present within 2km of the site.

Reptiles

One record of a grass snake (*Natrix natrix*) was returned within the desk study. This record was located approximately 400m south east of the site, associated with Wellington quarry and recorded in 2016.

Grass snake are listed on Section 41 of the NERC Act 2006 and are also a species of conservation concern on the Herefordshire LBAP.

Fish

The desk study returned 21 records of protected or notable fish species, including bullhead (*Cottus gobio*), atlantic salmon (*Salmo salar*), European eel (*Anguilla anguilla*), brown trout (*Salmo trutta*).

Atlantic salmon and bullhead are primary qualifying features of the River Wye SAC, and brown trout, atlantic salmon, and European eel are listed on Section 41 of the NERC Act 2006.

Birds

A total of 9048 records of protected or notable birds were returned within 2km of the site as detailed in Table 7.

Table 7 – Protected or notable birds recorded within 1km

Scientific Name	Common Name	Protection	Closest Record to Site	
			Approx. Min. Distance (m)	Date
Pyrrhula pyrrhula	Bullfinch	BoCC4**, S41****, LBAP	Within 2km	2015
Botaurus stellaris	Bittern	BoCC4*, S41	Within 2km	2013
Chroicocephalus ridibundus	Black-headed gull	Bocc4**, LBAP	Within 2km	2013
Limosa limosa	Black-tailed godwit	BoCC4*, Sch1	Within 2km	2013
Podiceps nigricollis	Black necked grebe	BoCC4**, Sch1	Within 2km	2013
Chlidonias niger	Black tern	BoCC4**, Sch1	Within 2km	2013
Tyto alba	Barn Owl	Bocc4**, Sch1, LBAP	Within 2km	2013
Cygnus columbianus	Bewick's Swan	BoCC4**, Sch1	Within 2km	2013
Fringilla montifringilla	Brambling	Sch1	Within 2km	2013
Buteo buteo	Buzzard	LBAP	Within 2km	2015

Scientific Name	Common Name	Protection	Closest Record to Site	
			Approx. Min. Distance (m)	Date
Loxia curvirostra	Common crossbill	Sch1, LBAP	Within 2km	2013
Actitis hypoleucos	Common sandpiper	BoCC4**, LBAP	Within 2km	2013
Melanitta nigra	Common scoter	BoCC4*, S41, Sch1	Within 2km	2013
Sterna hirundo	Common tern	BoCC4**, LBAP	Within 2km	2013
Cuculus canorus	Cuckoo	BoCC4*, S41	Within 2km	2013
Numenius arquata	Curlew	BoCC4**, S41, LBAP	Within 2km	2013
Sylvia borin	Garden warbler	LBAP	Within 2km	2015
Anas querquedula	Garganey	BoCC4**, Sch1	Within 2km	2013
Bucephala clangula	Goldeneye	BoCC4**, Sch1	Within 2km	2013
Mergus merganser	Goosander	LBAP	Within 2km	2013
Accipter gentilis	Goshawk	Sch1, LBAP	Within 2km	2013
Locustella naevia	Grasshopper warbler	BoCC4*, S41, LBAP	Within 2km	
Gavia immer	Great northern diver	BoCC4**, Sch1	Within 2km	
Tringa ochropus	Green sandpiper	BoCC4**, Sch1	Within 2km	2013
Picus viridis	Green woodpecker	BoCC4**, LBAP	Within 2km	2013
Tringa nebularia	Greenshank	Sch1	Within 2km	2013
Motacilla cinerea	Grey wagtail	BoCC4**, LBAP	Within 2km	2013
Anser anser	Greylag goose	BoCC4**, Sch1	Within 2km	2013
Calidris alpina	Dunlin	BoCC4*	Within 2km	2013
Turdus pilaris	Fieldfare	BoCC4*, Sch1, LBAP	Within 2km	2013
Anas strepera	Gadwall	BoCC4**, LBAP	Within 2km	2013
Pluvialis apricaria	Golden plover	BoCC4**, LBAP	Within 2km	
Larus argentatus	Herring gull	BoCC4*	Within 2km	2013
Falco subbuteo	Hobby	Sch1, LBAP	Within 2km	2013
Passer domesticus	House sparrow	BoCC4*, S41****, LBAP	Within 2km	2015
Alcedo atthis	Kingfisher	Sch.1***, BoCC**, LBAP	Within 2km	2013
Falco tinnunculus	Kestrel	Sch1, LBAP	Within 2km	2013
Vanellus vanellus	Lapwing	BoCC4*, S41, LBAP	Within 2km	2013
Acanthis cabaret	Lesser redpoll	BoCC4*, S41	Within 2km	2013

Scientific Name	Common Name	Protection	Closest Record to Site	
			Approx. Min. Distance (m)	Date
Carduelis cannabina	Linnet	BoCC4*, S41****, LBAP	Within 2km	2013
Charadrius dubius	Little ringed plover	Sch1, LBAP	Within 2km	2013
Hydrocoloeus minutus	Little gull	BoCC4**, Sch1	Within 2km	
Poecile palustris	Marsh tit	BoCC4*, LBAP	Within 2km	2013
Anthus pratensis	Meadow pipit	BoCC4**, LBAP	Within 2km	2013
Larus melanocephalus	Mediterranean gull	BoCC4**, Sch1	Within 2km	2013
Falco columbarius	Merlin	BoCC4*, Sch1, LBAP	Within 2km	2013
Pandion haliaetus	Osprey	BoCC4**, Sch1	Within 2km	2013
Haematopus ostralegus	Oystercatcher	BoCC4**, LBAP	Within 2km	2013
Falco peregrinus	Peregrine	Sch1, LBAP	Within 2km	2013
Anas acuta	Pintail	BoCC4**, Sch1	Within 2km	2013
Milvus milvus	Red kite	Sch.1***, BoCC4**	Within 2km	2013
Tringa tortanus	Redshank	BoCC4**, LBAP	Within 2km	2013
Phoenicurus phoenicurus	Redstart	BoCC4**, LBAP	Within 2km	2013
Turdus iliacus	Redwing	Sch.1***, BoCC4*	Within 2km	2013
Corvus corax	Raven	LBAP	Within 2km	2014
Emberiza schoeniclus	Reed bunting	BoCC4**, S41****, LBAP	Within 2km	2013
Acrocephalus scirpaceus	Reed warbler	LBAP	Within 2km	2013
Aythya marila	Scaup	BoCC4*, Sch1	Within 2km	
Alauda arvensis	Skylark	BoCC4*, LBAP, S41	Within 2km	2015
Riparia riparia	Sand martin	BoCC4**, LBAP	Within 2km	2013
Acrocephalus schoenobaenus	Sedge warbler	LBAP	Within 2km	2013
Gallinago gallinago	Snipe	BoCC4**, LBAP	Within 2km	2013
Turdus philomelos	Song thrush	BoCC4*, S41****, LBAP	Within 2km	2013
Muscicapa striata	Spotted flycatcher	BoCC4*, S41****, LBAP	Within 2km	2013
Porzana porzana	Spotted crake	BoCC4**, S41, LBAP	Within 2km	2013
Sturnus vulgaris	Starling	BoCC4*, S41****	Within 2km	2015
Saxicola rubicola	Stonechat	LBAP	Within 2km	2013

Scientific Name	Common Name	Protection	Closest Record to Site	
			Approx. Min. Distance (m)	Date
Strix aluco	Tawny owl	BoCC4**	Within 2km	2015
Anas crecca	Teal	BoCC4**, LBAP	Within 2km	2013
Phylloscopus sibilatrix	Wood warbler	BoCC4*, S41****	Within 2km	2013
Sylvia communis	Whitethroat	BoCC4**, LBAP	Within 2km	2013
Oenanthe oenanthe	Wheatear	BoCC4**, LBAP	Within 2km	2013
Cygnus cygnus	Whooper swan	BoCC4**, Sch1	Within 2km	2013
Saxicola rubetra	Whinchat	BoCC4**, LBAP	Within 2km	2013
Numenius phaeopus	Whimbrel	BoCC4*, Sch1	Within 2km	2013
Scolopax rusticola	Woodcock	BoCC4*, Sch1	Within 2km	2013
Emberiza citrinella	Yellowhammer	Bocc4* LBAP, S41	Within 2km	2014
Motacilla flava	Yellow wagtail	BoCC4*, S41, LBAP	Within 2km	2013

* Listed Red on the Bird of Conservation Concern 4 (2015)
** Listed Amber on the Bird of Conservation Concern 4 (2015)
*** Wildlife & Countryside Act (Sch 1, 5 & 8)
****Previously UKBAP species now Section 41 (NERC Act, 2006),

Bats

The desk study returned 145 records of bats within 2km of the site. This included 27 records of roosts for multiple species, comprising unknown bats (*Chiroptera* sp.), common pipistrelle (*Pipistrellus pipistrellus*), long-eared bat species (*Plecotus* sp.), *Myotis* sp., natterer's bat (*Myotis nattereri*), soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*), and Daubenton's bat (*Myotis daubentonii*).

All species of bat returned within the desk study are European protected species listed of species of conservation concern within the Herefordshire LBAP, however common pipistrelle, Natterers bat, and Daubenton's bat are not listed on Section 41 of the NERC Act 2006.

Field records of other species of bat were returned in the desk study, comprising Leisler's bat (*Nyctalus leisleri*), brown long-eared bat (*Plecotus auritus*), barbastelle (*Barbastella barbastella*), and whiskered bat (*Myotis mystacinus*). Whiskered bat and brown long-eared bat are listed as species of conservation concern on the Herefordshire LBAP, with brown long-eared bat also listed on Section 41 of the NERC Act 2006. Barbastelle are listed on Section 41 of the NERC Act 2006 and are priority species within the Herefordshire LBAP.

MAGIC also detailed the presence of two granted EPSL within 2km of the site, as follows:

- EPSM2012-4940 – Allowed for the destruction of a roost for common pipistrelle, brown long-eared bat, and natterers bat.
- EPSM2012-4391 – Allowed for the destruction of a roost for common pipistrelle, brown long-eared bat, Brandt's bat (*Myotis brandtii*), and whiskered bat.

