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Field House Quarry – High Haining, Sunderland

Ecological Impact Assessment

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Contents

1 Summary

1.1 This report is an ecological impact assessment (EcIA) for the proposed infill and restoration of Gravel Hole Quarry at High Haining and should be used to inform the planning decision.

1.2 The report is based on a desk study of existing ecological information, an extended Phase 1 habitat survey and faunal surveys including bats, breeding birds and barn owl which were undertaken by BSG Ecology between April and September 2023.

1.3 The quarry adjoins a Magnesian Limestone grassland designated as a Site of Special Scientific Interest (SSSI). Two Local Wildlife Sites (LWS): The Clouds, and Houghton Hill Cut and Escarpment, are also adjacent to the red line planning boundary of the proposal.

1.4 This report sets out and evaluates the ecology baseline. As part of the assessment, the impacts of the proposed infill and restoration are described, and measures for impact avoidance, mitigation, compensation and enhancement are identified where appropriate.

1.5 Details regarding creation of habitats and management measures are set out in a separate Habitat Management Plan (HMMP) (BSG, 2024 c).

1.6 Biodiversity gain assessment can be found in a separate Biodiversity Net Gain report (BSG, 2024 d).

2 Introduction

Background to the commission

2.1 BSG Ecology was initially commissioned in April 2023 by A McCall and Sons Limited to undertake a preliminary ecological appraisal (PEA), breeding bird surveys and a habitat management and monitoring plan (HMMP) of Field House Quarry and access track, High Haining, Sunderland (the Site). Following completion of the PEA, BSG Ecology was commissioned in July 2023 to undertake bat surveys and produce an ecological impact assessment (EcIA) report and biodiversity net gain metric and report.

2.2 This report sets out the methods and results of the EcIA.

2.3 This EcIA report contains seven Figures:

- Figure 1: Location / site boundary.
- Figure 2: Phase 1 habitat map
- Figure 3: Statutory and non-statutory designated sites map
- Figure 4a and 4b: Breeding bird territory map
- Figure 5: Barn owl survey information
- Figure 6: Bat survey information

2.4 It is supported by Appendices (1-4):

- Appendix 1: Photograph locations from PEA Survey on 05 June 2023
- Appendix 2: Target notes
- Appendix 3: Breeding bird report
- Appendix 4: A summary of relevant ecological legislation and policy.

Site description

2.5 The main Site covers c.6.37 hectares (ha) of a disused quarry that has been partly filled with inert material and is centred on Ordnance Survey grid reference NZ354506. The remainder of the Site consists of a narrow corridor to the north of the quarry measuring approximately 900 m in length and 0.78 ha in area which supports arable farmland, poor semi improved grassland field margins and species poor hedgerows. This is the route of the proposed haul road. The planning application boundary is shown in Figure 1.

2.6 Field House Quarry is located on the Magnesian Limestone escarpment in the High Haining area to the north-east of Houghton-le-Spring. The quarry is on the south facing slope of the Houghton Burn valley, the northern perimeter of the quarry is at approximately 160 m AOD and the southern perimeter of the quarry is at approximately 120 m AOD. The Houghton Burn is approximately 250 m to the south of the quarry at 105 m AOD. The quarry, which was initially a sand pit, was a source of quality Permian sand which was overlain by Magnesian Limestone rock.

2.7 The Site is 0.7 km to the south of the A690 and approximately 1.5 km North of the village of Houghton-le-Spring.

2.8 Habitats along the corridor of the proposed haul road comprise arable land, pastureland, hedgerow and broadleaved trees. Habitats within the quarry are a complex mosaic ranging from scattered scrub, coarse grass and tall ruderal vegetation to ephemeral habitat showing calcareous influence. The lowland calcareous grassland east of the quarry is of national ecological importance and is designated as High Haining Hill Site of Special Scientific Interest (SSSI).

2.9 Sand has been extracted from Field House Quarry over a significant length of time. Planning permission was originally granted to reopen the original sand pit in March 1955. The quarry was then further enlarged under a permission granted in 1957. In 1971 an extension to the north and east was approved. Planning permission in 1997 required the quarry void to be restored to Magnesian Limestone grassland by 2015. Restoration of the Site was not completed in 2015 due to changes in the commercial market.

2.10 The land around the Site is dominated primarily by agriculture with scrub, woodland and grassland. Field boundaries are mostly defined by fences and hedgerows with trees scattered throughout.

Proposed development

2.11 The proposal is for the restoration of Field House Quarry using inert waste materials and sorting recycling of the inert materials to produce a secondary aggregate including the construction of a new haul road to the north of the site. This will result in the filling in of the quarry over three phases with inert material over a 15 year period. The Site will be restored progressively with the end result being 2.87 ha of Magnesian Limestone grassland reflecting the surrounding landform and 3.36 ha of open mosaic grassland.

2.12 The access road to the quarry will be made up of a dolomite-surfaced track with a soakaway and a single lane 5 m in width, with passing places, leading out onto Stoneygate Lane. A 900 m species rich hedgerow will be planting alongside the track in addition to the planting of 45 individual trees.

Planning status

2.13 The Site sits within green belt and is allocated under Policy NE6 within the adopted Sunderland Local Plan (2015-2033). The area is also allocated for landscape protection within Sunderland's landscape character assessment.

2.14 Adjacent to the Site is High Haining Special Site of Scientific Interest. Using Defra's Multi Agency Geographic Information for the Countryside (MAGIC) part of the SSSI boundary is shown to cover part of the quarry and the Site. This land is no wider than 50 m and it is approximately 150 m long and it runs along the eastern side of the quarry void. However, this area of the SSSI was subject to extraction operations sometime between 1985 and 2000 which has been established using Google Earth historic photos. The loss of this land was also known to Natural England in 1997 as the owner/operator entered (George McCall) into an agreement with Natural England for the maintenance of the remaining area of the SSSI and the agreement clearly excludes the area to the west of the SSSI as it was within the quarry void.

2.15 The land outside the quarry void, and within the SSSI, is approximately 2.9 ha in size and is an area of Magnesian Limestone grassland. The site was designated as a SSSI in 1983 and in 2011 it was assessed as being in 'unfavourable recovering condition'. The Magnesian Limestone grassland is slowly being colonised by gorse scrub.

Purpose of this report

2.16 This report provides an assessment of the likely ecological effects of the proposed development, sets out measures to mitigate and / or offset and, where necessary, to compensate those effects; and describes ecological enhancement measures.

2.17 This assessment refers to a restoration strategy (habitat management and monitoring plan (HMMP) (BSG Ecology 2023 c) and biodiversity net gain (BNG) (BSG Ecology 2023 d) for the Site, which have been developed in conjunction with the project team.

Personnel

2.18 The following personnel have been involved in this project.

2.19 The extended Phase 1 Habitat survey was completed by Elizabeth Ross, BSc MSc MCIEEM. Elizabeth has 14 years of ecological surveying experience across the north of England and Scotland specialising in botanical surveys.

2.20 Habitat condition assessments to inform a biodiversity gain assessment were undertaken by Claire Dewson, Principal Ecologist and Hannah Breadin, Senior Ecologist at BSG Ecology. They are both competent botanical field surveyors.

2.21 The breeding bird surveys were completed by BSG Ecology Principal Ecologist/Ornithologist Ian Heard. Ian has worked in the field of ornithology for the last 13 years, initially for the RSPB as a field surveyor undertaking black grouse and breeding bird surveys. Since 2011 Ian has worked as a consultant ecologist specialising in ornithological surveys. He has undertaken standard breeding, passage and wintering bird surveys in a wide variety of habitats from lowland farmland to upland and woodland environments and has conducted a range of specialist ornithological survey for species such as black grouse, nightjar, wetland bird survey, upland waders and raptors. Ian also holds a barn owl licence CL29/00540. Ian was supported by Josh Havlin, Adam Murphy and Alex Permain, Ecologists at BSG Ecology. Josh has 6 years' experience in ornithological surveys, Adam has 4 years' experience and Alex has almost 2 years' experience in ecological consultancy undertaking a range of surveys but specialising in bird surveys.

2.22 The bat surveys were completed by Claire Dewson, Hannah Breadin, Ian Heard, Adam Murphy, Alex Permain, Jacqueline Grissom and Matt Breadin. Claire has undertaken a range of bat surveys for over the last 20 years and holds a level 2 Natural England Licence for bats (2022-11277- CLS – CLS). Hannah is an experienced bat surveyor with over 10 years' bat survey experience holding a level 2 Natural England bat licence 2019-40569-CLS-CLS). Ian has over 12 years' experience undertaking bat surveys. Adam, Alex and Jacqueline are Ecologists with BSG and collectively have a total of six years' experience undertaking bat surveys for ecological consultancy. Matt Breadin assisted with bat surveys and is a competent bat surveyor with over 15 year's experience and holds a level 1 licence CLS-17 2023-10997.

2.23 The report was prepared by Claire Dewson MCIEEM, Principal Ecologist at BSG Ecology. She has worked in the ecological sector for more than 20 years and has contributed to many ecological assessments as author and/or reviewer.

2.24 The final report has been technically reviewed by Jim Gillespie, Director for BSG Ecology. Jim has worked in the ecological sector for more than 25 years and has contributed to many ecological assessments as author and/or reviewer.

3 Methods

Desk study

3.1 A desk study was undertaken to identify sites designated for nature conservation, protected and notable habitats and species, and invasive non-native species relevant to the Site and the proposed development. A stratified approach was taken when defining the desk study area based on the likely zone of influence of the proposed scheme on different ecological receptors and an understanding of the maximum distances typically considered by statutory consultees.

3.2 The desk study identified internationally important wildlife sites[1] and nationally important statutory designated sites[2] within 10 km; as well as non-statutory designated sites[3], and protected and notable species and habitats within 2 km of the Site. The location of internationally and nationally important sites are presented in Figure 3.

3.3 Records of protected, notable, and invasive species were requested within a 2km buffer around the Site from Environmental Records and Information Centre North East (ERIC). Relevant findings of the desk study for protected and other important species are presented in the relevant parts of this report.

3.4 Information publicly available on MAGIC Map was also consulted (accessed on 26 May and 25 October 2023 https://magic.defra.gov.uk/MagicMap.aspx) to search for statutory designated sites (within 10 km), and certain non-statutory designated sites (within 2 km).

3.5 Reference is made to habitats and species listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. These habitats and species are a material consideration in the planning process and are referred to in this report as “S.41 habitats” and “S.41 species” respectively.

3.6 Records were viewed critically alongside field survey results to assist with the evaluation.

3.7 Ordnance Survey mapping and publicly available aerial photography were also used to assess habitats and check for any features of potential interest.

3.8 Resources used to complete the desk study are summarised below in Table 1.

[1] **International Statutory designations** include Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites.
[2] **National Statutory designations** include National Nature Reserves (NNR), Sites of Special Scientific Interest (SSSI) and Local Nature Reserves (LNR).
[3] **Non-statutory sites** are designated by local authorities (e.g. Sites of Importance for Nature Conservation or/and Local Wildlife Sites).

***Table 1**: Data sources referenced in the assessment*

Data Source	Date Accessed / Received	Notes
MAGIC[4] (www.magic.defra.gov.uk)	Most recently accessed 25 October 2023	A 2 km search area was adopted for statutory designated sites (this was extended to 10 km for European sites), Impact Risk Zones, and European protected species licences. A check for mapped potential priority habitats on Magic was undertaken for a 250 m radius from the Site.
ERIC NE[5] Local Biological Records Centre	Received 12 October 2023	A 2 km search area was adopted, and data were requested on protected species and notable species, priority habitats[6] and non-statutory designated wildlife sites.
Bing Maps (www.Bing.com/maps/) Google Earth Pro	Most recently accessed 25 October 2023	A search was made for ponds within 500 m of the Site (https://www.gov.uk/guidance/great-crested-newts-surveys-and-mitigation-for-development-projects). Habitats were assessed using aerial imagery.

Consideration of potential limitations: desk study

3.9 No significant limitations have been identified.

[4] Multi Agency Geographic Information for the Countryside (MAGIC).

[5] Environmental Records and Information Centre North East.

[6] Species and habitats listed in response to the provisions of Sections 40 and 41 of the Natural Environment and Rural Communities (NERC) Act 2006, which identifies species and habitats of principal importance for the purpose of conserving biodiversity ("S.41 species" and "S.41 habitats" respectively). In addition, the Northumberland Action Plan (2008) has been reviewed for Biodiversity Action Plan (BAP) habitats and species in Northumberland.

Habitats

Phase 1 habitat survey

3.10 Habitats within the Site boundary are mapped in accordance with the Phase 1 habitat survey methodology (JNCC 2011). Botanical species lists for key habitats were recorded with DAFOR notation where appropriate, relating to if the species was 'Dominant' (D), 'Abundant' (A), 'Frequent' (F), 'Occasional' (O) or 'Rare' (R) within the habitat it was observed. The survey was "extended" to include an appraisal of the habitats' suitability for protected species. This included a search for signs of protected species or the species themselves. Such signs, and habitat features suitable for protected species were target noted.

3.11 Figure 2 presents the results of the extended Phase 1 habitat survey and the location of any target notes that were recorded. Target notes are described in Appendix 2 of this report. Habitats were also assessed against descriptions of Habitat of Principal Importance as set out by the JNCC (BRIG, 2008) where appropriate.

3.12 Records for dominant and notable plants are provided, as are incidental records of birds and other fauna noted during the course of the habitat survey. The latter have been used to justify the potential presence of important ecological features where applicable.

3.13 The Site was also surveyed for the presence of invasive plant species as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended); however, detailed mapping of such species is beyond the scope of this commission and locations on the habitat plan are indicative only.

3.14 The survey was completed by Elizabeth Ross on 05 June 2023 in suitable weather conditions. Table 2 below presents the details of the survey.

3.15 The condition of habitats was subsequently assessed on 12 July 2023 by Hannah Breadin and Claire Dewson in suitable weather conditions. Following the identification of habitats in the field, the condition of each habitat parcel was assessed using Natural England guidance (Panks *et al*. 2022). The appropriate habitat condition assessment sheet for each habitat was chosen based on the habitat data gathered in the field. The condition of each baseline habitat parcel is justified (with reference to the guidance) in a separate biodiversity net gain report. Table 2 below refers to the survey conditions on Site.

Table 2: *Survey details*

Survey	Date	Cloud cover (oktas)	Temperature in degree Celsius	Wind speed	Precipitation
Extended Phase 1 habitat survey	05/06/2023	1	22	0	None
Condition Assessment	12/07/2023	4	17	Variable 0 - 3	Light/Intermittent

Consideration of potential limitations: Phase 1 habitat survey

3.16 During the Phase 1 habitat survey the pasture field had been cut making it difficult to identify plant species. However, using the field margins and sections of an adjacent field a species list was collected. This is not considered to be a significant limitation to the categorisation of the habitat.

3.17 Some areas within the quarry were difficult to access and were viewed with binoculars to assist with species identification. This is not considered to be a significant limitation to the categorisation of

habitats. See target note 4 in section 10 (Appendix 2) and photograph 17 in section 9 (Appendix 1) of this report.

Field Studies: species / species groups

Barn owls

3.18 The survey for barn owls involved examination of accessible gaps and crevices within the quarry face and for evidence of occupation in the form of droppings, pellets, feathers, nests and actual barn owls following the methodology outlined in the Barn Owl Survey Methodology and Techniques for use in Ecological Assessment (Shawyer, 2011) and the Barn Owl Conservation Handbook (The Barn Owl Trust, 2012). The surveys were undertaken by Ian Heard supported by Alex Permain and Adam Murphy.

3.19 A nocturnal survey of breeding birds over the entire Site was completed on 30 May 2023 followed by a further three fixed point surveys of the quarry cliff face, which were completed at the same time as the bat roost surveys (see table 3 below for more information), one in August and two in September.

3.20 During the nocturnal fixed point surveys the main objective was to record any barn owls entering or leaving the cliff face and the location of any entry/exit points. In addition, surveyors record any other barn owl activity detectable from their survey position. Where possible the time of recording, number of barn owls, type of activity, and flight path of observed birds was recorded. Barn owls entering or leaving the cliff face were considered evidence of roost presence.

3.21 Three night vison aids were used to support the survey effort and they included one infra-red (IR) Canon XA60 camcorder which was secured onto a tripod and deployed in a suitable location. The device was boosted with an external torch to enhance its night vision capabilities.

3.22 Two FLIR tc350x Thermal Imaging (TI) cameras were also deployed in suitable locations. The TI device was used to allow detailed observation of barn owl activity in low ambient light levels and is manually operated to capture film sequences, triggered remotely prior to the survey starting.

3.23 Following each survey, night vision aid (NVA) footage was thoroughly reviewed by an experienced technician.

Consideration of potential limitations: barn owl

3.24 The quarry face was unstable in parts and did not allow for ladder or climbing access to check the size of the cavities for suitability as a breeding site and/or presence of breeding.

3.25 Surveys were completed in May, August and September with the latter being outside the optimal breeding check period (late June to late July). However, barn owl was observed on every fixed point survey and the information obtained was sufficient to categorise the status of barn owl at the Site.

3.26 This is not considered to be a significant limitation to the understanding of barn owls at the quarry.

Bats

Preliminary roost potential assessment

3.27 A daytime visual inspection was carried out by Lizzie Ross on 5 June 2023 and then by Hannah Breadin and Claire Dewson on 12 July. The survey was completed with reference to the latest guidelines on bat survey methodology issued by the Bat Conservation Trust (BCT) (Collins [Ed], 2016. Chapter 5).

3.28 The preliminary roost potential assessment considered the location of the quarry, surrounding foraging and linking habitat as well as the rock type and the nature of the cracks and crevices found within the quarry itself. To aid the survey, the surveyors used a combination of high-powered torches (Clulite) and binoculars, to assess features with potential to support roosting bats, where necessary.

3.29 During the survey a record was made of any features, such as gaps, loose cliff face and crevices which had the potential to provide roosting opportunities for bats. Any evidence of past bat activity such as droppings, staining or urine spatter was also recorded.

Bat activity

3.30 In accordance with relevant BCT bat survey guidance at the time (Collins [Ed], 2016. Chapter 8, three activity surveys were undertaken comprising two dusk emergences and a dawn re-entry survey. The dusk surveys were undertaken on 10 August and 26 September and the dawn was undertaken on 13 September. Four surveyors were used for both surveys. The survey effort was targeted to suitable features where bats could potentially roost. Each surveyor was equipped with a heterodyne detector and/or full spectrum recording equipment. Following each survey, the sound data was reviewed by an experienced bat acoustic technician.

3.31 Infra-red and thermal imaging technology was also used to support the survey effort, see para 3.21 and 3.22 for further information.

3.32 Table 3 below present the survey details.

Table 3: *Bat activity survey details*

Date	Sunset/Sunrise	Start	End	Weather	Surveyors Initials
10/08/2023	20:50	20:30	22:20	21°C, dry, cloud cover 1 and light breeze.	HB, CD, IH and MB
13/09/2023	06:34	05:04	06:45	9.5°C, clear skies, no wind or rain	AP, CD, IH and JG
26/09/23	18:55	18:40	20:25	11◦C increasing to 14◦C, small amount of cloud 2-4 and a light breeze.	HB, IH, AP and AM

3.33 Surveyors initials: Hannah Breadin (HB), Claire Dewson (CD), Ian Heard (IH), Jaquelyn Grissom (JG), Alex Permain (AP), Adam Murphy (AM) and Matt Breadin (MB).

3.34 The Bat Conservation Trust published interim guidance in 2022 regarding the role of Night Vision Aids (NVAs) and the benefits of using these for emergence surveys (BCT, 2022) and the shift to using this as standard protocol. Three NVAs were used during the activity surveys to complement the survey effort and cover areas of the quarry which were difficult for a surveyor to access due to dense vegetation cover (see Figure 6, Section 8 for NVA locations).

3.35 One infra-red (IR) Canon XA60 camcorder was secured onto a tripod and deployed in a suitable location. The device was boosted with an external infra-red torch to enhance its night vision capabilities.

3.36 Two FLIR tc350x Thermal Imaging (TI) camera were also deployed in suitable locations. The TI device was used to allow detailed observation of bat activity in low ambient light levels and is manually operated to capture film sequences, triggered remotely prior to the survey starting.

3.37 Following each survey, NVA footage was thoroughly reviewed by an experienced technician.

Consideration of potential limitations: bats

3.38 During the potential roost assessment it was not possible to safely access all suitable crevices and use ladders and an endoscope to inspect them further for their suitability to support roosting bats. Whilst this is a limitation all suitable cracks and crevices were covered during the nocturnal surveys.

3.39 During the dusk survey the quarry became dark very quickly making it difficult to see bats, however night vision aids reduced this potential constraint.

3.40 During September 2023 BCT published new and updated survey guidance (Collins 4th Edition); however, the survey scope was based on the 3rd Edition. Given the small size and the low level of bat interest recorded, it is not considered likely that the application of the updated guidance would have resulted in significantly different results and the survey methodology used here is considered robust and appropriate for this report.

3.41 The above points are not considered to be a significant limitation to the understanding of bats at the quarry.

Breeding birds

3.42 Six surveys were completed during the morning period (see table 3), which is the period when breeding birds are most vocal. A seventh survey was completed around dusk to cover crepuscular species such as owls, or species not readily detectable during morning surveys (Bird Survey Guidelines, 2023).

3.43 A suitable number of surveys were undertaken considering the array of habitats available and the bird assemblage likely to be present. The surveys were undertaken by suitably experienced ornithologists at suitable times of the day.

3.44 All birds were recorded using standard British Trust for Ornithology species and behaviour codes. The resultant data were analysed to create a breeding bird territory map. Characterisation of breeding bird activity used the British Trust for Ornithology (BTO, 2023) breeding evidence guidance, which is briefly summarised below:

3.45 Species that were present, but where no suitable nesting habitat was present, were considered not to be breeding (N).

3.46 Species observed displaying breeding behaviour (e.g., singing) on one occasion in suitable breeding habitat (Po).

3.47 Birds were considered to be probably breeding (Pr) if a permanent territory was located: more than two separate registrations of a species of a species displaying breeding behaviour in the same location; singing, displaying or carrying nest material, nest construction; if adults repeatedly alarmed; if there was disturbance display; or if there were territorial disputes.

3.48 Breeding was considered to be confirmed if nests or young (including fledglings) were found, adults carrying faecal sac or food, eggs shells, or distraction display/injury feigning adults were present (B).

3.49 On a precautionary basis any possible and probably breeding territories are considered to be ‘likely’. This report treats likely and confirmed breeding territories with equal consideration.

3.50 The survey area for the breeding bird survey was extended to 50 m around the Site to cover land off-site under the applicant’s control, that may be used to inform breeding bird mitigation and compensation strategy.

3.51 Estimates of territory numbers have been assigned to each breeding species recorded within the survey area using the territory analysis approach described by Bibby *et al*. (2000). Notable species, in terms of their rarity or abundance, are then considered further. Territories for those species

confirmed or considered 'likely' to be breeding within the Site and off-site are shown in Figures 4a and 4b.

3.52 Table 4 below presents the survey details for the breeding bird survey work.

Table 4: *Survey details*

Date	Time	Sun rise/set	Surveyor	Weather			
				Wind (Beaufort)	Precipitation	Cloud (Oktas)	Temperature (°C)
18 April 2023	06:45 – 09:30	05:57	Ian Heard	0	none	7	7.5
05 May 2023	06:05 – 08:05	05:19	Josh Havlin	0	Light intermittent	8	8
22 May 2023	07:40 – 09:25	04:48	Josh Havlin	1 N	none	2	9
30 May 2023	20:55 – 22:22	21:30	Ian Heard	1 S	none	7	12
05 June 2023	06:00 – 08:00	04:32	Josh Havlin	1	Light intermittent	8	10
09 June 2023	04:40 – 06:45	04:30	Ian Heard	0	none	8	10
28 June 2023	04:45 – 07:05	04;30	Ian Heard	2 SE	Light intermittent	8	17

Consideration of potential limitations: breeding birds

3.53 Due to the terrain and steep topography in parts of the quarry it was unsafe to directly access some areas, such as scree slopes and directly below working faces. However, the quarry itself was largely open and areas that could not be accessed directly could be viewed from vantage points close by. As such the quarry was effectively surveyed and the lack of direct access to some areas is not considered to be a significant limitation.

Reptiles

3.54 During the extended Phase 1 habitat survey and the habitat condition survey an assessment was made of the quarry's suitability to support reptiles. The quarry is operational and inert material is moved around on a regular basis, reflected in the habitat types found on Site. The quarry floor itself is made up of inert material and oftens holds water making it damp and muddy in parts, there are very few suitable natural refugia on Site, or suitable basking areas.

3.55 The cliff face itself may offer some opportunity for reptiles due to parts of it being south facing, although the adjacent Magnesian Limestone grassland offers better opportunities for the species as it has an open aspect, is well drained, warmed by the sun with a range of different aspects, offers

shelter and is relatively undisturbed. On a precautionary basis it has been assumed that a small number of individual reptiles are likely to be present.

Consideration of potential limitations: reptiles

3.56 During the initial surveys it was not possible to safely access all suitable cracks and crevices that could support reptiles. Additionally, it would be difficult to place refugia/tiles on the quarry face. However, based on the current use of the quarry and adjacent habitats, and the precautionary assumption of small numbers of common reptiles being present, this is not considered to be a significant limitation.