Both licences were located approximately 350m west of the site.

Brown Hare

The desk study returned one record of brown hare within 2km of the site. This record was located approximately 800m north of the site from 2015. This species is listed on Section 41 of the NERC Act 2006 and is listed as a priority species on the Herefordshire LBAP.

Hedgehog

The desk study returned 11 records of hedgehog within 2km of the site, with the closest record located on the verge of the A49 located adjacent to the western site boundary. Hedgehog are listed on Section 41 of the NERC Act (2006) and are a species of conservation concern on the Herefordshire LBAP.

Polecat

The desk study returned six records of polecat (*Mustela putorius*) within 2km of the site, with the closest record located approximately 600m north of the site from 2009. This species is listed on Section 41 of the NERC Act (2006) and are a species of conservation concern on the Herefordshire LBAP.

Water vole

One record of a water vole was returned within the desk study, located approximately 1.5km south west of the site

Otter

Five records of otter was returned within the data search, with the closest record located approximately 1.3km west of the site from 2019. This species is a European protected species and is also a Priority Species within the Herefordshire LBAP.

[redacted]

No Records Returned

The data search returned no records for:

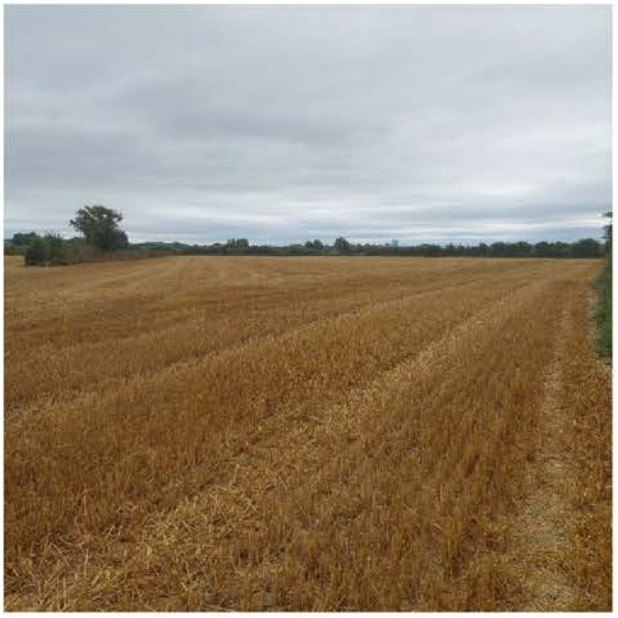
- Hazel dormice (*Muscardinus avellanarius*)
- White-clawed crayfish
- Harvest mouse
- Non-native invasive species

4.2 Field Survey

The site habitats described within this section and target notes are presented in the Phase 1 Habitat Map in Appendix 3.

4.2.1 Arable

The site mainly consisted of arable fields that had recently been harvested (see Photograph 1). There was no evidence of a strip of unmanaged vegetation between the hedgerows present and the arable crop.



Photograph 1 – Arable field covering majority of the site.

4.2.2 Hedgerow

Hedgerows were present bordering the site and were also present within the site. Please refer to Figure 2 for Hedgerow references.

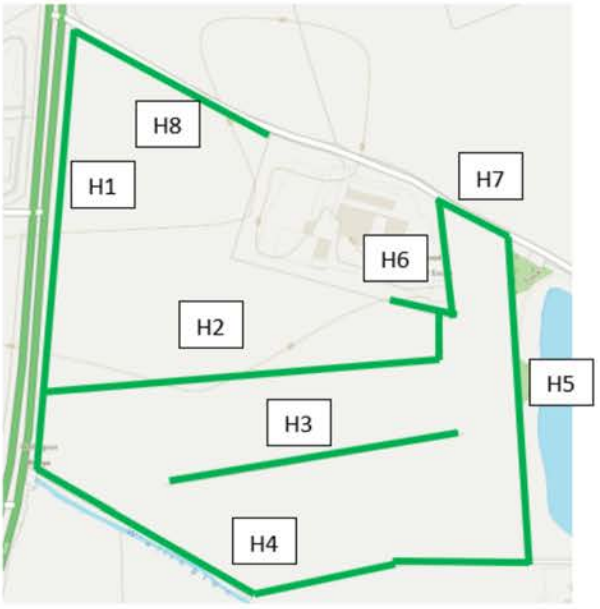
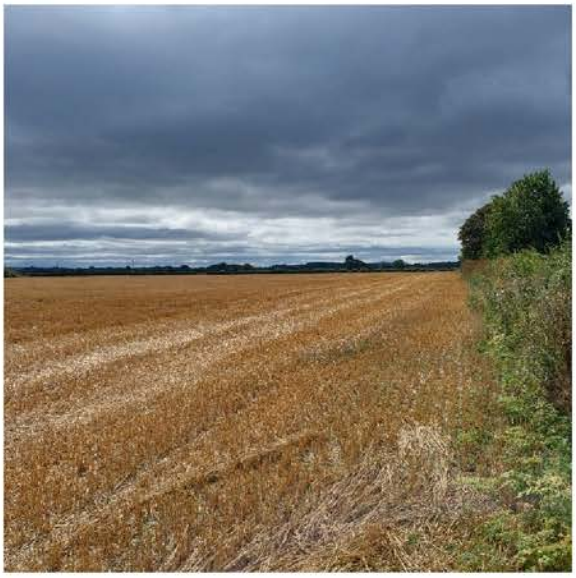


Figure 2 – Hedgerow references

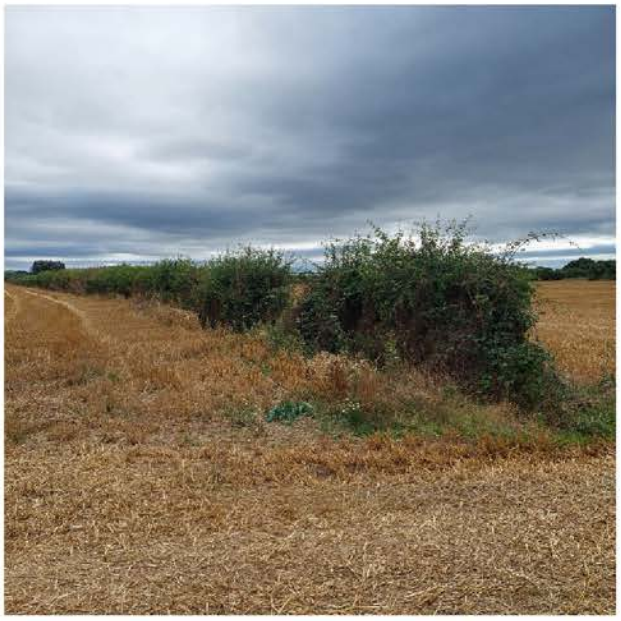
H1 was approximately 1.5m tall by 1m wide, and was dominated by hawthorn (*Crataegus monogyna*), with elder (*Sambucus nigra*) noted rarely (see Photograph 2). This hedgerow had been subject to recent management and appeared to have been laid.



Photograph 2 – Hedgerow 1 present along the western site boundary.

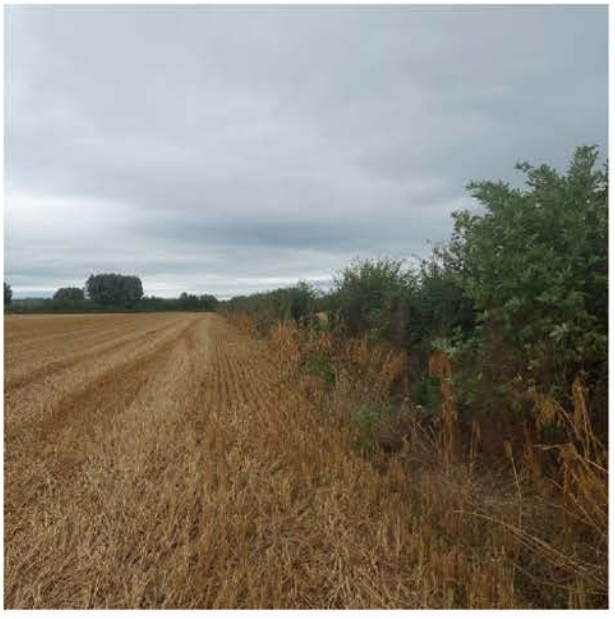
Ground flora observed within the base of the hedgerow abundantly comprised bramble (*Rubus fruticosus* agg.), common nettle (*Urtica dioica*), and common ivy (*Hedera helix*). Species observed frequently comprised hogweed (*Heracleum sphondylium*) and spear thistle (*Cirsium arvense*). Species recorded occasionally were scarlet pimpernel (*Anagallis arvensis*), red dead nettle (*Lamium purpuream*), common ramping fumitory (*Fumaria muralis*). Species recorded rarely consisted of white campion (*Silene latifolia*) and white dead nettle (*Lamium album*).

H2 was present within the site (see Photograph 3). It was approximately 430m long, 2m tall and 1.5m wide. This hedgerow had not been subject to any recent management, allowing a gap to develop at the base of the hedgerow. The arable crop was planted right up to the base of the hedgerow, leaving limited space for ground flora community to develop. No gaps or trees were present within the length of this hedgerow. Hawthorn and elder were present abundantly, with blackthorn (*Prunus spinosa*), hazel (*Corylus avellana*), field maple, and dog rose (*Rosa canina*) present occasionally. Species present frequently within the ground layer of this hedgerow comprised common nettle, wild oat (*Avena fatua*), cocks foot (*Dactylis glomerata*), bramble, hogweed, white bryony (*Bryonia alba*), and hedge bindweed (*Calystegia sepium*). Species present rarely comprised ivy, lords and ladies (*Arum maculatum*), black bryony (*Dioscorea communis*), welted thistle (*Carduus crispus*), and greater burdock (*Arctium lappa*).