Other Species

3.57 During the 'extended' Phase 1 habitat surveys and habitat condition assessment, checks for signs of badgers were extended to an additional 50 metre buffer zone around the Site. Signs such as setts, latrines, scrapes, tracks, footprints, and hairs were checked for (Harris, Cresswell & Jefferies, 1989).

3.58 Dingy skipper butterfly *Erynnis tages* was considered during the initial surveys but owing to the lack of their larval food plants common bird's foot trefoil *Lotus corniculatus*, greater bird's foot trefoil *Lotus pedunculatus* or horseshoe vetch *Hippocrepis comosa* being present in abundance on Site coupled with the operations and disturbance within the quarry, targeted surveys were not considered to be required.

Consideration of any other potential limitations

3.59 No significant limitations are identified.

Methods of Evaluation and Impact Assessment

3.60 The evaluation and assessment have been undertaken with reference to the current Guidelines for Ecological Impact Assessment (EcIA) in the United Kingdom developed by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2019). Although this is recognised as the industry standard for ecological assessment, the guidance is not prescriptive; rather, it aims to "provide guidance to practitioners for refining their own methodologies".

3.61 Ecological receptors of negligible or site level importance only are unlikely to trigger a biodiversity policy response and will be scoped out. If a site level receptor is potentially capable of triggering a policy response such as a Section 41 habitat, then it will not be scoped out.

Important Ecological Features

3.62 A first step in EcIA is determination of which ecological features (habitats, species, ecosystems and their functions/processes) are important. Important features should then be subject to detailed assessment if they are likely to be affected by a Development. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to effects of the Development, such that there is no risk to their viability.

3.63 Ecological features can be important for a variety of reasons. Importance may relate, for example, to the quality or extent of designated sites or habitats, to habitat/species rarity, to the extent to which they are threatened throughout their range, or to their rate of decline.

Evaluation: Determining Importance

3.64 The importance of an ecological feature is considered within a defined geographical context. The following frame of reference has been used in this case:

- International / European
- National (UK)
- Regional: North-East (Northumberland, Tyne and Wear and County Durham)

- County: Tyne and Wear (Houghton-le-Spring previously in VC Durham)
- Vice-county VC 66 (Sunderland). This is a proxy for “district” level evaluation, a level between County and Local levels
- Local (intermediate between VC 66 and the Site)
- the Site (application boundary and immediate surrounds)
- Below Site level: negligible importance.

Characterising and Quantifying Effects and Assessing their Significance

3.65 The CIEEM (2019) guidelines suggest that ecological effects or impacts should be characterised in terms of ecosystem structure and function and reference should be made *where relevant* [author’s emphasis] to: beneficial, adverse or “no significant” (or “no”) effects; extent; magnitude; duration; reversibility; timing and frequency; and cumulative effects. The guidelines provide a list of "*aspects of ecological structure and function to consider when predicting impacts and effects*". The terms impact and effect are used within this EcIA in accordance with the following definitions (as provided by the guidelines):

- *Impact: “Actions resulting in changes to an ecological feature. For example, the construction activities of a development removing a hedgerow”.*
- *Effect: “Outcome to an ecological feature from an impact. For example, the effects on a dormouse population from loss of a hedgerow”.*

3.66 Following the characterisation of effects, an assessment of the ecological significance of those effects is made. The guidelines promote a transparent approach in which a beneficial or adverse effect is determined to be significant or not, in ecological terms, in relation to the integrity of the defined site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, which relates to the level at which it has been valued. The decision about whether an effect is significant or not, is independent of the value of the ecological feature; the value of any feature that will be significantly affected is then used to determine the implications, in terms of legislation and / or policy.

3.67 Significance is a concept related to the weight that should be attached to effects when decisions are made. For this assessment, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features'. A significant effect is simply an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. The EcIA guidelines state:

> *"A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant adverse ecological effects can be lawfully permitted following EIA procedures".*

3.68 As part of the impact assessment in this case, the “do nothing” scenario (the outcome of not developing the Site and allowing it to remain in current management) is also considered.

4 Ecological Baseline and Evaluation

4.1 This section sets out the findings of the baseline ecological survey work and relevant information from the desk study. It then goes on to assess the interest of the identified ecological resources. Ecological receptors are considered in the following order:

- Protected sites – both statutory (e.g. SSSI) and non-statutory (e.g. LWS);
- Habitats; and
- Species.

Future baseline

4.2 In the absence of the proposed development (i.e., in a "do nothing" situation), it is likely that the main Site would stay as a redundant quarry partly filled with inert material and the agricultural fields would continue to be managed as they are.

4.3 The biodiversity interest of the Site mainly the quarry is likely to change and scrub over, reducing some of its botanical interest.

Statutory and non-statutory protected sites

4.4 The closest internationally designated sites are the Durham Special Area Conservation (SAC) and Northumbria Special Protection Area (SPA) and Ramsar site is 6.5km (at its closest point) from the Site. The Site does not fall within the Impact Risk Zone (IRZ) for either site.

4.5 The Durham SAC is selected for the following reasons:

- Annex I habitats that are a primary reason for selection – vegetated sea cliffs of the Atlantic and Baltic Coasts

4.6 Northumbria SPA and Ramsar sites are selected for the following reasons:

- The sites regularly support more than 1% of the GB populations of one species listed in Annex I of the EC Birds Directive: little tern *Sternula albifrons*. The SPA also includes supports 1% of the GB populations for Artic tern *Sterna paradisaea.*
- The sites regularly support more than 1% of the biogeographical population of two regularly occurring migratory species not listed in Annex I of the EC Birds Directive: turnstone *Arenaria interpres* and purple sandpiper *Calidris maritima*.

4.7 The desk study identified one nationally designated site within the 2 km search area: High Haining Hill Site of Special Scientific Interest (SSSI) (see Figure 3). The desk study also identified a further 31 nationally designated sites within 10 km of the search area. All the sites apart from High Haining are of a distance and sufficiently physically separated from the proposal that there are no impact pathways likely to result in an effect on the key interest features of the designation and are not discussed further in this report.

4.8 High Haining is designated for its Magnesian Limestone grassland (for further information see paragraph 2.15 and 2.16 and photograph 21 and 22).

4.9 The Site falls within the SSSI IRZ for this SSSI. Natural England advises the local planning authority to consult them on likely risks from "all planning applications" in this case.

4.10 There are six Local Wildlife Site within the area of search, see table 5 below for details and Figure 3 for geographical locations:

***Table 5** – LWS within 2km of the Site*

Site Name and Designation	Key Interest Features	Distance from Site
Houghton Hill Cut and Scarp	Designated for its notable Magnesian Limestone escarpment.	Adjacent to the Site
The Clouds	Designated primarily for its woodland.	Adjacent to the proposed haul road.
Warden Law Quarry	Designated for its geological interest.	1.3 km south-east
Copt Hill	Designated for its historical and cultural significance as a prominent Neolithic burial site.	1.2 km south
Rough Dene	Designated for its ancient semi-natural broadleaved woodland.	1.6 km south
Herrington Hill and Woodland	Designated for its primary species-rich Magnesian Limestone grassland.	1.8 km north-west

4.11 The sites are designated for a range of reasons including woodland, Magnesian Limestone grassland as well as geological interest. None of the sites are directly connected to the proposal. Copt Hill, Rough Dene and Herrington Hill and Woodland LWS are of a distance that no indirect impacts are likely to arise from the proposal and are therefore scoped out of further consideration within this report.

Evaluation

4.12 SACs are evaluated as of **International importance**.

4.13 SSSIs are of **National importance**.

4.14 Local Wildlife Sites are of **County importance**.

Mapped priority habitats in the locality

4.15 The quarry part of the Site is mapped as open mosaic habitat according to Natural England but this habitat is considered to be mapped as draft on the Magic.gov website and there seems to be low reliability regarding the interpretation of the information, limited habitat information to confirm this habitat classification.

4.16 Lowland calcareous grassland is adjacent to the Site on High Haining SSSI, while 0.7 ha of deciduous woodland is located approximately 150 m north-east of the Site and an area approximately 80 m from the route of the proposed haul road. The woodland is part of The Clouds LWS.

Habitats on Site

4.17 Refer to Figure 2 in Appendix 1 which is a composite habitat map, drawn from the results of the Phase 1 habitat survey by Lizzie Ross and observations by Claire Dewson and Hannah Breadin. Also see photographs in Section 9 of this report.

Arable land outside of the quarry

4.18 The haul road will pass through arable land which was in a cereal monoculture at the time of survey. The headlands are narrow, typically 1m or less. Cock's-foot *Dactylis glomerata* is the dominant species (photograph 14).

4.19 The haul road will also pass through a field seeded as a herbal ley (photographs 10, 11 and 12) and which was dominated with a grassland sward with a reasonable diversity of forbs. The diversity has been created through recent sowing of a herbal ley specifically for the purpose of grass cropping. The grass:forb[7] ratio was around 80-90% grass and 10-20% forbs. Grass species recorded include abundant perennial rye grass *Lolium perenne*, crested dog's-tail *Cynosurus cristatus*, red fescue *Festuca rubra* agg, meadow foxtail *Alopecurus pratensis*, occasional Yorkshire fog *Holcus lanatus* and cock's-foot. Forbs comprise occasional salad burnet *Sanguisorba minor*, daisy *Bellis perennis*, smooth sow thistle *Sonchus oleraceus*, common mouse ear *Cerastium fontanum*, white clover *Trifolium repens*, common sorrel *Rumex acetosa*, red clover *Trifolium pratense*, spear thistle *Cirsium vulgare*, bush vetch *Vicia sepium*, meadow buttercup *Ranunculus acris*, creeping buttercup *Ranunculus repens*, yarrow *Achillea millefolium*, crosswort *Cruciata laevipes*, upright hedge-parsley *Torilis japonica*, ribwort plantain *Plantego lanceolata*, broadleaved dock *Rumex obtusifolius* and a wild lettuce species *Lactuca* spp. The total area of cropland totalled 0.14 ha.

Evaluation of arable land

4.20 The arable monoculture field is of **negligible importance** and will not be assessed further in this report.

4.21 The species composition of the ley field is diverse and had it been naturally occurring, the grassland would have been considered as a semi-improved neutral grassland. The habitat is typical of the wider landscape.

4.22 The ley field is assessed as important at **the Site level** and will not be discussed further in this report.

Hedgerows outside of the quarry

4.23 All hedgerow habitats are similar in that they are dominated by mature hawthorn *Crataegus monogyna* specimens which receive light management (photograph 10 and 12). The hedgerows total 0.06 km in length. Gaps are frequent and they are generally 2-3 m in height with occasional elder *Sambucus nigra* and rarely blackthorn *Prunus spinosa* or gorse *Ulex europaeus*. There are occasional broadleaved trees dotted within the hedgerows (photograph 4 to 9 and 13). The trees are predominantly semi-mature to mature ash *Fraxinus excelsior* and occasional sycamore *Acer pseudoplatanus*. Several of the ash specimens appear to be suffering from ash-dieback disease. Understorey species are coarse grasses and woody vegetation including cock's-foot, Yorkshire fog, perennial ryegrass, hogweed *Heracleum sphondylium,* nettle *Urtica dioica*, cleavers *Galium aparine*, dandelion *Taraxacum* agg. and cow parley *Anthriscus sylvestris*. Bramble *Rubus fruticosus* scrub is occasional in the understorey.

4.24 All hedgerows are defunct as they are no longer stock proof. They do not meet the ecological criteria of an Important hedgerow under the Hedgerow Regulations (1997). However, hedgerows are intrinsically valuable in terms of their function to wildlife as a foraging, commuting, nesting, and sheltering resource.

4.25 There are three ash trees within a remnant hedgerow that are of moderate roost potential for bats. All of the trees provide nesting habitat for a range of birds (photograph 8 and 9, target note 11)

Evaluation of hedgerows

4.26 The hedgerows outside of the quarry conform to the description of priority hedgerows (Maddock, 2011). They are considered to be of principal importance for the purpose of conserving biodiversity

[7] A forb is a herbaceous flowering plant other than a grass.

as listed in accordance with Regulation 41 of the Natural Environment and Rural Communities Act 2006. They are also a priority habitat within the Durham Biodiversity Action Plan.

4.27 Hedgerows are common and widespread within the local area and given the state of the hedgerows and relatively small lengths within the red line planning boundary, hedgerows are assessed as **important at the Site level**.

Scrub outside of the quarry

4.28 Where the proposed route of the access track leaves the pasture field's northern margin and begins to track through the centre of the field towards the opposite hedge line, there are two areas of abundant hawthorn scrub punctuated with gorse with a bramble understorey (0.13 ha).

Evaluation of scrub

4.29 Scrub is widespread within the surrounding landscape and is assessed as of **negligible importance.** This habitat will not be assessed further in this report.

Broadleaved woodland in the quarry

4.30 Broadleaved woodland is present in the southwestern corner of the quarry (photograph 35). On the southwestern boundary, woodland is on a steeply sloping, south-east facing bank side. It is immature and appears to be regenerating broadleaved woodland comprising young ash, sycamore *Acer pseudoplatanus* and alder *Alnus glutinosa* with an understorey of bramble. On the southern boundary the woodland is on top of a steep cliff face and is immature and appears to have been planted with a mix of broadleaved and conifer spp. (photograph 36). Species include Scots pine *Pinus sylvestris*, ash, willow *Salix* spp. and whitebeam *Sorbus aria*. There is less than 10% of conifer in the canopy and it is therefore classified as broadleaved woodland. The woodland has potential for foraging passerines but it does not have roosting potential for bats.

Evaluation of broadleaved woodland

4.31 Regenerating woodland is common and widespread in the landscape and totals 0.44 ha. There is no structure to the woodland with limited understorey.

4.32 Collectively the woodland areas are assessed as **important at the Site level.**

Scrub within the quarry

Scattered scrub is present and is made up of hawthorn and gorse and is recorded in a few locations within the quarry.

Evaluation of scrub

4.33 Scattered scrub is widespread within the surrounding landscape and is not ecologically diverse and offers limited cover and is assessed as of **negligible importance**. This habitat will not be assessed further in this report.

Tall ruderal vegetation

4.34 A soil bund runs along the northern quarry boundary (photograph 20). It appears to have been created from nutrient-rich soil and supports a well-established coarse grass/tall ruderal sward with some gorse, hawthorn and bramble scrub. Species recorded along the bund include cock's-foot, nettle, hogweed, cow parsley, creeping thistle *Cirsium arvense*, creeping buttercup and occasional yarrow, annual meadow grass *Poa annua* and common knapweed *Centaurea nigra.* An area is also located in the south of the quarry made up of coarse grasses as mentioned above and there are areas either side of the woodland in the south-western corner of the quarry (0.81 ha).

Evaluation of tall ruderal

4.35 This habitat is common and widespread, species diversity is limited, the species are commonplace, and the coverage of tall ruderal vegetation is limited. It has limited ecological value and is therefore assessed as of **negligible importance** and will not be discussed further in this report.

Other non-ruderal vegetation

4.36 A small area (0.02 ha) of non-ruderal vegetation is present with hedge mustard *Alliaria petiolata* which is different from species recorded under tall ruderal or ephemeral/short perennial (see target note 5 for location).

Evaluation of other non-ruderal

4.37 The species which makes up this habitat is widespread and common and is assessed as of **negligible importance**. This habitat will not be assessed further in this report.

Bare ground

4.38 This is 2.76 ha and is mainly made up of stored materials such as crushed aggregate and access tracks also made up of crushed aggregate (photograph 26 and 29).

Evaluation of bare ground

4.39 This habitat is assessed as of **negligible importance** and will not be discussed further in this report.

Ephemeral/short perennial vegetation

4.40 In total there is approximately 2.24 ha of this habitat found within the quarry, located on the cliff faces and ledges as well as parts of the quarry floor.

4.41 This habitat can be found along the cliff tops in the north-east and north-west of the quarry as well as adjacent to the southern woodland. Species vary in dominance and include arable weeds, arable crop species and early colonisers of shallow soils. Species recorded include, opium poppy *Papaver somniferum* common poppy *Papaver rhoeas,* common ragwort, Oxford ragwort *Senecio squalidus* charlock *Sinapis arvensis*, teasel *Dipsacus fullonum*, red fescue, colts-foot *Tussilago farfara*, ribwort plantain, gorse, hawkweed, mouse-eared-hawkweed, pineappleweed *Matricaria discoidea*, red clover, scarlet pimpernel *Anagalis arvensis*, shepherd's purse *Capsella bursa-pastoris*, field speedwell, scented mayweed *Matricaria recutita*, creeping thistle, creeping cinquefoil *Potentilla reptans*, fox-and-cubs *Pilosella aurantiaca*, wild strawberry *Fragaria vesca*, black medick *Medicago luplina,* hop trefoil *Trifolium campestre,* northern marsh orchid *Dactylorhiza purpurella*, creeping buttercup, wild thyme *Thymus polytrichus,* salad burnet, hoary plantain *Plantago media* and a small area of bird's-foot trefoil. These areas have some calcareous indicator species (photograph 23).

4.42 Within the base of the quarry the habitat is made up of a diverse mix of species (photograph 27 and 30) but this is as a result of inert material being brought into the quarry with an existing seed bank as well as being regularly disturbed through movement of the material. This habitat also has elements of tall ruderal vegetation. Species which are dominant include charlock, opium poppy, smooth sow thistle, knapweed and honesty *Lunaria annua*. Other species which are frequently recorded include broadleaved dock, mugwort *Artemesia vulgaris*, creeping thistle, common poppy, teasel, broadleaf dock, creeping buttercup, white clover, red clover, ramping fumitory *Fumaria capreolata*, Yorkshire fog, colt's-foot, tall melilot *Melilotus altissimus*, cleavers, wild lettuce, wild mignonette *Resuda lutea*, oxeye daisy *Leucanthanum vulgare*, ribwort plantain, common ragwort, selfheal *Prunella vulgaris*, field penny-cress *Thlaspi arvense*, fox-and-cubs, weld *Reseda luteola*, mayweeds *Matricaria* spp., bristly oxtongue *Helminthotheca echioides*, phacelia *Phacelia tanacetifolia*, field forget-me-not *Myosotis arvensis*, dandelion, spear thistle, rosebay willowherb *Chamerion angustifolium*, tansy *Tanacetum vulgare,* hoary plantain, columbine *Aquiligia vulgaris*, cornflower *Centaurea cyanus*, common vetch *Vicia sativa*, hogweed and common comfrey *Symphytum officinale*.

Evaluation of Ephemeral/short perennial

4.43 The majority of this habitat is temporary in nature owing to the permitted operation of infilling the quarry with inert waste. The waste is also moved around to accommodate height levels within the base of the quarry. This habitat is botanically diverse, although all species listed are common and widespread.

4.44 Within this habitat there are large areas of bare ground and the species list is diverse and typical of recolonisation of bare ground which suggests that this habitat is open mosaic habitat (OMH) on previously developed land. This habitat is recognised as a habitat of principal importance under Sections 41 and 42 of the NERC Act 2006 due to it comprising early successional communities consisting of a range stress-tolerant species, early successional communities composed of annuals, ruderals, inundation species, and unvegetated, loose bare substrate and pools (target note 2 and 3 and photograph 31 and 33).

4.45 This habitat has been classified as OMH. It is difficult to understand the extent and range of this habitat in the wider area as it is a transitory habitat and there is no up to date map or register to assist with this assessment.

4.46 The composite parts of this habitat are classified as OMH and assessed as **important at up to District level**. This evaluation is made on a precautionary basis in the absence of contextual information about its extent in the district or county.

Species / species groups

Barn owl

4.47 ERIC NE provided four records of four barn owl in the area. Records included two juvenile fledgelings, one sighting and one family flying. The sighting record is from 955 m from Site and the juvenile fledgelings and family flying are all from 1,994 m from Site.

4.48 Barn owls were recorded on the breeding bird dusk survey in June. Observations of an owl leaving the High Haining farmstead flying east over the pasture lands to the east of the quarry and an owl calling along the southern boundary of the calcareous grassland were noted.

4.49 During the first bat survey in early August four barn owls were observed to be using the larger fissures in the eastern face of the quarry for roosting. Based on the number of birds present and their observed behaviour of leaving and returning to the same fissures on multiple occasions it was considered likely that some kind of breeding activity was being observed. A further two fixed point surveys were undertaken in September, both of which recorded at least two barn owls utilising the same fissures as those noted in August. During the September surveys there was fewer birds present and less activity was noted. Based on this behavioural pattern an assessment of a single pair breeding in the quarry face has been made.

4.50 High Haining farm is a known historic barn owl nest site and based on the observation in June and the owners of High Haining farm (120 m north-east of the Site) have confirmed that they have two resident barn owls (pers. comm Anne Wakefield Sept 2023). The presence of barn owls in 2023 suggests a likelihood of breeding at the farm.

4.51 Due to the instability of the quarry face it was not possible to make a more detailed assessment of the fissures to determine how many lead to cavities of sufficient size to provide breeding sites for barn owl.

Evaluation of barn owl

4.52 The site has been assessed as supporting one pair of breeding barn owl within the quarry face. An additional pair is likely to be breeding within 150 m of the Site (at the farm) and this pair could be indirectly impacted by the proposed works through disturbance.

4.53 According to the Birds of Durham (Anderson *et. al.* 2012) the species was undergoing an increase in both numbers and distribution within the county in the early 2000s and approximately 100 pairs of barn owl were recorded breeding within County Durham in 2010. The barn owl trust in the State of the UK Barn Owl Population – 2021 stated that 40 pairs were known to have bred in the county in that year.

4.54 Based on these figures the two pairs (one in the quarry, and one at the farm) recorded in 2023 could constitute between 2% and 5% of the county population. As such, the Site is assessed as **important at the County level** for barn owl.

Bats

4.55 Records obtained from Durham Bat Group and ERIC NE included 20 records of bats across at least 4 species: noctule *Nyctalus noctule*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, and myotis *Myotis* sp.

4.56 A maternity roost was identified approximately 1631 m from Site in 2014 on the southern elevation of a building. Another roost was recorded 1126 m from the Site on Seaham Road on the north side of a residential property in 2016 and 20 bats were confirmed as roosting in the eaves of the roof during the summer months. There were also 7 foraging records and 8 flight records of bat species.

4.57 A former European Protected Species Licence (EPSL) was granted within the search area for a site in 2010 based upon a former planning application (Ref: EPSM2010-1881). The EPSL licence was for common pipistrelle and brown long eared *Plecotus auratus*. The licence was 710 m from Site and expired 20 April 2012.

4.58 The quarry face was assessed as having features that were of high, moderate, low and negligible potential for roosting bats (see Bat Conservation Trust (BCT) (Collins [Ed], 2016 for more information). Classification of the areas is shown in Figure 6. Subsequent surveys were carried out in line with the 2016 guidance. No bats were recorded emerging or returning to the quarry face on any of the surveys. There were small numbers of bats recorded foraging and commuting in the quarry and consisted of common pipistrelle only and it is suspected that they are the same few bats as they observed by the surveyors. Bats tended to arrive from the north and west which is where farm buildings and homes are located ranging between 120 m to 300 m away from the Site.

4.59 No bats were recorded roosting within the quarry face during any of surveys, the quarry still provides opportunities for bats to roost, and the possibility of roosting in the future should be taken into account when planning work. The quarry is unlikely to support a maternity roost due the quarry face being wet in parts and some of the cracks and crevices being too large and exposed; as well as temperature variation of the rock. The quarry could potentially support small numbers of hibernating bats and small numbers of occasional roosts.

4.60 The Site overall does offer foraging and commuting opportunities for bats. The agricultural fields are bordered by trees and hedgerows connecting them into the wider landscape. Due to the active / changing nature of the quarry, established vegetation is relatively limited and in turn the foraging opportunities are limited and this was confirmed by the survey results recording small numbers of common bats foraging.

4.61 No bat roosts will be affected as part of the proposal, and roosting bats are therefore scoped out of further assessment in this report. On the basis of the small numbers of common species foraging and commuting bats they are also scoped out of further assessment. Measures to take account of the potential of the Site to support roosting bats in the future are set out in section 5 of this report.

Breeding birds

Desk study results

4.62 The desk study returned 925 records across 29 species of which 142 records were for red listed species. Red list species relevant to the Site include Skylark *Alauda arvensis*, Tree Pipit *Anthus trivialis*, Greenfinch *Carduelis chloris*, House Martin *Delichon urbicum*, Lesser Spotted Woodpecker

Dendrocopos minor, Corn Bunting *Emberiza calandra,* Yellowhammer *Emberiza citronella*, Merlin *Falco columbarius*, Herring Gull *Larus argentatus*, Linnet *Linaria cannabina*, Grasshopper Warbler *Locustella naevia*, House Sparrow *Passer domesticus*, Tree Sparrow *Passer montanus*, Grey Partridge *Perdix perdix*, Willow Tit *Poecile montana*, Marsh Tit *Poecile palustris*, Whinchat *Saxicola rubetra*, Woodcock *Scolopax rusticola*, Starling *Sturnus vulgaris*, Fieldfare *Turdus pilaris*, Mistle Thrush *Turdus viscivorus* and Lapwing *Vanellus vanellus..*

Confirmed breeding species.