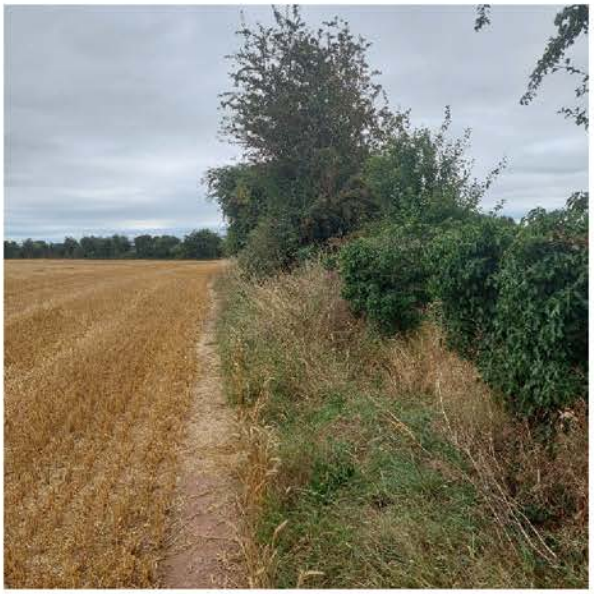
Photograph 3 – Hedgerow 2 present within the site

H3 was also present within the site (see Photograph 4). This hedgerow was approximately 300m long, 2.5m tall and 2m wide. This hedgerow had not been subjected to recent management, allowing a gap to develop at the base of the hedgerow. Gaps of 45m within the hedgerow were recorded, which is greater than 10% of the total length of the hedgerow. Four field maple (*Acer campestre*) trees were present within this hedgerow, all of which were semi-mature and multi-stemmed.



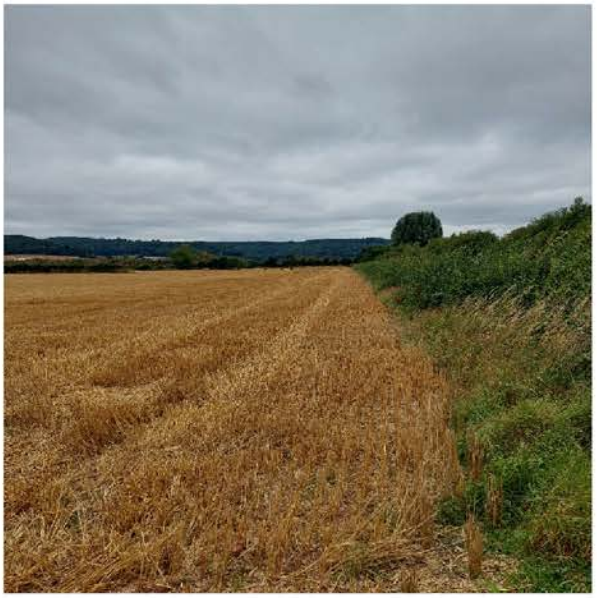
Photograph 4 – Hedgerow 3 present within the site

H4 was present along the southern border of the site, which Wellington Brook ran adjacent to in the eastern section of the hedgerow (see Photograph 5). This hedgerow was dominated by hawthorn, with elder and spindle (*Euonymus europaeus*) noted rarely. This hedgerow was approximately 3m tall by 2.5m wide.



Photograph 5 – Hedgerow 4 present along the southern border

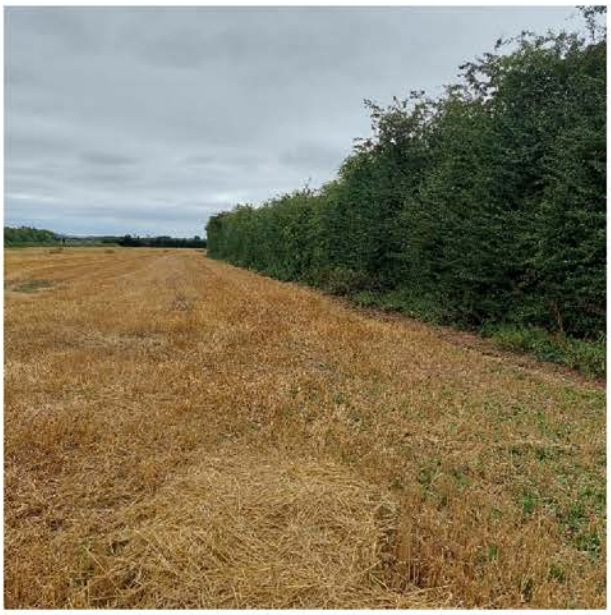
H5 was approximately 1m tall by 1.5m wide, with no trees present within the hedgerow, and evidence of recent management (see Photograph 6). This hedgerow was dominated by hawthorn, with no other woody species noted within the hedgerow. Species observed abundantly within the ground layer of this hedgerow comprised false oatgrass (*Arrhenatherum elatius*), curled dock (*Rumex crispus*), and common nettle. Species recorded frequently comprised hedge bindweed, soft brome (*Bromus hordeaceus*), germander speedwell (*Veronica persicaria*), spear thistle, perennial ryegrass (*Lolium perenne*), and greater willowherb (*Epilobium hirsutum*).



Photograph 6 – Hedgerow 5 present along the eastern border

H6 was present along the western border with the buildings present offsite to the north. This hedgerow was approximately 4m tall by 2m wide and dominated by hawthorn, with no other woody species present (see Photograph 7). The arable crop was present right up to the base of the hedgerow with limited ground flora noted, comprising abundant common nettle and greater burdock. A gap was present at the base of the hedgerow and tree guards were noted on the majority of trees within this

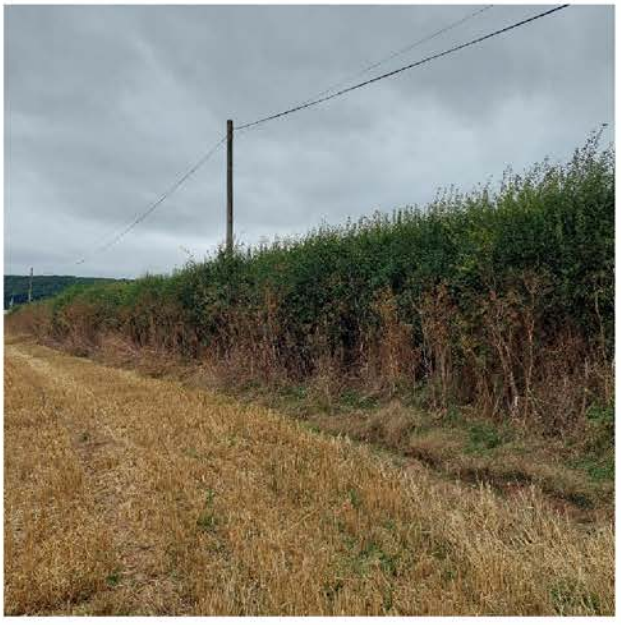
hedgerow, indicating that it is less than 30 years old and therefore not applicable for assessment under The Hedgerows Regulations 1997.



Photograph 7 – Hedgerow 6 present along the eastern border with the industrial estate.

H7 was a hedgerow with trees present adjacent to Haywood Lane along the northern border of the site. This hedgerow was approximately 6m tall and 1.5m wide. Species noted within this hedgerow abundantly comprised hawthorn, with wych elm (*Ulmus glabra*) and blackthorn recorded occasionally.

H8 was approximately 3m tall by 1.5m wide (see Photograph 8). This hedgerow was dominated by hawthorn, with blackthorn, and field maple present rarely. No ground flora species were associated with this hedgerow.



Photograph 8 – Hedgerow 8 present along the north-western site boundary

4.2.3 Tall ruderal

A strip of tall ruderal vegetation was present adjacent to the hedgerow on the western border of the site which was approximately 1m wide and 150m long. Species present within this habitat frequently

were spear thistle, common nettle, narrow-leaved hawkweed (*Heiracium umbellatum*). Species present occasionally were perennial sow thistle (*Sonchus arvensis*), hogweed, and red campion (*Silene dioica*).

4.2.4 Wellington Brook

Wellington Brook was present adjacent to the southern border of the site. This brook was approximately 1m wide and 30cm deep (see Picture 11). It was heavily vegetated on both banks with dense stands of bramble and nettle present. The brook and a silty/sandy substrate with no large rocks or stones present. The banks were steep and were not undercut. As this brook flows adjacent to arable fields throughout its length, it is likely subject to a high level of nutrient run off from the fields.

4.3 Site Suitability for Protected and Notable Species

4.3.1 Species Discounted from Assessment

Red squirrel have been discounted from the assessment. Red squirrel populations are limited to small areas of northern England and are not known to be present in the Herefordshire area; with no previous records returned in the data search. It is anticipated that high abundances of grey squirrel are present within this region (Shuttleworth/RSST n.d.). This species will displace red squirrel through competition as well as cause increased red squirrel mortality through the spread of squirrel pox (The Mammal Society, 2020).

4.3.2 Vascular plants

No rare or notable habitats were present on site that could support populations of protected or notable vascular plants. No evidence of protected or notable plant species were observed on site during the survey.

There is negligible potential for the proposed development to impact protected or notable plant species and these are therefore not considered further within this report.

4.3.3 Invertebrates

No deadwood, aquatic habitats or high floristic diversity was located on site which would provide an important resource for invertebrates during their life cycle. It is anticipated common species will be present due flowering species in association with the hedgerows. Suitable habitats (i.e., adjacent lakes) are present offsite for this species group which would likely be used preferably over the site.

Overall, the presence of notable invertebrates within the site is reasonably discounted and not discussed further within this report

4.3.4 White-Clawed Crayfish

The River Lugg (present approximately 300m north of the site) is designated for the populations of white clawed crayfish. Wellington Brook is present immediately south of the site and is hydrologically connected to the River Lugg downstream, joining the main river approximately 1.4km south-east from the site. The populations of white-clawed crayfish found within the River Lugg are mostly restricted to the higher reaches of the river and its tributaries, rather than in the lowland sections.