4.63 In total, 43 species were recorded within the survey area during the breeding bird surveys in 2023. Thirty-five species were considered to be likely breeding (possibly or probably) or confirmed breeding within the survey area. See Figure 4a and 4b for the locations of birds.

4.64 Fifteen species were considered to be confirmed breeding within the survey area, four of which are red-listed species: linnet, mistle thrush, marsh tit and yellowhammer. Amber listed species included: kestrel *Falco tinnunculus*, meadow pipit *Anthus pratensis* and whitethroat *Curruca communis* Species of Principal Importance included: linnet, marsh tit and yellowhammer.

4.65 Linnet was relatively numerous across the Site with a flock of around 50 birds recorded on the first visit. This large flock was the remains of a winter aggregation, shortly before the birds separated to locate breeding territories. Some of the wintering birds were clearly resident in the area as breeding territories were recorded. Four of which were within the red line boundary, located in scrub around the edge of the quarry or where the proposed haul road crossed suitable hedgerows. Two territories were confirmed as breeding due to the presence of juveniles. Both were outside of the red line boundary. One was located in the scrub to the west of where the proposed haul road leaves the arable field and enters the semi-improved grassland. The other was located in the gorse scrub on the SSSI grassland to the east of the Site. Additionally, fourteen likely breeding territories were in suitable hedgerows and scrub across the entire survey area. Three observations of non-breeding birds were recorded. These are likely to be adults foraging away from their breeding territories.

4.66 Yellowhammer were recorded in good numbers with one confirmed and 16 likely territories being located along most of the scrub and hedgerows within the survey area. Seventeen likely territories in total indicates that the Site is of relatively high importance to yellowhammer in the context of the local area.

4.67 Whitethroat were common across the Site with 13 likely and two confirmed breeding territories. The confirmed breeding attempts were indicated by the presence of juveniles on the surveys in late June. These individuals were located near the entrance of the proposed haul road and along the northern bund of the quarry. Territories were recorded in all suitable habitats across the survey area, namely the scrub surrounding the quarry and the SSSI grassland. The woodland and hedgerows to the west and north of the Site also supported active territories.

4.68 Small numbers of mistle thrush, marsh tit and meadow pipit were recorded as breeding within the survey area but outside of the red line boundary.

4.69 The remaining eight species breeding are green-listed species, which are widespread and common. These species are not generally considered to be of conservation concern. Seven of the eight green-listed bird species recorded on Site were assessed as being usual for the area and habitats. As such these species are not considered further in this report.

4.70 Sand martin *Riparia riparia* were found to be breeding in the southern quarry face. A small colony of approximately 20 active nesting burrows were recorded in face of the quarry which is within the red line. Sand martin require specific conditions for construction of their nest burrows, which tend to be in sheer sand or earth banks often above water. In this case the colony is located within the abandoned quarry face. There is no other suitable habitat for nest burrow construction within the immediate area of the Site, and therefore sand martin are likely to be impacted by the proposed works

4.71 Birds were observed foraging over much of the quarry site, as well as over the arable fields to the north and south of the quarry and the SSSI grassland to the east which is outside of the red line. The

greatest aggregation as expected was recorded around the colony in the quarry. An estimate of around 20 active nest was recorded in the quarry face though historically the colony was known to be much larger (pers comm Bennison, 2023). Almost 20 adults were observed on surveys undertaken in May and early-June. Numbers increased significantly during the last survey to at least 30 birds hawking around the colony, at least some of which were juveniles.

Likely breeding species

4.72 Thirty-one species were considered to be likely within the survey area. Of these seven species, house sparrow *Passer domesticus*, linnet, grey partridge, skylark, yellowhammer, tree sparrow and yellow wagtail *Motacilla flava* are red listed. The nine amber listed species included: bullfinch *Pyrrhula pyrrhula*, dunnock *Prunella modularis*, meadow pipit, stock dove *Columba oenas*, song thrush *Turdus philomelos*, white throat, woodpigeon *Columba palumbus*, wren *Troglodytes troglodytes* and willow warbler *Phylloscopus trochilus*. Several of these are SPIs, house sparrow, tree sparrow grey partridge, skylark, yellowhammer, yellow wagtail, bullfinch, dunnock and song thrush.

4.73 Eleven likely breeding territories for skylark were recorded in the vicinity of the Site amongst the winter cereals to the north and south. A single individual was recorded in May within the quarry itself. Based on observed behaviour it was flying over the site rather than using it for breeding purposes. The rest of the records were within or close to the 50 m survey buffer. All territories were located outside of the red line boundary.

4.74 Pairs and single birds of grey partridge were recorded on multiple occasions during the surveys. One pair was repeatedly recorded in the semi-improved hay meadow in the north of the Site along the proposed haul road route. A second pair was recorded along the southern boundary of the quarry and access track. At least two individuals were recorded separately in this area and likely formed part of this pair. For this reason, they have been marked on the territory map as likely breeding (see figure 4a and 4b), however the peak count is probably of two territories.

4.75 Tree sparrow, was recorded during the June survey outside of the survey area and red line boundary, along the hedgerow leading to the farmstead to the north east.

4.76 Nine amber list species were recorded as likely breeders during the study period: bullfinch, dunnock, meadow pipit, stock dove, song thrush, whitethroat, woodpigeon, wren and willow warbler. Despite being of conservation concern due to population declines in recent decades, all of these species are widespread across the UK (Balmer *et. al.*, 2013). Bulfinch, dunnock and song thrush are listed on the NERC Act (2006) as SPI.

4.77 Small numbers of bullfinch (one territory), whitethroat (five territories), wren (eight territories), willow warbler (two territories) and stock dove (one territory), were recorded within the redline boundary. In all cases the breeding behaviour was recorded in the scrub and woodland around the edge of the quarry. The one exception being a wren territory located where the proposed haul road crosses a hedgerow.

4.78 Dunnock, song thrush, woodpigeon and wren are supported by a wide variety of habitats including urban gardens. Whitethroat and sedge warbler are more reliant upon rural habitats such as farmland, scrub and wetland habitats. The surrounding environments to the north, south and east provide suitable habitat for these species. As such they are not considered to be locally reliant upon the habitats within the Site.

4.79 The remaining fifteen species are green-listed, ten of which had at least one breeding territory within the red line boundary, these included blue tit, goldfinch, chiffchaff, blackbird, chaffinch, great tit, black cap, pied wagtail and jackdaw. Except for pied wagtail and jackdaw all species were dependant upon the woodland and scrub around the edge of the quarry or the hedgerows along the haul road. Pied wagtail and jackdaw were observed nesting within the quarry itself.

4.80 Green listed species are widespread and common. These species are not generally considered to be of conservation concern and none of these are SPIs. Additionally, the numbers recorded on Site were assessed as being usual for the area and habitats. As such these species are not considered further in this report.

Non-breeding species

4.81 Twenty-one additional species were recorded within the survey area but are not considered to be breeding. Of these, seven were red-listed species: fieldfare, herring gull, lapwings, linnet, skylark, starling and yellowhammer. Four species were amber-listed: greylag goose *Anser anser*, stock dove, kestrel, and wood pigeon.

4.82 Over 100 fieldfare were recorded in a single flock during the first survey in mid-April. The birds were moving through the strip of plantation woodland to the east of the haul road entrance. The behaviour of the flock was consistent with birds on migration.

4.83 Herring gull were recorded flying over the Site on multiple surveys. There is no suitable breeding habitat or foraging opportunities within the survey area.

4.84 Three lapwing were observed on 22 May, on the fallow field to the east of the proposed haul road entrance into the north-east corner of the quarry. The species was recorded on no other occasions. The Site itself is not suitable to support breeding lapwing.

4.85 Six starling were recorded within the quarry on the 22 May. The species is a cavity nester, choosing holes in trees, buildings or rocks to build its nest. Starling often favours both pastoral and arable farmland due to the nesting and foraging opportunities available in these habitats. While starling was likely to be breeding in the vicinity of the Site, the limited number of records on only a single occasion together with no evidence of breeding within the survey area itself indicates the birds were not breeding on the Site.

4.86 A single greylag goose was recorded flying north over the Site on the sixth survey. The bird was not displaying breeding behaviour and no suitable habitat exists within the Site or its vicinity. Considering the locality and season, this bird is likely to be feral rather than part of the natural breeding population.

4.87 Two peregrine falcons *Falco peregrinus* were observed flying and perching within the quarry during the habitat condition assessment survey in mid-July. Prior to this no evidence or presence had been noted and no observations were recorded during the breeding bird surveys or any other survey. However, based on the lack of observations during the courtship display period in March to late April (Hardey *et. al.* 2013), It is unlikely these birds were breeding at the Site in 2023. The juvenile dispersal period for peregrine can be as early as July for early successful broods (Hardey *et. al.* 2013), and it is likely these birds were juveniles dispersing from a breeding site in the area, or an adult pair seeking out new foraging sites or prospecting future nest sites.

Evaluation of breeding bird interest

4.88 In order to assess the value of the breeding bird population of the Site a number of papers and reference books have been used. Notably these are the national Bird Atlas 2007-2011 the breeding and wintering birds of Britain and Ireland (Balmer et. al., 2013), and the birds of Durham (Anderson *et. al*., 2012).

4.89 Additionally, the Birds of Conservation Concern (BoCC), Stanbury *et. al.* (2021) and the Natural Environment and Rural Communities (NERC) Act (2006) have been used to provide conservation legislative context.

4.90 Farmland birds have generally declined across the UK throughout the twentieth century (Gibbons *et. al*., 1993). However, the county of Durham has fared better than most counties in terms of farmland bird assemblages with limited declines in the late 19th century (Anderson *et. al*., 2012). Dean (2015) records some slight increases in many of the bird species present here in the later twentieth and early twenty first centuries.

4.91 Linnet have seen a historic downturn in numbers and distribution in line with the spread of modern farming practices. However, the species started to recover in the 1990s (Gibbons *et. al*., 1993), and the species is doing fairly well in neighbouring Northumberland (Dean *et. al*., 2015).

4.92 Yellowhammer have suffered historic declines throughout much of the UK since the mid 20th century, due to changes in farming practises. However, the population in the north-east has remained largely stable particularly on lowland farmland (Dean *et. al*., 2015).

4.93 Sand martin suffered a historic population decline (Marchant *et. al*., 1990) in the 1960s. A slow but steady increase of the population since the mid-1980s (Day *et. al.*, 1995), has led to their placement on the BoCC green list, however the UK population has still not reached pre-1970s levels (Dean *et. al*., 2015). Within county Durham the population was historically concentrated along the county's three main river systems, with a dearth of sites in the more industrialised east (Westernberg and Bowey, 2000). Nationally the species now favours artificial cliff nest sites formed in sand a gravel quarries (Marchant *et. al*., 1993) – a trend which has been followed in Durham, particularly in the north-west of the county (Westernberg and Bowey, 2000), where the main aggregations occur. Smaller colonies are scattered throughout the county in similar localities (Westernberg and Bowey, 2000), such as the Site.

4.94 Skylark have suffered in agricultural areas across the UK throughout the twentieth century. The Durham population has suffered less than the rest of the UK with slight declines in the late 19th and early 20th century. The declines were felt hardest in the lowland areas of the country no doubt due to agricultural intensification. Yet even in these areas the species is still common (Anderson et. al., 2012).

4.95 Grey partridge has declined throughout the UK in the twentieth century largely due to the modernisation of agricultural practices (Galloway & Meek, (1980). Declines have been less marked in the east of the UK (Gibbons et. al., 1993) and this is certainly the case in Durham. Lowland farmland in the east of the county, still appears to be a strong hold for this species (Anderson et. al., 2012).

4.96 Lapwing have seen a historic decline in lowland farming areas. Nationally this is reported since the 1970s (Balmer et. Al., 2013), however Temperley (1929), reports a decline in the north-east as early as the 1920s. Anderson (2012), states that the population of County Durham has largely followed the national declines, with the greatest losses being from lowland farmland, due to modernisation and the change of management to autumn sown cereals and dense silage crops. The species' strongholds are now in the upland grassland in the west of the county. The Quarry topography is too undulating and enclosed to be attractive. The arable fields were planted to winter cereals which is an undesirable crop for breeding lapwing. The small number and timing of the observations is indicative of birds prospecting the area perhaps late arrivals, or birds that had failed with a first brood elsewhere. The lack of further records suggests they found the Site unsuitable and moved on.

4.97 The survey Site supports 43 different bird species, 30 of which are considered to be likely or confirmed breeders. Of these species six are BoCC red listed and nine are amber listed and 13 are SPIs. In terms of territory numbers 10 red listed species territories were present within the red line boundary and 29 territories were located in the 50 m buffer. Thirteen amber listed species territories were recorded within the red line boundary and the same number were recorded within the 50 m buffer. Green listed species territories within the red line boundary numbered 27, and 26 in the 50 m buffer.