Wellington Brook did not contain suitable habitat to support white-clawed crayfish (Peay, 2002), consisting of a sand/earth substrate with no undercut banks that is likely subject to a high level of agricultural run-off.

White-clawed crayfish are therefore unlikely to be present immediately adjacent to the site and are not considered further within this report.

4.3.5 Amphibians

No waterbodies were located within site and two waterbodies were located within 250 m of the site boundary. The location of both ponds in relation to the site is shown on Figure 3.

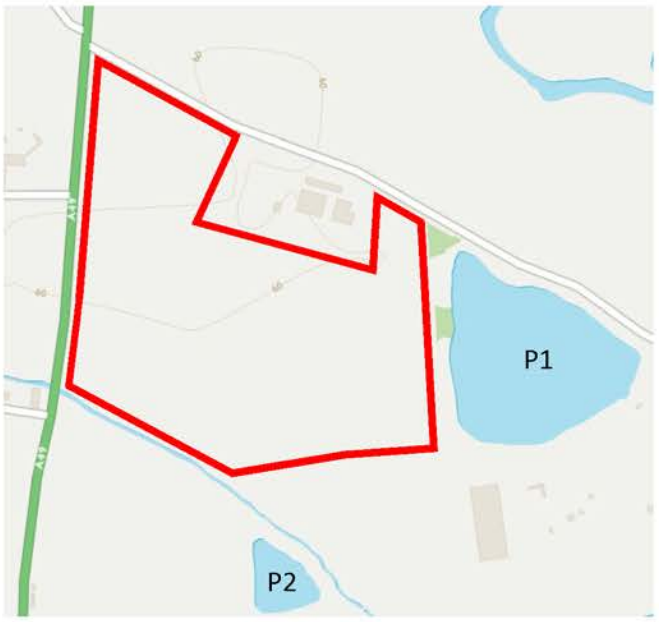


Figure 3 – Ponds present within 250m of the site.

Access was not possible to both ponds to conduct an HSI assessment, although Pond 1 could be viewed from a distance. Pond 1 was surveyed as part of the previous survey conducted on the site (REC, 2018a) and was considered to be unsuitable for great crested newts due to the pond being heavily stocked with fish and with a high level of waterfowl also present. The condition of the pond was deemed to be the same as that encountered previously, still being utilised for fishing purposes and was therefore assessed as being unsuitable to support great crested newts.

Pond 2 was located within an active quarry and is likely used as a silt lagoon, with minimal suitable aquatic habitat or vegetation present that would support great crested newts, as well as being subject to a high level of disturbance. This pond was also separated from the site by Wellington Brook which would also provide a significant barrier to dispersal to the site for great crested newts.

The site hedgerows and field edges may provide suitable foraging resources and cover for common amphibians such as common toads. Ornamental water bodies may be located within nearby residential gardens which may provide suitable conditions for breeding common amphibians.

The presence of great crested newts within the site is reasonably discounted, though common amphibians may occur on site.

4.3.6 Reptiles

Generally, reptiles require a mosaic of habitats. However, much of the site comprised a monoculture of arable fields with localised patches of tall ruderal which were limited to the field boundaries. This habitat lacked a variety of heights and structure that is important to reptiles to avoid predation (NARRS, 2007).

Overall, the habitats on site were of limited value and no records of the species group were identified. Reptiles are not considered to be present on site and are not discussed further within this report.

4.3.7 Birds

Ground Nesting

The hedgerows may provide suitable conditions for ground nesting birds that nest within hedgerow bases, such as yellowhammer. Therefore, ground nesting birds cannot be ruled out from using the site, although are likely restricted to the hedgerow and field edge habitats.

Habitats in the site extent such as arable fields are anticipated to be of value for ground nesting birds such as lapwing and skylark, records of which were returned during the desk study. Skylarks were also assessed as probable breeders on site during the previous surveys undertaken. However, presence of these species may be limited due to management techniques, limiting the supportiveness and likely presence on site.

The site was considered to be in a similar condition to that observed during the previous surveys, likely providing low quality habitat for a small number of common ground nesting bird species. There is abundant habitat present within the surrounding area and it is therefore unlikely that the site will solely support any breeding species.

Passerine

The hedgerows and trees may provide value to nesting birds. Bird species observed within the site boundary and surrounding area during the field survey included common gull (*Larus canus*), wood pigeon (*Columba palumbus*), house sparrow (*Passer domesticus*), and blackbird (*Turdus merula*). In addition, several passerine bird records within 2km were returned including dunnock, house sparrow, linnet, mistle thrush, song thrush, starling, tree sparrow and yellowhammer.

The previous breeding bird surveys identified that the important habitats present on site for breeding birds were the hedgerows, with house sparrow, dunnock, and yellow wagtail assessed as breeding within them on site.

Most species recorded during the breeding bird survey were using the site in addition to the habitat present surrounding the site, with the habitats present on site found to be of low quality and widespread,

Wintering

The site hedgerows and arable fields offer suitable habitats for wintering bird species such as skylark and lapwing, records of which were returned within the desk study.

The previous wintering bird surveys conducted on site identified that the site supported wintering populations of dunnock, meadow pipit, house sparrow, lapwing, linnet, skylark, and yellowhammer.

The site was confirmed to provide value for wintering birds.

Barn Owl

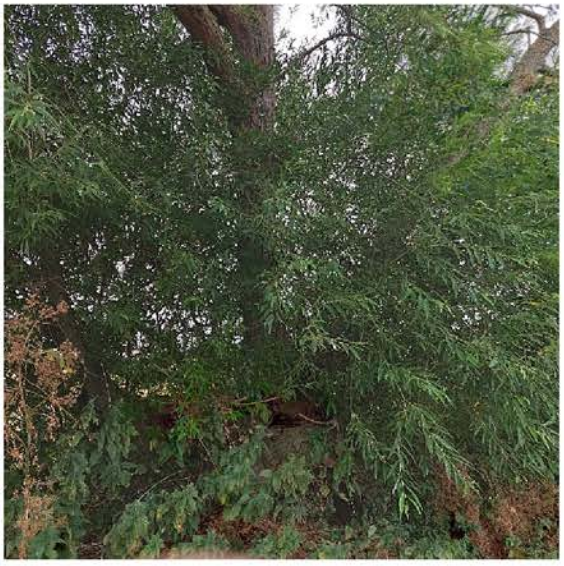
No trees present on site were assessed as providing suitable features to support nesting barn owl (*Tyto alba*). The habitat on site was intensively managed and not likely to support high numbers of small mammals and rodents which form the majority of a barn owls diet. This site was therefore not considered to provide significant value to this species due to extensive agricultural fields within the wider area. The species are not considered further within this report.

4.3.8 Bats

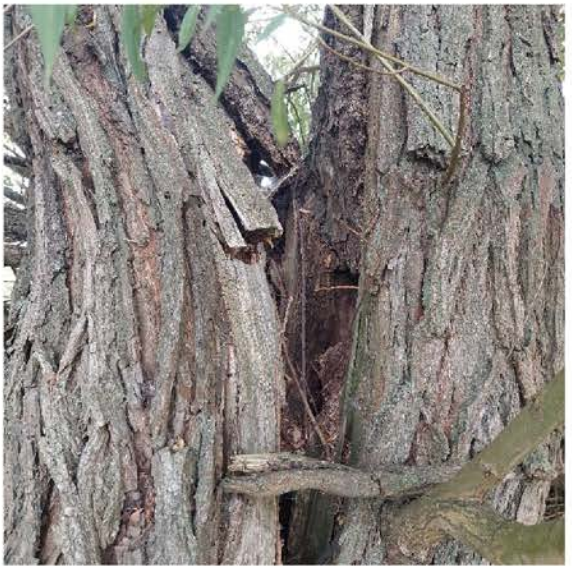
Preliminary Roost Assessment

A PRA was completed on all trees located on site, the majority of which contained no PRFs or suitable holes/crevices deep enough for roosting opportunities and were assessed as having negligible bat roosting potential.

One tree was identified with low bat roost potential (T1), a crack willow (*Salix fragilis*) with a crack in the main stem that could lead to a cavity (see Photograph 9 and 10). The entrance to this roost was however obscured by leaves making it less likely to be used by roosting bats. The location of this tree is shown within the Habitat Map provided in Appendix 3



Photograph 9 – Crack willow with low bat roost potential



Photograph 10 – Crack in the main stem

Commuting and Foraging Bats

The hedgerows present bordering the site and also dividing the site were of greatest value for commuting and foraging bats within the site, whilst Wellington Brook present offsite will also provide suitable habitat and is connected to the hedgerows bordering the site. The arable fields will be of limited suitability to foraging and commuting bats due to the low species diversity present and the likely application of pesticides reducing the suitability for invertebrates.

The site has been assessed as providing low value to commuting and foraging bats due to the widespread nature of the habitats present on site and presence of higher value habitats present off site that are likely to be used preferentially over the site.

The site has the potential to support roosting bats whilst the site hedgerows may provide foraging value.

4.3.9 Polecat

The hedgerows and arable fields present on site provide limited suitable cover and foraging habitat for this species. A single record of this species was returned within the desk study, and it is therefore unlikely that this species would be present on site.

4.3.10 Brown Hare

The arable fields and hedgerows present on site provide suitable cover and foraging habitat for this species.

Brown hare are potentially present on site.

4.3.11 Hedgehog

The hedgerow and tall ruderal grassland habitats will provide suitable cover and foraging habitats for the species, as well as provide connectivity to habitats of higher value to this species. Hedgehog are potentially present within the site.

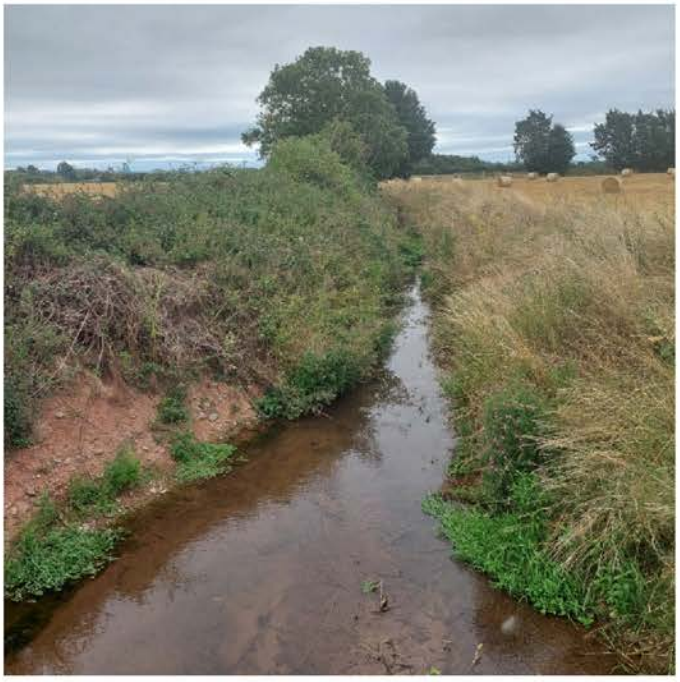
4.3.12 Hazel Dormouse

Hazel Dormouse are known to occur in low, population numbers within the Herefordshire area (Wembridge *et al*., 2016). No records of this species were returned during the desk study.

The habitats on site are of limited value to this species due to the absence of extensive woodland and scrub. As such, this species is reasonably discounted from site and not discussed further within this report.

4.3.13 Water Vole

Wellington Brook is present adjacent to the southern boundary of the site. This watercourse had steep banks (>45°) which were covered in dense vegetation, including Himalayan balsam (*Impatiens glandulifera*) and bramble (see Photograph 11), making them of limited value water vole foraging or burrowing (Dean *et al.,* 2016). This watercourse was fast flowing at the time of survey and evidence was present of changes in the depth of the water, which could potentially flood any burrows that may be present.



Photograph 11 – Wellington Brook present adjacent to the south-western site boundary

One record of water vole was returned within the desk study, located approximately 1.5km south of the site. Water vole are therefore not anticipated to be present on site or to be impacted by the proposed development and are not discussed further within this report.

4.3.14 Otter

The River Lugg is present approximately 300m north of the site and is designated due to the known population of otter that are supported within this watercourse. Wellington Brook is present adjacent to the southern boundary of the site and connects to the River Lugg approximately 1.4km south-east of the site. Wellington Brook was too overgrown at the time of survey to view fully however it is likely that this watercourse is used for commuting by otter. The dense vegetation present along the watercourse could also provide suitable resting places for this species.

Otter are potentially present adjacent to the site.

4.3.15 Badger

No badger setts were observed on site or within 30m of the site, where access was possible. No sign of badger activity was observed on site, including latrines, guard hairs, or prints.

The hedgerows present within the site and bordering the site likely provide suitable sett construction habitat for this species, whilst the wider landscape will contain suitable foraging resources.

There is potential for badger to be present on site.

4.4 Invasive Species

4.4.1 Flora

Himalayan balsam was present along the banks of Wellington Brook, which is present adjacent to the southwestern boundary of the site. No evidence of this species was seen on site; however, this species is very fast spreading and there is potential for this species to be introduced to the site at a later date

5 Ecological Constraints and Recommended Mitigation

5.1 Proposed Development

Herefordshire Quarries are proposing to develop land off Haywood Lane in Wellington, Herefordshire. The proposals include the extension of an already existing quarry for the extraction of sand and gravel, and also include the restoration of the site.

The following Section includes recommendations relating to the restoration design, which may either be retore to similar habitats to what currently exist or the creation of a large lake with associated islands.

5.2 Designated Sites

The site is located within the impact risk zone for several SSSIs within the local area.

The River Lugg SSSI is hydrologically connected to the site via Wellington Brook which joins with the River Lugg approximately 1.4km downstream on the site. There is a risk of increased pollution to this watercourse as a result of this development which would negatively impact the integrity of the designated site.

Therefore, it is recommended that a detailed Site Operations Plan (SOP) that includes an Ecological Management Plan specific to the proposed development is created (and adhered to throughout the course of construction works) to avoid, minimise and mitigate for negative impacts resulting from construction practices on all habitats surrounding the site.

This plan will detail measures to avoid, minimise or mitigate any potential negative effects caused by construction practices on the environment on and surrounding the site including:

- No off-site drainage into adjacent watercourses will occur as part of this development, and all water used on site will be re-circulated within the site through the use of a silt lagoon and oil filter (Hafren Water, 2021).
- Appropriate measures to suppress dust during hot, dry and/or windy conditions.
- A 10m buffer should be established around Wellington Brook for the duration of the construction phase and then maintained throughout the operational phase of the site to control for impacts to this watercourse.
- Excavations should be sealed overnight or should have at least one shallow-sloping side to allow any animals that may fall in to escape.
- An ecologist should be contacted for advice should any protected species be discovered during construction.

A Habitat Regulations Assessment (HRA) will be carried out to assess the impact of the proposed development on the River Wye SAC present 300m north of the site and others present within close proximity of the proposed site (as outlined within Section 4.1.2). Consultation with Natural England should be sought to understand the potential impacts associated with the development on the designated sites and the aim of the HRA will be to:

- Describe the ecological baseline, this includes the European sites within the UK in the area with summary of the designation and pressures/ threats. The baseline also includes results of recent ecological surveys carried out on the site.
- Assesses the likely pathways and effects on the sites.
- Provide a summary of the sites, impacts and pathways.
- Present mitigation methods for likely effects on site.

5.3 Habitats

The site comprised habitats that were found to be of low quality and widespread within the local area. No habitats listed on the Herefordshire LBAP were found to be present on site or woodland listed on the Ancient Woodland Inventory. The hedgerows present on site do qualify as Habitats of Principal Importance under the NERC Act 2006 and are therefore the habitats of highest value within the site. Where necessary these hedgerows have been subject to further botanical survey, however no further detailed botanical surveys are considered necessary for the rest of the site due to the intensely farmed nature of the site.

5.3.1 Hedgerow

Hedgerows H2 and H3 will require removal to facilitate the extraction works. The current hedgerows, although of value, are in poor condition and the restoration plan for the site provides an opportunity to enhance their value and provide more nesting/foraging opportunities.

Other hedgerows within the site should be protected via the use of temporary protective demarcation fencing to protect the trees and shrubs. The fencing must extend outside the canopy of the retained trees and must remain in position until all plots have been developed to ensure protection is provided throughout the construction phase.

The fencing will be in accordance with BS 5837:2012 Trees in Relation to Design, Demolition and Construction: Recommendations.

5.4 Fauna

5.4.1 Amphibians

Great crested newts were deemed unlikely to be present on site and no further consideration for the species is required. However, there is a possibility that common amphibians such as common toad may be present on site.

It is recommended that Reasonable Avoidance Measures are to be followed during site clearance. All site contractors are to be inducted to the potential presence of the species. Any debris is to be cleared by hand, and any common amphibians located moved carefully, by hand, to outside of the development area.

The restoration plan for the site includes the creation of a lake, as well as shallow scrapes and marshy grassland vegetation. This will increase the amount of suitable habitats for these species within the surrounding area and provide increased breeding resources.

5.4.2 Birds

Previous surveys indicated that the site was of value to dunnock, meadow pipit, lapwing, and skylark. These species will potentially utilise habitats on site such as the hedgerows, as well as offsite habitats of importance such as Wellington Brook.

Extraction works on the site will follow a phased approach over ten years, with the site to be split into three phases. This will reduce the overall disturbance to breeding bird species within the surrounding area.

The breeding bird survey identified that most species seen were using the site in addition with habitat present in the surrounding fields. The habitats present on site were assessed to be common and widespread within the local area, therefore the loss of these habitats will not have a significant on the local bird population.

Arable fields are a low-quality breeding habitat for most ground nesting bird species, and the restoration of the site to marshy grassland will provide greater opportunities for ground nesting species such as lapwing were assessed as probable breeders within the site

House sparrows, dunnock, and yellow wagtail were observed on surveys utilising the hedgerows on site. The boundary hedgerows will be retained with a buffer maintained from them to retain their value to breeding birds.

Mallard, reed bunting, mute swan, willow warbler, and snipe are likely to breed in the waterbody present to the east of the site. The inclusion of a lake within the restoration plan will provide greater nesting opportunities for these species.

The following recommendations are provided to mitigate for impacts to wintering and breeding bird species as a result of the proposed scheme:

- Quarry design plans show screening planting within the site during extraction. Native shrubs and trees, particularly fruit/seed bearing species and those that provide pollen and/or nectar (such as *Prunus* sp., *Malus* sp., *Sorbus* sp., *Viburnum* sp., etc.) should be used to create opportunities for bird species;
- The boundary hedgerows are to be retained and it is recommended that a buffer of at least 5m is maintained around the retained hedgerows on site. This will provide additional habitat for ground nesting species.
- A 10m operational buffer will be maintained between Wellington Brook and the site;
- To ensure no breeding birds or ground nesting birds are disturbed during the construction stage it is recommended that any vegetation removal and groundworks are undertaken outside of the breeding bird season (March to September inclusive). However, should these works be required within the breeding bird season then it is recommended that a check for breeding birds is undertaken by a suitably experienced surveyor prior no more than 48 hours before works commence. If a nest (or nest in construction) is found, a suitable stand-off area should be maintained until the young have fledged.

The restoration plan for the site provides the opportunity to include greater provision for a wider variety of nesting birds, by creating habitats that are of better quality than what is currently present within the site. This includes the creation of a lake with extensive areas of reed beds around the perimeter of the lake, and the creation of an island to increase the level of breeding opportunities that

the site will provide. Areas of marshy grassland will also be created within the site adjacent to the lake to support ground nesting bird species.

Areas of grassland will also provide nesting and foraging habitats for small mammals which are common prey for bird species such as kestrel and barn owl and will therefore provide greater value to these species than what is currently present within the site.