4.98 Many of the species are of conservation concern are at least partially dependent upon the farmland habitats present in the vicinity of the quarry (and not the quarry itself) and the proposed haul road route. The farmland bird assemblage is considered to be good, supporting high numbers of linnet and yellowhammer, and lower numbers of skylark and warblers such as whitethroat and willow warbler. Additionally, small numbers of grey partridge, barn owl and kestrel add to the general value of the assemblage.

4.99 Many of the species present are widespread nationally, although significant declines have led to scarcity across the UK. The species recorded within the survey area are widespread and commoner in the north-east and Durham with more stable populations than the rest of the country. The habitats immediately surrounding the Site are similar in character to the survey area.

4.100 Additionally, many of the amber listed species, such as dunnock, song thrush and wren are not restricted to farmland environments. While some of the red listed species such as tree sparrow and

yellowhammer can be retained through the maintenance of habitat features such as mature hedgerows and areas of species rich grassland.

4.101 The quarry itself, is of relatively little value to breeding birds. The majority of the species recorded during the surveys were present in the 50 m buffer area or along the proposed haul road route. Most of these species are reliant upon the arable farmland, SSSI grassland, hedgerows and woodland surrounding the Site.

4.102 Very little bird activity was recorded within the quarry itself. The notable exceptions being the sand martin colony and barn owls. Low numbers of stock dove and jackdaw were also recorded as breeding within the quarry.

4.103 Further information can be found in the breeding bird report (BSG, 2024 a).

4.104 Using Fuller (1980) and considering the geographic location, surrounding habitats, species composition and numbers the breeding bird assemblage made up of the birds within and 50 m adjacent to the red line is assessed as **important at the Local level**.

Reptiles

4.105 The records centre provided no records of reptiles within 2 km of the Site.

4.106 The Reptile Atlas of North-East England (Durkin, 2016) shows records of common lizard *Zootoca vivipara* in the Sunderland area with them mainly being confined to the coast. The atlas does also mention some sightings and potential suitability in disused Magnesian Limestone quarries in county Durham but does not mention this quarry specifically. No other reptiles were shown to be present in the surrounding area.

4.107 The quarry floor is regularly disturbed by material being moved around and deposited and is waterlogged in parts. The cliff face of the quarry may offer some potential for reptiles, but the adjacent Magnesian Limestone grassland with its scrub offers better opportunities for the species as it has an open aspect, is well drained, and warmed by the sun with a range of different aspects, offering shelter and is relatively undisturbed. The route of the haul road is arable land which does not provide suitable habitat for reptiles (ARC, 2010).

Evaluation of reptile interest

4.108 The presence of a small population of common lizard cannot be discounted and it is assumed on a precautionary basis that a small population is present, associated with the quarry face; and that other reptile species are absent.

4.109 Taking into account the information from Durkin (2016) in respect of the number and distribution of known common lizard sites, the results from the desk study, and the surrounding habitats an assumed small population of common lizard (Section 41 species) would be assessed as **important at the Site level**.

Other species

4.110 During the 'extended' Phase 1 habitat surveys habitat condition assessment, checks for signs of badgers were extended to an additional 50 metre buffer zone around the Site. Signs such as setts, latrines, scrapes, tracks, footprints, and hairs were checked for (Harris, Cresswell & Jefferies, 1989). No signs of use by badgers were detected. Badgers are scoped out of this assessment.

4.111 Dingy skipper butterfly was considered during the initial surveys but owing to the lack of their larval food plants common bird's foot trefoil *Lotus corniculatus*, greater bird's foot trefoil *Lotus pedunculatus* or horse shoe vetch *Hippocrepis comosa* being present in abundance on Site coupled with the operations and disturbance within the quarry, the potential presence of the species was scoped out, and targeted surveys were not considered to be required. The species was not observed on either the phase 1 survey or the condition assessment survey which were undertaken early June and early

July which is still within the survey period for the species (late May – mid July). Additionally, the species was not observed during the breeding bird surveys April to June, which is within the species flight period. No records were returned from the local records centre. Dingy skippers are scoped out of further assessment.

4.112 Brown Hare *Lepus europaeus* were observed during the habitat condition assessment survey in early July within the agricultural fields to the north of the quarry (target note 9) they were also observed on every breeding bird survey with a maximum count of four observed at any one time. The agricultural fields which will potentially accommodate the 5 m haul road will remain in cereal. Brown hare will not be significantly impacted by the proposal and are scoped out of further assessment.

5 Designed-in Avoidance, Mitigation, Compensation and Enhancement Measures

Designed-in Mitigation and other Measures

5.1 The following incorporated measures are applicable to ecology and have been designed into the scheme or will be incorporated into a Construction & Environmental Management Plan (CEMP) and Habitat Management and Monitoring Plan (HMMP) as appropriate:

5.2 Through pre-application meetings and correspondence, Sunderland City Council have provided advice and observations to the scheme that have been taken into account. Through the evolution of the scheme, a range of 'designed-in' primary ecological avoidance, mitigation and compensation measures have been embedded in the design and planning of the restoration phases of the development, and the way in which works will take place. Biodiversity features have been considered iteratively as the scheme detail has evolved, taking into account practical considerations. The incorporated biodiversity measures form an integral part of the proposed development and are designed specifically to avoid or reduce biodiversity effects wherever possible as well as providing gains.

5.3 Details of work necessary to retain, create and manage new and retained ecological and landscape features during and on completion of the infill of the quarry will be provided in a HMMP or equivalent. It is recommended that the production of such a document, and its approval by Sunderland Council, is subject to an appropriately worded planning condition. It would cover all designed-in mitigation as well as any additional ecology mitigation detailed later in this report.

5.4 Designed-in mitigation includes the following avoidance and impact minimising measures:

- ***Ecological clerk of works***

An Ecological Clerk of Works (EcoW) will be appointed to ensure compliance with any guidance, plans or working method statements that might be required (for instance the ecological aspects of a CEMP). The EcoW will provide briefings to all relevant personnel; provide advice in the event of any unforeseen protected species or sensitive habitat issue that might arise during the project; and oversee the implementation of mitigation, compensation and enhancement measures.

5.5 All proposed mitigation, compensation and enhancement measures detailed below for habitats, protected species and any other sensitive or important features will be incorporated into a the accompanying HMMP.

- ***Pre-works checks (each phase)***

5.6 Badger: This species is currently absent but due to its high mobility, a pre-works check would be undertaken of each Phase of the infill of the quarry prior to work in that phase of the Site commencing. This is to ensure that no setts or significant activity has arisen between now and then. The timing of this check would need to be at least 2 months in advance of works commencing to allow sufficient time for the check, any follow-up detailed survey (if required) and a licence application (if required) to be made to and granted by Natural England, and to be implemented according to the terms of that licence (if required).

5.7 Bats: As a precautionary measure, updated bat surveys of the rock face will be undertaken in suitable conditions to ascertain if bats have occupied any of the cracks in the future. This will determine whether the potential for roosting bats has increased, and whether any further surveys may be required, or a licence. This is a precautionary measure, intended to ensure that potential future occupation of the quarry faces by bats does not give rise to an offence. The following measures will also be put in place to help ensure no contravention of wildlife law and to provide a long-term enhancement for bats in the locality.

5.8 Six bat roosting and six hibernation boxes will be erected on suitable sized trees just outside of the quarry as soon as possible in advance of any works starting on Site. The HMMP will provide specification and location.

5.9 The quarry will be made unsuitable for roosting and hibernating bats and the best time to do this would be outside of the maternity season (particularly June and July) and hibernation season (November to February). A checking survey will take place prior to these works taking place. Should bats be discovered during this survey then it may be necessary to conduct further survey work and, if bats are found to be using the quarry, then a licence from Natural England may be required to allow the works to legally go ahead.

5.10 Additionally, if construction work/site vegetation clearance does not start within 12 months of the bat surveys then an updated survey for bats will be undertaken.

5.11 Barn owl: due to the presence of the species in the rock face it is important to ascertain if the owls are breeding prior to any works commencing on Site and this should take place for all phases unless the rock face has been made unsuitable for the birds prior to any infill work. Should barn owl be found at any time to be breeding in the quarry, works will have to be delayed until all of the young have fledged.

6 Ecological Impacts, Additional Mitigation and Residual Effects

6.1 This section considers the potential effects of the proposed development on key ecological features (designated sites, habitats and species). The assessment of impacts is carried out in stages. Impacts are assessed firstly in the absence of mitigation (but taking into account any designed-in mitigation – see below) and then with further mitigation, compensation and enhancement considered.

6.2 There are three phases of infill planned, each estimated to be between 2-7 years in duration and totalling 15 years.

6.3 Taking into account the designed-in mitigation described above, consideration is given to the impacts and effects of the infill of the quarry as a whole on each of the important ecological features.

6.4 Where further mitigation and other measures are required, these are then described.

6.5 Residual effects are then described for each important feature, taking into account the measures designed into the development and any further mitigation measures that will be committed to by way of appropriately worded planning conditions or other appropriate agreement.

Designated Sites

6.6 Both Northumbria Coast SPA and Ramsar site and Durham SAC are located over 6.5 km from the Site and their reasons for selection are wintering waders, sea birds and coastal habitats. Significant impacts on the interest features of the designations are unlikely to arise during the infill and restoration works and there is unlikely to be an adverse effect on the sites. **No significant effects will arise** and no further mitigation measures are proposed.

6.7 The quarry falls within the SSSI IRZ for High Haining SSSI. This means that Natural England advise the local planning authority to consult them on likely risks from “all planning applications. Due to the designation being adjacent to Site there is the potential for impacts on the interest of the SSSI (Magnesian Limestone grassland) to arise during the infill and restoration works and there is likely to be an adverse effect on the SSSI in the form of establishment / spread of invasive plant species, and dust deposition on the Magnesian Limestone grassland vegetation. In the absence of further mitigation and taking into account the progressive restoration of the Site, this will result in a **temporary adverse effect that will be significant at the National level.**

6.8 Despite there being six LWS within 2 km of the Site only two of the sites are susceptible to potential impacts by the proposal. These are The Clouds, designated primarily for its broadleaved woodland identified as a Habitat of Principal Importance; and Houghton Scarp and Cut, for its Magnesian Limestone grassland, also a Habitat of Principal Importance. It is unlikely that Houghton Scarp and Cut will be directly impacted by the proposals as it is located to the north of an existing access track and therefore set back from the quarry. However, it could be indirectly impacted by establishment / spread of invasive plant species and dust deposition on vegetation during construction and use of the haul road. The Clouds LWS will not be directly impacted by the scheme but there is the potential for impact on trees and their root system. In the absence of further mitigation this will result in a **temporary adverse effect that will be significant at the Vice County level**.

Mitigation and enhancement proposals

6.9 To mitigate the potential effects on the adjacent SSSI grassland a construction management plan will be produced detailing dust suppression measures and techniques, and measures to prevent the spread of invasive plant species from any infill material. This would be put in place throughout the period of haul road construction, and quarry infill.

6.10 The measures that are likely to be put in place would include a dust control action plan to acceptable levels, and if needed additional screening will be put in place. The SSSI vegetation will be monitored annually to assess potential adverse impacts of dust deposition on the grassland. The SSSI will monitored annually for the first five years. The SSSI will then be monitored every five years for 30 years on completion of the final phase of development to ensure that the grassland does not

deteriorate as a result of this development and at each review period the information will be supplied to Natural England and the Local Planning Authority for information and consideration.

6.11 Approximately 2.87 ha of lowland calcareous grassland will be created adjacent to the SSSI which will provide a buffer to the designated site while increasing the overall area of grassland. It is proposed to plant the adjoining area with scrub.

6.12 It is likely that the newly created habitat and existing habitat will be maintained through hay cuts or grazing. The habitat will be created on completion of each phase of the restoration of the quarry. The existing grassland and newly created habitat will be established through habitat monitoring and through a thirty-year commitment following completion of each phase of the restoration. The specifics of aftercare and management of retained habitats will need to be informed by how the restored Site responds but are likely to include weed control and an appropriate level of botanical monitoring to assess management effects and whether they might require modification at any point.

6.13 No artificial fertiliser application will take place on either the restored Site.

Residual effects on internationally designated sites

6.14 **No significant residual effects** are likely to arise on international sites.

Residual effects on nationally designated sites

6.15 During the infill and restoration works there will be continued localised effects from the operations for a minimum period of 15 years. However, the dust suppression measures and monitoring of the grassland for invasive species will reduce effects considerably and would be expected to ensure no harm to the SSSI.

6.16 The overall extent of calcareous grassland will be significantly increased and management measures can be found in the Habitat Management and Monitoring Plan.

6.17 The scheme will be fully documented and monitored, and the results made freely available to the LPA. Further information will be provided in the HMMP.