These restoration works will be carried out in tandem with the planned restoration works at Wellington quarry present adjacent to the eastern site border. This will create a much larger area of suitable habitat for bird species than is present currently within the site and the site is therefore anticipated to be of greater value to birds once restoration is complete then it is currently.

5.4.3 Bats

Roosting Bats

As stated in Section 4.3.8, T1 was assessed as having low bat roosting potential. No further surveys are recommended, however T1 should undergo reasonable avoidance measures. If this tree will require felling to facilitate the extraction works, it must be inspected by a licensed bat worker with an endoscope before felling or utilising a soft felling technique (which involves practises like removing limbs separately and lowering them to the ground and then leaving for 24 hours before clearing).

Foraging and Commuting Bats

The site was previously assessed as providing moderate value to commuting and foraging bats. This however related to a larger site area which included the banks of the River Lugg. As such the site has been assessed as providing low value to foraging and commuting bats.

The previous surveys recorded low numbers of bats commuting and foraging along the boundary features of the site, with no bats recorded using the central hedgerows. The most important hedgerows on site were the hedgerows bordering Haywood Lane along the northern border.

The site was found to be in similar condition as when previously surveyed by REC, and as such, it is anticipated the site is of similar value. Due to the retention of the boundary features, and no bats observed utilising H2 and H3 during the previous bat surveys, it is not anticipated the proposed extraction will impact the local bat population.

The following recommendations/enhancements have been provided to mitigate for impacts to commuting or foraging bats as a result of the proposed scheme:

- Quarry design plans show screening planting within the site during extraction. Native shrubs and trees particularly fruit/seed bearing species and those that provide pollen and/or nectar (such as *Prunus* sp., *Malus* sp., *Sorbus* sp., *Viburnum* sp., etc.) should be used to enhance the site for invertebrates and increasing foraging opportunities for birds and bats.
- All hedgerows present along the site boundary are to be retained where reasonably practical. A 5m buffer zone should be maintained around retained hedgerows. This buffer zone will be sensitively managed with appropriate planting to create a suitable habitat and commuting feature for bats and other species of wildlife.

All bat species are known to have some sensitivity to lighting and may be impacted by the proposed development, should no mitigation for lighting be considered.

Lighting mitigation should follow the guidance outlined in the Institute for Lighting Engineers document "Guidance for the Reduction of Obtrusive Lighting" (2005) and BCT's "Bats and Artificial Lighting in the UK" (2018).

Construction lighting should not be directed towards retained and surrounding habitats including the hedgerows and Wellington Brook. The construction lighting may impact bats which are sensitive to light. Directional lighting will be achieved by angle and orientation of beam, use of a cowl, louvre or other light shield, or a combination of these.

The restoration plan for the site will provide a greater variety of habitats than is currently present on site and will also strengthen the boundary features of the site. A lake will be created on site with extensive reed beds that will provide suitable breeding opportunities for a wide variety of invertebrate species. The lake will hold water all year round and will therefore provide value to bats as a drinking resource during summer months. It is therefore anticipated that the site post-restoration will be of greater value to bats than currently.

5.4.4 Brown Hare

This species may potentially use the site for foraging and cover. The mitigation measures outlined in Section 5.4.8 will also mitigate for any adverse impacts to this species. The loss of suitable habitats are not anticipated to be significant due to the presence of extensive agricultural land within the wider landscape.

5.4.5 Hedgehog

Hedgehog may be present on site, as such checks for hedgehogs should be carried out prior to hedgerow removal to avoid harming this species during works. The majority of habitats with highest value are to be retained, and as such the loss of the central hedgerows are not anticipated to be of significant impact.

5.4.6 Otter

No impacts are anticipated to occur directly to Wellington Brook and the implementation of a CEMP as outlined in Section 5.2 will control for any indirect impacts to the watercourse.

Otter may use the dense vegetation present along Wellington Brook as a resting place. Otter are sensitive to disturbance; therefore, it is recommended that a camera trap is installed on Wellington Brook to monitor its use by otter prior to works commencing. If otter are found to use the vegetation present along Wellington Brook, then it may be necessary to obtain a licence from Natural England before works can proceed.

The following Reasonable Avoidance Measures should be followed throughout the construction phase:

- Prior to construction starting, a walkover survey for otter along Wellington brook will be conducted to assess for the presence of otter.
- All site personnel are to be inducted through use of a toolbox talk, on the presence of otters, their legal protection and working limits.
- Regular inspections of the watercourse and its banks for any sign of otter holts or activity. These should be undertaken by an ecologist at regular intervals during the operation of the site.

- Any man-made excavations, trenches or pits relating to the development that must remain open overnight, will either be securely fenced off or covered up overnight to avoid entrapment of otters, if left open, access ramps (e.g., mammal ladders, a roughened plank or even a ramp of earth) will be placed within the excavation each night near to crossing points to allow any animals that accidently fall into the excavation a means of climbing out.
- Any temporarily exposed open pipe system will be capped in such a way as to prevent otters gaining access, as this may happen when contractors are off-site.
- A 10m buffer zone should be maintained around Wellington Brook to limit impacts to this watercourse.
- Nocturnal lighting should be directed away from Wellington Brook.

If in the unlikely chance an otter is discovered on site, the project ecologist is to be contact immediately and Natural England are to be informed.

5.4.7 Badger

No evidence of badger activity was observed on site, including badger setts, latrines, guard hairs, or prints. However, suitable habitats are present on site for badger sett construction and records of this species were returned during the desk study.

Therefore, the following Precautionary Working Methods will be adhered to during construction phase to ensure that no badgers are impacted by the proposed development:

- All site operatives will be inducted to the potential presence of the species and the species legal protection.
- All site operatives will be inducted as to identifying potential badger setts and should be vigilant if they suspect they locate a new sett during works and inform the site manager immediately. A minimum 20m buffer will be maintained from the potential sett until an ecologist has been to site.
- All excavations will be battened at a 45-degree angle or ramps to be positioned to allow escape should animals become trapped.
- All site machinery and materials will be appropriately stored to avoid harm to the species, notably between July and November each year when extra care is needed to avoid potential impacts on pregnant females.

5.5 Invasive Species

Non-native invasive flora species Himalayan balsam was identified adjacent to the site during the site walkover. As such, it is recommended, prior to the development, that regular checks for the presence of this species are conducted. If this species is found to be present on site, then the species should be eradicated following the most current guidance set out by the Environment Agency by a qualified contractor.

6 Further Surveys

No further surveys are required to facilitate this development. This assessment is based upon the proposed development information provided. If the proposed plans were to change, the advice of an ecologist should be sought to understand if any further survey effort is required.

7 Opportunities for Enhancement

The National Planning Policy Framework (NPPF) (2021) highlights the requirement for planning policies and decisions to conserve and enhance the natural environment.

Paragraph 174 states that this should be achieved by (in terms of this assessment only):

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

Specific enhancement recommendations for the site include the following:

- Bat and bird boxes could be placed on the retained and planted trees. The locations of these boxes and the specifications should be included within the restoration plan for the site. Bird boxes to be included should specifically target notable bird species recorded locally such as dunnock and house sparrow.
- Hedgerows around the border of the site should be strengthened by the planting of native shrub and tree species (such as *Prunus* sp., *Malus* sp., *Sorbus* sp., *Viburnum* sp., etc.) within hedgerow gaps which will create opportunities for bird species known to use the site for breeding such as dunnock, house sparrow,
- Rough marshy grassland should be created within the site which will provide additional suitable nesting habitats for species known to be supported such as meadow pipit, skylark, and lapwing.
- Hedgehog specific refugia should be included within the hedgerows to provide additional nesting opportunities.
- Restoration of phases should be undertaken as soon as reasonably practical. It is recommended that areas of wet grassland and hay meadows are incorporated into restoration to improve habitat suitability for ground nesting species such as yellow wagtail.
- It is proposed that as part of the restoration plan for the site, a waterbody will be included within the site. This will provide nesting habitat for wetland bird species observed utilising the site and adjacent habitats. Marginal and aquatic vegetation (e.g., reed beds) should be planted around the edges of this waterbody to create cover and foraging habitats.
- To complement the permanent waterbody, shallow scrapes should be created within marshy grassland which will be ephemeral in nature and provide a variety of wetland habitats that will be utilised by invertebrates and amphibians.

Within the Core Strategy for Herefordshire, Policy LD2 – Biodiversity and Geodiversity – states:

"*Development proposals should conserve, restore and enhance the biodiversity and geodiversity assets of Herefordshire, through the:*

1. *retention and protection of nature conservation sites and habitats, and important species in accordance with their status as follows:*

    - *Development that is likely to harm sites and species of European Importance will not be permitted;*
    - *Development that would be liable to harm Sites of Special Scientific Interest or nationally protected species will only be permitted if the conservation status of their habitat or important physical features can be protected by conditions or other material considerations are sufficient to outweigh nature conservation considerations;*
    - *Development that would be liable to harm the nature conservation value of a site or species of local nature conservation interest will only be permitted if the importance of the development outweighs the local value of the site, habitat or physical feature that supports important species.*
    - *Development that will potentially reduce the coherence and effectiveness of the ecological network of sites will only be permitted where adequate compensatory measures are brought forward.*

2. *restoration and enhancement of existing biodiversity and geodiversity features on site and connectivity to wider ecological networks; and*
3. *creation of new biodiversity features and wildlife habitats.*

Where appropriate the council will work with developers to agree a management strategy to ensure the protection of, and prevention of adverse impacts on, biodiversity and geodiversity features."

A Biodiversity Net Gain assessment will be completed using the Biodiversity Metric 3.0 to assess the change in value to the environment provided by this scheme.

8 Conclusion

The PEA has met the objectives of the report, by demonstrating the following:

- The major habitats identified on site included arable fields and hedgerows, with full descriptions provided in Section 4.
- Potential ecological constraints identified included invasive non-native species, common amphibians, wintering and breeding birds, bats, brown hare, hedgehog, otter, and badger and are detailed in Section 4.
- Mitigation recommendations to be completed prior and during the construction phase for common amphibians, nesting birds, bats, brown hare, hedgehog, otter, and badger have been detailed in Section 5.
- No further surveys are required to facilitate this development.
- The information provided within this report meets the requirements specified within the Scoping Opinion provided by Herefordshire Council.
- Ecological specific enhancements to be included within the site restoration plan are provided within Section 7.

9 References

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Appendix 1 - Relevant Legislation

Legislation relating to European Protected Species (e.g., bats, otter, great crested newt)

European Protected Species and their resting places (e.g., bat roosts) are protected under the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way (CRoW) Act 2000, and the Conservation of Habitats and Species Regulations 2017.

The Conservation of Habitats and Species Regulations 2017 transpose the European Union's 'Habitats Directive' (Council Directive 92/43/EEC) on the Conservation of Natural Habitats and of Wild Fauna and Flora (EC Habitats Directive) into UK law. The Regulations provide for the designation and protection of 'European Sites', the protection of 'European Protected Species' (EPS), and the adaptation of planning and other controls for the protection of European Sites. EPS are listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017.

Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to:

- Intentionally kill, injure, or take certain animals listed in Schedule 5;
- Intentionally or recklessly damage or destroy any structure or place which any wild animal specified in Schedule 5 uses for shelter or protection;
- Intentionally or recklessly disturb any such animal while it is occupying a structure or place which it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any structure or place which any such animal uses for shelter or protection.

In addition, under this legislation there are offences relating to sale, possession and control of wild animals listed in Schedule 5.

- Under the Conservation of Habitats and Species Regulations 2017 it is an offence to:
- Deliberately capture, injure, or kill any wild animal listed as a European Protected Species;
- Deliberately disturb wild animals of any such species in such a way as to be likely:
- to impair their ability:
    - to survive, to breed or reproduce, or to rear or nurture their young, or;
    - in the case of animals of a hibernating or migratory species, to hibernate or migrate, or;
- to significantly affect the local distribution or abundance of the species to which they belong.
- Deliberately take or destroy the eggs of such an animal, or;
- Damage or destroy a breeding site or resting place of such an animal.

In addition, under this legislation there are offences relating to possession, control sale and exchange of an EPS.

Great crested newt, otter and several species of bat are listed as a Species of Principle Importance (SoPI) under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

Legislation for white-clawed crayfish

White-clawed crayfish are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this act it is an offence to:

- Intentionally take white-clawed crayfish from the wild; and,
- Sell or attempt to sell, any part of a white-clawed crayfish, alive or dead, or advertise that one buys or sells, or intends to buy or sell any part of a white-clawed crayfish.

The white-clawed crayfish is listed under Annex II and V of the EC Habitats Directive. The Conservation of Habitats and Species Regulations 2010 implements the European Union's 'Habitats Directive' (Council Directive 92/43/EEC (a) on the Conservation of Natural Habitats and of Wild Fauna and Flora) in Great Britain. Annex II requires that Special Areas of Conservation (SAC) are established specifically to conserve this and other listed species. In a SAC designated for white-clawed crayfish a precautionary principle must be applied when considering the potential impacts of any operations that may affect white-clawed crayfish and their habitat.

White clawed crayfish are listed as a SoPI under Section 41 of NERC Act 2006.

Legislation for amphibians (other than great crested newt)

Under the Wildlife and Countryside Act 1981 (as amended) the four widespread amphibian species, smooth newt (*Triturus vulgaris*), palmate newt (*Triturus helveticus*), common toad (*Bufo bufo*) and common frog (*Rana temporaria*) receive limited protection through section 9(5) only which makes selling, offering for sale, possessing, or transporting for the purpose of sale (live or dead animal, part, or derivative) an offence.

Common toad is listed as a SoPI under Section 41 of the NERC Act 2006.

Legislation relating to reptiles

All native reptile species have some degree of protection in the UK, through section 9(1) and (5) (specified in Schedule 5) of the Wildlife and Countryside Act 1981 (as amended). There are two different levels of protection afforded to reptiles through this legislation according to species and this is described in more detail below.

Full Protection

Sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*) are afforded protection under The Conservation of Habitats and Species Regulations 2010 (are species of European importance) and are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the CRoW Act (2000). The Conservation of Habitats and Species Regulations 2010 implements the European Union's 'Habitats Directive' (Council Directive 92/43/EEC (a) on the Conservation of Natural Habitats and of Wild Fauna and Flora) in Great Britain. The relevant sections of this legislation make it an offence to:

- Intentionally kill, injure, or capture or take a reptile;
- Possess or control (live or dead animal, part, or derivative);
- Deliberately (intentionally) or recklessly damage, destroy or obstruct access to a breeding site or any structure or place used for shelter or protection by a reptile;
- Disturb whilst the reptile is occupying such a structure or place; and

- Sell, offer for sale, possess, or transport for the purpose of sale (live or dead animal, part, or derivative).

Sand lizard and smooth snake are listed as a SoPI under Section 41 of the NERC Act 2006.

Protection against killing, injuring and trade

This level of protection under section 9 (parts 1 and 5) applies to the four widespread species of reptile, namely the common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*), grass snake (*Natrix natrix*) and adder (*Viper berus*). Only part of sub-section 9(1) applies, which make it an offence to:

- Intentionally kill or injure, and
- Sell, offer for sale, possess, or transport for the purpose of sale (live or dead animal, part, or derivative).

Grass snake, slow-worm and adder are all listed as SoPI under Section 41 of the NERC Act 2006.

Legislation relating to breeding birds

All birds, their nests and eggs are protected by the Wildlife and Countryside Act 1981 (as amended) and it is an offence, with certain exceptions, to:

- Intentionally kill, injure, or take any wild bird;
- Intentionally take, damage, or destroy the nest of any wild bird while it is in use or being built;
- Intentionally take or destroy the egg of any wild bird; and
- Intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building or is in, on or near a nest with eggs or young; or disturb the dependent young of such a bird.

Schedule 1 of the Wildlife and Countryside Act 1981 provides further protection for selected species (including peregrine falcon (*Falco peregrinus*), barn owl (*Tyto alba*), little ringed plover (*Charadrius dubius*) and black redstart (*Phoenicurus ochruros*) during the breeding season. If any person intentionally or recklessly disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or disturb dependent young of such a bird. That person shall be guilty of an offence.

A number of bird species are listed as SoPI under Section 41 of the NERC Act 2006.

Conservation status - Birds of Conservation Concern (Eaton et al., 2015)

The UK's leading The UK's leading bird conservation organisations have worked together on the third quantitative review of the status of the birds that occur regularly in the UK, updating the last review in 2011. The status of birds within the UK have been regularly monitored through a series of surveys, including the national Breeding Bird Survey, Common Bird Census, sea bird monitoring programs and wetland monitoring programs. The result of this review and continued monitoring is The Population Status of Birds in the UK, Birds of Conservation Concern 4: 2015.

Birds are assessed against criteria to place each species on one of three alert lists, red, amber, or green. Red list species are considered to be of high conservation concern, being either globally threatened, having historical UK population declines, having a rapid population decline or breeding range contraction of 50% or more in the last 25 years.

Amber list species are considered to be of medium conservation concern as they meet one or more of the following criteria (but none of the red list criteria):Red listed for historical decline in a previous review but with substantial recent recovery (more than doubled in the last 25 years), a UK breeding range contraction of between 25% and 49%, a reduction of breeding or non-breeding population of 25-49% in the last 25 years, a 5-year mean of 1-300 breeding pairs in the UK, an unfavourable European conservation status, at least 50% of the UK breeding population found in 10 or fewer sites, or where the breeding population in the UK represents 20% or more of the European breeding populations.

Green list species are considered to be of low conservation concern. They include all regularly occurring species that do not qualify under any of the red or amber criteria are green listed. The green list also includes those species listed as recovering from Historical Decline in the last review that have continued to recover and do not qualify under any of the other criteria.

Legislation relating to badger

Badgers are protected under the Protection of Badgers Act 1992 (as amended) which makes it an offence to:

- wilfully kill, injure, take, possess, or cruelly ill-treat a badger, or to attempt to do so;
- intentionally or recklessly damage, destroy or obstruct access to a badger sett; and
- disturb a badger when it is occupying a sett.

These provisions have implications for construction or preparation works undertaken in the vicinity of an active sett and may be confounded by distance from the sett entrance. Any works resulting in ground penetration, vibration or noise near an identified badger sett entrance/s have the potential to disturb badgers and advice should be sought from a suitably experienced ecologist under such circumstances. If disturbance to an active sett is probable, then a licence may need to be obtained from Natural England before any works commence.

Legislation relating to water vole

The water vole is fully protected under Section 9 of the Wildlife & Countryside Act 1981 (as amended) through its inclusion in Schedule 5. The legal protection makes it an offence to:

- Intentionally kill, injure, or capture or take a water vole;
- Possess or control (live or dead animal, part, or derivative);
- Deliberately (intentionally) or recklessly damage, destroy or obstruct access to a breeding site or any structure or place used for shelter or protection by a water vole;
- Deliberately (intentionally) or recklessly disturb a water vole whilst occupying such as structure or place, and
- Sell, offer for sale, possess, or transport for the purpose of sale (live or dead animal, part, or derivative).

Water vole is listed as a SoPI under Section 41 of the NERC Act 2006.

Legislation relating to invasive plant species

Several non-native invasive plant species including (but not limited to) Himalayan balsam (*Impatiens glandulifera*), giant hogweed (*Heracleum mantegazzianum*), Japanese rose (*Rosa rugosa*), variegated

yellow archangel (*Lamiastrum galeobdolon*), rhododendron (*Rhododendron ponticum*) and Japanese knotweed (*Fallopia japonica*) are listed under Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended), which makes it an offence to '...plant or otherwise cause the species to grow in the wild'. This includes spreading or transferring contaminated soil from one area to another.