6.18 The combination of habitat creation, restoration, management and targeted management measures, monitoring as well as dust suppression described above are likely to reduce the residual effect on High Haining SSSI to a level that is **not significant**.

Residual effects on locally designated sites

6.19 The measures to control dust emissions and the spread of invasive species, which will be set out in a CEMP, will also reduce the effects on the vegetation of the Clouds LWS. The same measures employed for High Haining SSSI will also benefit Houghton Scarp and Cut LWS.

6.20 The combination of habitat creation, restoration, management and targeted management measures such as dust suppression and monitoring of invasive species described above are likely to reduce the residual effect on both LWS to a level that is **not significant**.

Habitats outside of the quarry

Hedgerows

6.21 Hedgerow are assessed as important at the local level, but they are no longer stock proof and do not meet the ecological criteria of an important hedgerow under the Hedgerow Regulations (1997). There are three ash trees with the hedgerow that have potential roosting opportunities for bats.

6.22 Installation of the haul road will be designed to avoid mature trees. The construction management plan should include a section on root protection zones with the areas being marked out on Site and be maintained for the duration of the works.

6.23 In total approximately 60 m of hedge will need to be removed to make way for the haul road, and locations will be chosen to have the least impact on the hedgerow by using natural gaps where possible.

6.24 In the absence of further mitigation and working methods, this will result in a permanent adverse effect that will be significant at the **Site level.**

Mitigation and enhancement proposals

6.25 A single stretch of hedgerow will be planted along the entire length of the haul road totalling approximately 900 m and will be planted with native species including hawthorn, blackthorn, hazel guelder rose, holly, crab apple, field maple and dog rose, to be planted double row and staggered with standard native trees. More information regarding species, location and longerterm management will be provided in the HMMP.

Residual effects: hedgerow

6.26 The extent of hedgerow to be affected as well as the mitigation, compensation and enhancement measures described above are likely to provide a positive effect on hedgerows at Site level.

Habitats inside the quarry

Broadleaved woodland

6.27 Collectively the woodland areas are assessed as important at the Site level.

6.28 It is unlikely that the woodland habitat within the quarry and to the south can be retained in its entirety due to the proposal eventually restoring the quarry in line with the surrounding landform as Magnesian Limestone grassland. Woodland outside of the quarry will remain intact. Overall, 0.3 ha will be lost from the quarry.

6.29 None of the trees offer bat roosting potential but breeding birds may use the areas and therefore works should avoid the breeding bird season see which is March to August inclusive.

6.30 In the absence of further mitigation and considering the progressive restoration of the Site, this will result in a **permanent adverse effect that will be significant at the Site level**.

Mitigation and enhancement proposals

6.31 To mitigate the loss of approximately 0.3 ha of woodland trees, species such as oak *Quercus petraea* and rowan *Sorbus acuparia* will be planted at 20 m intervals along the newly planted hedgerow. Further information regarding species mix and location will be provided in the HMMP.

Residual effects: woodland

6.32 The mitigation, compensation and enhancement measures described above are likely to reduce the effects on woodlands to a level that is **not significant.**

Emphemeral/short perennial vegetation

6.33 The majority of this habitat is temporary in nature and has been assumed to be OMH. This is supported by the quarry's known history coupled with soil and substrate severely modified by previous uses of the Site. The Site also contains early successional communities, unvegetated, loose bare substrate and pools. Collectively the habitat was evaluated as of District importance.

6.34 In the absence of mitigation, compensation and enhancement measures the progressive restoration of the Site, this will result in a **permanent adverse effect that will be significant at the District level**.

Mitigation and enhancement proposals

6.35 To mitigate for the loss of approximately 2.24 ha of ephemeral / short perennial habitat, 3.6 ha of bare ground sown with early colonising species will be created. It is likely that the newly created habitat will be maintained through hay cuts or grazing. It will be created on completion of each phase of the restoration of the quarry. The newly created habitat will be established and will be subject to habitat monitoring and a thirty-year management commitment following completion of each phase of the restoration. The specifics of aftercare and management of retained habitats will be set out in the HMMP.

Residual effects: ephemeral / short perennial vegetation

6.36 The mitigation, compensation and enhancement measures described above are likely to reduce the effects on this habitat to a level that is **not significant**.

Species

Potential impacts on barn owl

6.37 The proposed scheme will infill the quarry with inert material and as a result nesting and roosting opportunities will be lost.

6.38 There is a risk of disturbing / killing / injury of nesting barn owl or their dependant young / destruction of nests as the Site is infilled and haul roads created. Active barn owl nests have been recorded in all months of the year in Great Britain, and therefore there is a risk of nesting at any time of year.

6.39 In the absence of further mitigation and taking into account the progressive restoration of the Site, this will result in a **permanent adverse effect that will be significant at the County level**.

Mitigation and enhancement proposals

6.40 To mitigate the potential impacts on barn owl it is proposed to erect three barn owl boxes in suitable locations. Barn owls can be relatively tolerant to disturbance in comparison with other species (Shawyer 2011) and may become habituated to even relatively high levels of close human activity (e.g. 5 -10 m) (Ruddock and Whitfield 2007). They are most sensitive to disturbance during the egg-laying stage of nesting, and sensitivity may vary depending on weather conditions, food availability and the presence of predators (Shawyer 2011). However, Ruddock and Whitfield (2007) note that individual birds are likely to vary widely in their responses to disturbance, and minimum working distances may not be applicable to all barn owls as a result.

6.41 No empirical field studies into the disturbance distances of barn owls have been undertaken, with the exception of Shawyer (2011), which was based on anecdotal evidence. However, a review of the disturbance distances/recommended minimum working distances reported in the literature suggests that for heavy construction works (e.g., ground levelling, pile-driving, concrete crushing, etc. using heavy plant) a minimum disturbance distance of 150 m for occasional and 175 m for continuous activities be employed. Based on the time scale of the works (15 years) there are likely to be occasional bouts of activity that could disturb resident barn owl. As such the nest boxes will be erected no closer than 150 m distance from the quarry and at least 30 days prior to blocking off the quarry face (the intention is to put the boxes up as soon as possible to encourage the barn owls to starting using them in advance of the works). The potential way to block the fissures and gaps would be to remove rock until the quarry face is smooth and no suitable fissures, cracks or gaps are present.

6.42 Once the restoration of the quarry is completed the species-rich grassland and scrub will provide additional foraging areas for the species.

6.43 Fissures and gaps will be blocked off and this will, wherever possible, be timed to avoid the most likely barn owl nesting period and will, wherever possible, be carried out between late August and mid-February. Where this is unavoidable, the area would then be checked for barn owl activity which might suggest an active nest site. This should be done by a suitably experienced and appropriately

licenced ecologist before any relevant work is carried out. If active nests are present, then work would be delayed in that area and a suitable disturbance buffer distance established and maintained until nesting activity ceases.

6.44 The provision of three nest boxes and suitable foraging habitat for this species would likely retain and possibly increase numbers of barn owls within the immediate and wider landscape and thus offset the adverse effect.

Residual effects: barn owl

6.45 The mitigation, compensation and enhancement measures described above are likely to reduce the effects on barn owl to a level that is **not significant**.

Potential impacts on other breeding birds

6.46 Breeding birds will be subject to localised disturbance impacts from the noise of the quarrying operations; this will be most keenly experienced in habitats surrounding the current working phase.

6.47 Habitat loss will reduce the opportunities for nesting across the Site, although this will be a progressive loss with restoration of habitat based on the phasing programme meaning that at no time will all nesting opportunities be lost.

6.48 There is a risk of killing/injury of nesting birds / destruction of nests as the haul road is installed and the quarry is infilled, if it is not timed to avoid the nesting season or undertaken following a check to determine that no nesting will be affected.

6.49 In the absence of further mitigation and taking into account the progressive restoration of the Site, this will result in a **temporary adverse effect that is significant and the Local level**.

Mitigation / enhancement proposals

6.50 To mitigate the potential impacts of clearance of habitats, suitable for bird nesting habitat will, wherever possible, be carried out between late August and mid-February, in order to avoid the bird breeding season. Where the removal of habitat with bird nesting potential during the bird breeding season is unavoidable, then bird scaring techniques would be employed in advance of the bird breeding season to discourage nesting, thus avoiding an impact. The habitat would then be checked for bird nesting activity by a suitably experienced ornithologist before the proposed work is carried out. If active bird nests are present, then work would be delayed in that area until nesting activity ceases.

6.51 In order to provide suitable alternative nesting habitat for sand martin, a nest bank will be created and will be completed prior to the breeding season where remediation works are scheduled to take place. The nest bank will be created close to the existing southern lip of the quarry in the vicinity of the existing colony. Remediation work will not be undertaken within 50 m of the artificial bank during the sand martin breeding season to avoid disturbance and from dissuading the birds from excavating burrows. As part of the mitigation works the existing nest site will be made unsuitable for sand martin nesting, during the non-breeding season prior to remediation works commencing. Details of specification and location are provided in the accompanying Habitat Management and Monitoring Plan.

6.52 Creation of hedgerows, tree planting, calcareous grassland and open mosaic grassland under low intensity management, will increase the suitability of the Site for breeding birds.

6.53 Details of the habitats to be created, the amount and their location as well as how they will be maintained and monitored can be found in the accompanying HMMP.

Residual effects: breeding birds

6.54 During the infill and restoration there will be continued localised disturbance effects from the operations for a 15 year period. Following restoration, with all habitats in place and taking account of the length of the of the project as well as the fact that nesting opportunities will not change significantly in the longer term. The residual effect will be reduced on breeding birds to a level that is **not significant**.

Potential impacts on reptiles

6.55 On the precautionary assumption of the presence of a small population, in the absence of mitigation, there is potential for killing / injury to reptiles (common lizard). Impacts may potentially arise from removal of vegetation cover. However, owing to the temporary nature of the vegetation within the quarry the loss of cover is considered to be a relatively limited impact. The loss of ledges for basking could also be a potential impact on the species.

6.56 The unmitigated impact of loss of cover and basking sites and the potential for killing and injury of small numbers of common lizard, is assessed on a precautionary basis, on the assumption of presence of a small population, as significant at the **Local level**.

Mitigation / enhancement proposals

6.57 The existing quarry base habitat will be managed to reduce cover for reptiles. The rock face will be smoothed to remove any ledges for basking and this will be timed to take place to avoid hibernation (winter) period (broadly, late autumn to early spring).

6.58 Vegetation clearance should be a two stage cut. The first cut would be down to 150 mm from ground level, followed by a second cut down to ground level. The first cut can be undertaken between September and February and the second in spring, once reptiles become active following hibernation, indicatively from mid-March onwards, before the vegetation regrows. This will encourage any reptiles present to relocate while clearing the Site.

6.59 Two hibernacula will be created initially, using rock and woody materials from the Site and being covered with turves of grass. The detailed specification and location will be in the HMMP.

6.60 Additionally, if construction work/site vegetation clearance does not start within 12 months of the initial surveys then it is recommended that an updated inspection is undertaken. If works commence on Site within 12 months and a reptile is discovered, it is recommended that in the area of the located reptile work should stop immediately, and advice sought from a suitably qualified ecologist.

Residual effects: reptiles

6.61 Killing / injury will be avoided and in the long-term the habitat provision for reptiles will improve on the whole as there will be a newly created grassland, scrub and hedgerow. The loss of habitat in the meantime will be partially offset by the creation of two hibernacula. During works it is likely that if common lizard is present some individuals will spread out of the Site into scrub and grassland in the adjacent field to the south.

6.62 Following restoration, with all habitats in place and taking account of the length of the of the project the residual effect will be reduced on common lizard to a level that is **not significant**.

7 References / Bibliography

Anderson, P., Armstrong, T., Bell, P., Keith, B.,Mills, I., Milton, F., Newsome, M., Raw, D. & Stowger, J. (2012) *Birds of Durham*. Durham Bird Club.

Balmer, D., Gillings, S., Caffrey, B., Swann, B., Downie, Ian. & Fuller, R. (2013) Bird Atlas 2007-2011. *The Breeding and Wintering Birds of Britain and Ireland*. BTO Books, Thetford.

Barn Owl Trust (2012). *Barn Owl Conservation Handbook*. Pelagic Publishing.

Barn Owl Trust (2021) *State of the UK Barn owl population 2020*. Barn Owl Trust (2021). Ashburton, Devon.

Bat Tree Habitat Key (2018). *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals*. Exeter, Pelagic Publishing

Bibby, C.J., Burgess, N.D., Hill, D.A. and Mustoe, S.H. (2000) *Bird census techniques*. Academic Press, London.

Bird Survey & Assessment Steering Group. (2023). *Bird Survey Guidelines for assessing ecological impacts*, v.1.1.0. https://birdsurveyguidelines.org [*Accessed 28 July 2023*].