Estate Managers and landowners have a duty to pro-actively treat knotweed outbreaks. Under the Natural Environment and Rural Communities Act 2006 (NERC), subsection 14ZA (1), makes it is an offence to sell, offer or expose for sale, or to have in one's possession or transport for the purpose of sale, any Schedule 9 animal or plant or anything from which such an animal or plant can be propagated, including rhizomes of Japanese knotweed. Under subsection 14ZA (2) it is also an offence to publish or cause to be published any advertisement for the purchase or sale of these animals and plants.

The Environmental Protection Act 1990 (EPA 1990) contains a number of legal provisions concerning controlled waste. Any Japanese knotweed contaminated soil or plant material that is intended for discard is likely to be classified as controlled waste.

The Environmental Protection (Duty of Care) regulations 1991 also imposes a 'duty of care' on persons concerned with controlled waste, which includes any materials incorporating Japanese knotweed including soil, grass cuttings, general wastes and ash arising from the burning of knotweed. The duty applies to any person, who produces, imports, carries, keeps, treats, or disposes of controlled waste. Failure to appropriately dispose of any material containing Japanese knotweed may lead to prosecution under Section 33 and 34 of the EPA 1990 and Section 14 (2) of the Wildlife & Countryside Act 1981 (as amended).

If knotweed stands are to be treated with herbicides, The Control of Pesticides Regulations (1986) applies. These regulations require any person who uses a pesticide to take all reasonable precautions to protect the health of human beings, creatures, and plants, safeguard the environment and in particular avoid the pollution of water. If pesticides are to be used in or near to a watercourse, the Environment Agency should be contacted, and approval must be sought (application to use herbicides in or near water).

Waste leaving the site must be handled responsibly and in accordance with the law at all stages between its production and final recovery or disposal. Waste must be transferred to an authorised person, who is either a registered waste carrier or exempted from registration by the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991.

Additional legislation regarding the transport of Japanese knotweed contaminated materials is covered by the Hazardous Waste Regulations 2005 (HWR, 2005). This contains provisions about the handling and movement of hazardous waste. Consignment notes must be completed when any hazardous waste is transferred, which includes details about the hazardous waste properties and any handling requirements. Untreated Japanese knotweed is not classed as hazardous waste, but material containing knotweed which has been treated with certain herbicides, may be classified as hazardous waste.

If any waste soil or knotweed is sent for landfill either before or after treatment, it must go to a landfill that is authorised to receive it.

The Hedgerows Regulations 1997

The Hedgerows Regulations 1997 were introduced to protect hedgerows of importance from destruction. However, the legislation does not apply to any hedgerow (even if it is within the list above) which is within or marking the boundary of the curtilage of a dwelling house.

For the Regulations to be applicable, the hedgerow must be at least 20 metres in length or, if less than 20 metres, it must meet another hedgerow at each end. A hedgerow is deemed to be important if it is more than thirty years old and meets at least one of the criteria listed in Part II of Schedule 1 of the Regulations.

If a hedgerow which qualifies under the Regulations is to be removed, the landowner must contact the Local Planning Authority (LPA) in writing by submitting a hedgerow removal notice. The LPA then has a period of 42 days to decide whether or not the hedgerow meets the importance criteria of the regulations.

Appendix 2 - The Hedgerows Regulations 1997 Assessment

The Hedgerows Regulations Assessment survey was undertaken on 17th August 2021, by Senior Ecologist Mark Blacker ACIEEM. The purpose of the Hedgerows Regulations Assessment survey was to assist the client in:

- Determining the ecological, historical, and cultural value of affected hedgerows.
- Identifying hedgerows that qualify as "important" under the Hedgerows Regulations 1997 and as such, become legally protected.
- Identifying methods to further mitigate the loss of both important and non-important hedgerows and their associated features.
- Identifying optimal replanting methodology to reflect species being affected or removed.
- Identifying protected/notable and invasive species along field boundaries.

This report states the survey methodology, presents the survey results, and makes outline recommendations to lessen the impacts of the proposed works.

Legislation & Planning Policy

The following sections provide an overview upon legislation and current planning policy relating to hedgerows surveyed within this report.

Hedgerows Regulations 1997

The Hedgerows Regulations 1997 are made under Section 97 of the Environment Act 1995 and came into operation on the 1st of June 1997. They aim to protect important hedgerows in the countryside by controlling their removal through a system of notification to the Local Planning Authority.

A hedgerow is defined as any boundary line of shrubs or trees that is over 20m in length is less than 5m wide at the base and any gaps that are present are less than 20m in length.

A hedgerow can only be considered for classification as "important" if it is over 20m in length (or which meets a hedgerow at either end) and has existed for 30 years or more.

Once this initial criterion is met a further hedgerow survey is undertaken to gather further information about the species composition and associated features of the hedgerow to determine whether it can be classified as "important" under the Hedgerows Regulations 1997.

Natural Environment & Rural Communities (NERC) Act 2006

The NERC Act 2006 placed a duty on every public authority, in exercising their functions, to have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat. The Secretary of State published a list of the living organisms and types of habitats which in the Secretary of State's opinion are of principal importance for the purpose of conserving biodiversity.

Hedgerows that are over 20m in length and are composed of at least 80% of one or more UK native species are classed as a UK habitat of principal importance for their conservation value within the landscape

Office of the Deputy Prime Minister (ODPM) Circular 06/2005

The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, states that Habitats listed as Principal Importance, are capable of being a material consideration in the making of planning decisions.

National Planning Policy Framework (NPPF)

In brief the National Planning Policy Framework (NPPF) is asking the Local Planning Authority to have an aim to conserve and enhance biodiversity and that any new developments should ensure that there is a minimum of no net loss of biodiversity at a site and result in an overall biodiversity gain, hedgerows losses and gains would fall under this.

Methodology

The hedgerow was assessed using the criteria as set out in the Hedgerows Regulations 1997. A standard procedure for local surveys in the UK was followed as defined by the Defra (2007) "Hedgerow Survey Handbook". All 'essential assessment elements' were recorded in addition to all relevant 'optional assessment elements'.

The hedgerow was measured and the number of 30m sections for surveying was determined by using Table 1. The number of woody species within each 30m section was recorded. The ground flora was recorded by surveying a 2m by 1m quadrat along the base of the hedgerow at the 10m and 20m interval of each 30m section

Table 1 – Sample method

Length of Hedgerow (metres)	Number of section(s) to survey for woody species and ground flora
0-30	1
31-100	1
101-200	2
+200	3

Hedgerows that are connected to other habitats such as ponds, broad-leaved woodland and hedgerows create a vital wildlife corridor. Each hedgerow was assessed to see if it was connected to any of these habitats. The following point system was utilised:

- Connected to another hedgerow = 1 point
- Connected to a broad-leaved woodland (over 0.25 hectares) = 2 points
- Connected to a pond = 2 points

Other data collated about each hedgerow included:

- Hedgerow height and width
- Percentage of gaps
- Hedgerow type (shrubby hedgerow with trees, line of trees and shrubby hedgerow)
- Shape (trimmed & dense, intensively managed, untrimmed, tall & leggy, untrimmed with outgrowths, recently coppiced and recently laid).

- Adjacent land use
- Adjacent to bridleway, footpath, or road
- Nutrient enrichment (Percentage of nettle's, cleavers, and docks).
- Hedgerow trees present

To determine if the hedgerow can be classified as important under the Hedgerow Regulations 1997, the hedgerow was also assessed to see if any associated features were also present:

1. Presence of hedgebank or wall for at least half of total length
2. Presence of ditch for at least half of total length
3. Presence of parallel hedge within 15 metres
4. Total gap length less than 10% of total hedgerow length
5. One standard tree* in hedgerow less than 50 metres in length
6. Two standard trees* in hedgerow between 50 metres and 100 metres in length
7. Average of 1 standard tree* every 50 metres for hedgerow more than 100 metres in length
8. Three woodland species (see appendix 5) within 1 metre of hedgerow edge
9. Four points worth of connections

Criteria for Designation as an "Important Hedgerow"

If a hedgerow meets any one or more of the following criteria, it indicates that it is an important hedgerow:

A. Marker for pre-1850 parish/township boundary.

B. Marker for pre-1600 estate or manor boundary.

C. Marker for "field system", Pre-Enclosure Act.

D. Scheduled Ancient Monument or Archaeological site.

E. Presence of protected or endangered species.

F. Seven woody species.

G. Six woody species (including black poplar (*Populus nigra*), large-leaved lime (*Tilia platyphyllos*), small-leaved lime (*Tilia cordata*) or wild service tree (*Sorbus torminalis*).

H. Six woody species + three Associated Features.

I. Five woody species + four Associated Features.

J. Adjacent to bridleway footpath, road or byway and has four woody species + two Associated Features.

No protected, notable, or invasive species were present within the hedgerow at the time of the survey. This assessment is for the ecological value of the hedgerow and therefore, no assessment has been made for the criteria A to D for designation as an important hedgerow.

Results

A summary of the results of the hedgerow assessment has been provided within Table 2.

Table 2 - Hedgerow Survey Results

Criteria	H1	H2
Average number of species per 30m section	4	1
Presence of protected or endangered species.	No	No
Seven woody species.	No	No
Six woody species (including black poplar (*Populus nigra*), large-leaved lime (*Tilia platyphyllos*), small-leaved lime (*Tilia cordata*) or wild service tree (*Sorbus torminalis*).	No	No
Six woody species + three Associated Features	No	No
Five woody species + four Associated Features.	No	No
Adjacent to bridleway footpath, road or byway and has four woody species + two Associated Features.	No	No
Important?	No	No

Appendix 3 - Habitat Map and Target Notes

- Site Boundary
- Cultivated/disturbed land - arable
- Other tall herb and fern - ruderal
- Intact hedge - species-poor
- Intact hedge - native species-rich
- Hedge with trees - species-poor
- Fence
- Target Note

N

0 45 90 180 Meters

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Project: **Dinmore Manor - Wellington Quarry Extension**

Title: **Phase 1 Habitat Map**

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