BRIG (ed. Ant Maddock) (2008). UK Biodiversity Action Plan; *Priority Habitat Descriptions*. Updated July 2011.

BSG (2024 a) *Breeding Bird Report*, Field House Quarry, High Haining, Sunderland

BSG (2024 c) *Habitat Management and Monitoring Plan*, Field House Quarry, High Haining, Sunderland

BSG (2023 d) *Biodiversity Net Gain*, Field House Quarry, High Haining, Sunderland

BTO (2023). *Species Code, Species Scientific Name, BoCC Status and Breeding Protection Status*. BTO.

BTO (2023). *Breeding evidence*. BTO. Available at: Breeding evidence | BTO - British Trust for Ornithology

BTO BirdFacts *Woodpigeon*. https://www.bto.org/understanding-birds/birdfacts/woodpigeon [Accessed June 2023]

CIEEM (2019) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Chartered Institute of Ecology and Environmental Management, Winchester

Collins, J (ed). (2016), *Bat Surveys: Good Practice Guidelines*, 3rd Edition, Bat Conservation Trust, London.

Day, J.C., Hodgson, M.S. & Rossiter, B.N. (1995), *The Atlas of Breeding Birds in Northumbria*. Northumberland and Tyneside Bird Club.

Dean, T., Myatt, D., Cadwallender, M. & Cadwallender, T. (2015) *Northumbria Bird Atlas.* Northumberland & Tyneside Bird Club, Newcastle upon Tyne

Durkin, J (2016). *Reptile Atlas of North-East England*. 2016.

Edgar, P., Foster, J. and Baker, J. (2010). *Reptile Habitat Management Handbook*. Amphibian and Reptile Conservation, Bournemouth. Durkin (2022).

Froglife (1999). *An introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth.

Fuller (1980*) A method for assessing the ornithological interest of sites for conservation*. Biological Conservation. Volume 17, Issue 3.

Galloway, B. & Meek, E.R. (1978-1983). *Northumberland's Birds*. Natural History Society of Northumbria 44 (1-3). Newcastle Upon Tyne.

Gibbons, D.W., Reid, J.B. & Chapman, R.A. (1993). *The New Atlas of Breeding Birds in Britian and Ireland*: 1988-1991. T&A Poyser, London.

Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013). *Raptors: a field guide to survey and monitoring* (3rd Edition). The Stationery Office, Edinburgh

JNCC (2016). *Handbook for Phase 1 Habitat Surveys*. JNCC.

Maddock, A. [Editor] (2008, updated 2011). *UK Biodiversity Action Plan: Priority Habitat Descriptions*. JNCC, Peterborough.

Marchant, J.H., Hudson, M., Carter, S.P. & Whittingon, P. (1990). *Population trends in British breeding birds*. BTO, Tring.

Multi-Agency Geographical Information in the Countryside (2018). [Online] Available from http://www.magic.gov.uk.

NERC Act 2006. *Section 41: Species of Principal Importance in England.* www.nhm.ac.uk. Natural History Museum. [Accessed June 2023].

Roper, T. J. (2018) *Badger*; Collins New Naturalist Library. Harper Collins.

Shawyer, C.R. (2011) *Barn owl Tyto alba survey methodology and techniques for use in ecological assessment: Developing best practice in survey and reporting*. IEEM, Winchester.

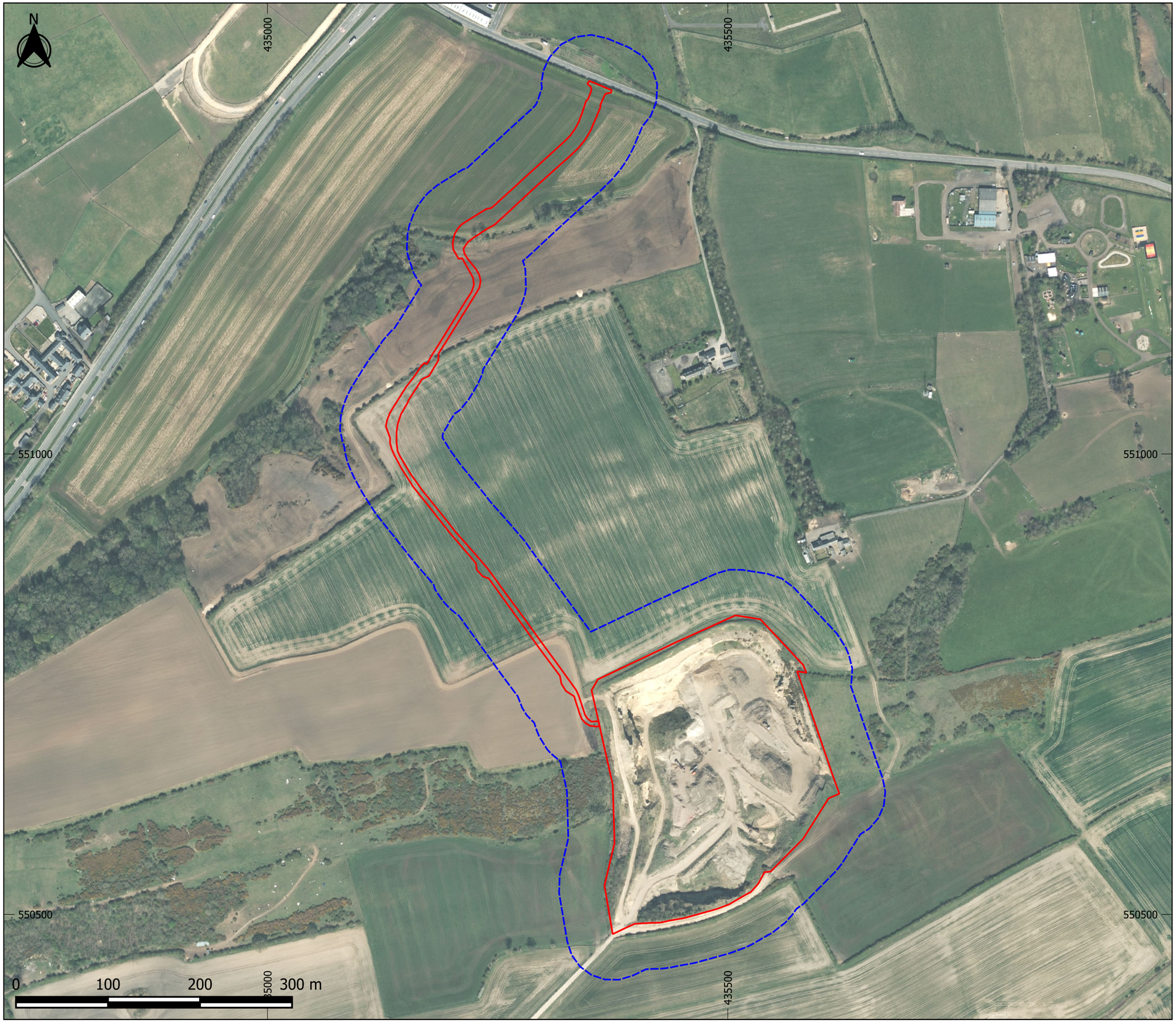
Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win, I. (2021) *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*. *British Birds*, **114,** 723-747.

Taylor (1994). Barn owls. *Predator-prey relationships and conservation*. Cambridge University Press.

Westerberg, A.E. & Bowey, K. (2000). *A Summer Atlas of the Breeding Birds of County Durham*. The Durham Bird Club, Durham.

8 Figures

- Figure 1: Location / site boundary.
- Figure 2: Phase 1 habitat map
- Figure 3: Statutory and non-statutory designated sites map
- Figure 4a and 4b: Breeding bird territory map
- Figure 5: Barn owl survey information
- Figure 6: Bat survey information



Legend

- Site boundary
- 50m from Site boundary

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T: 0191 303 8964

JOB REF: P23-251

PROJECT TITLE

HIGH HAINING QUARRY

DRAWING TITLE

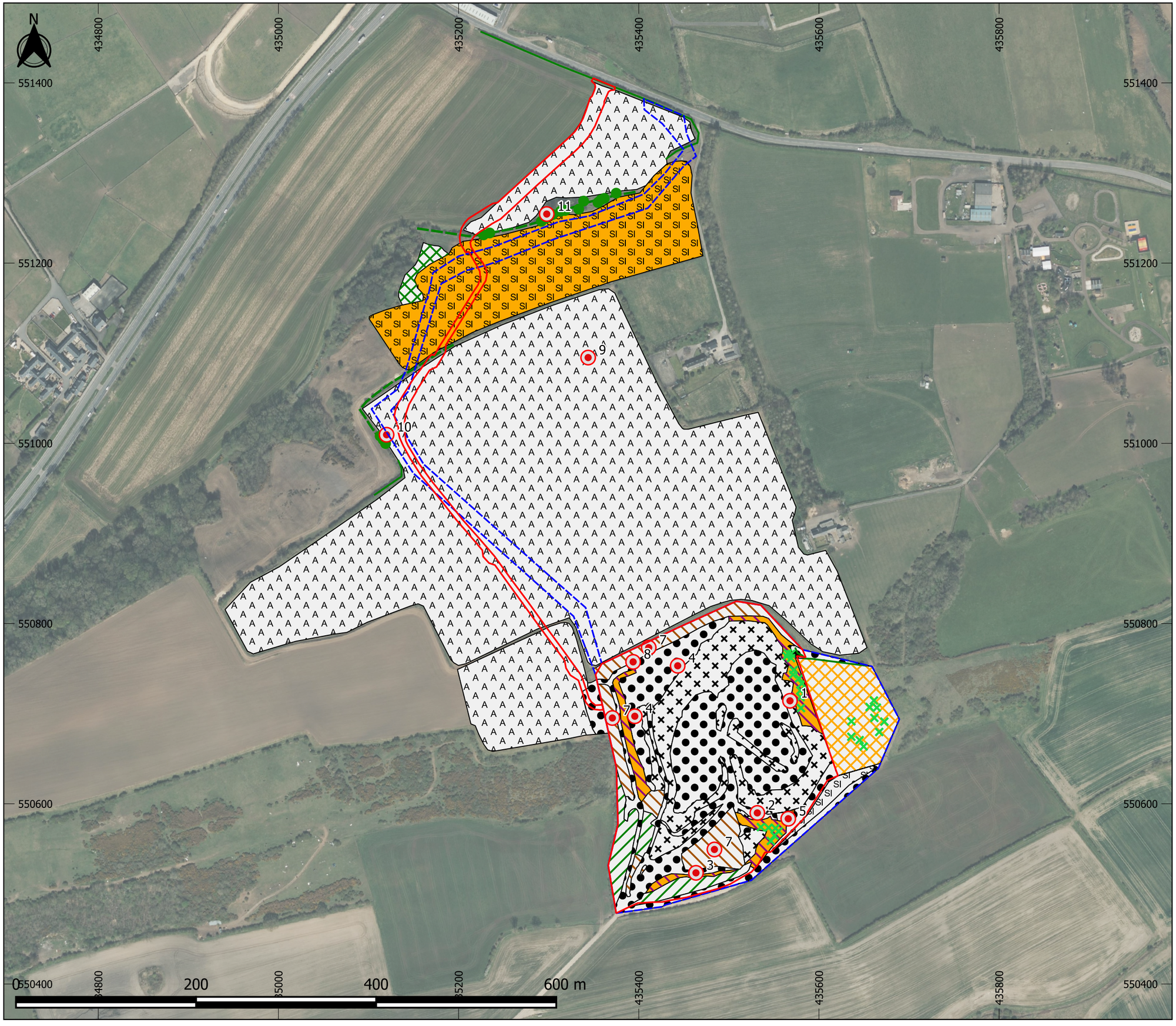
Figure 1: Site Map

DATE: 04/06/2024	CHECKED: CD	SCALE: 1:3,914
DRAWN: SP	APPROVED: SB	VERSION:1.0

Projection: OSGB 1936/British National Grid - EPSG 27700

Sources: BSG Ecology survey data

Graphics Ref. No.: 06826



Legend

- Survey boundary
- Site boundary
- Scattered Scrub
- TN
- Tree
- Intact hedge - species-poor
- Defunct hedge - species-poor
- Broadleaved woodland - plantation
- Scrub - dense/continuous
- Neutral grassland - semi-improved
- Calcareous grassland - unimproved
- Ephemeral/short perennial with calcareous indicators
- Poor semi-improved grassland
- Other tall herb and fern - ruderal
- Other tall herb and fern - non ruderal
- Cultivated/disturbed land - arable
- Cultivated/disturbed land - ephemeral/short perennial
- Bare ground

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PROJECT TITLE

HIGH HAINING QUARRY

DRAWING TITLE

Figure 2: Phase 1 Habitat Map

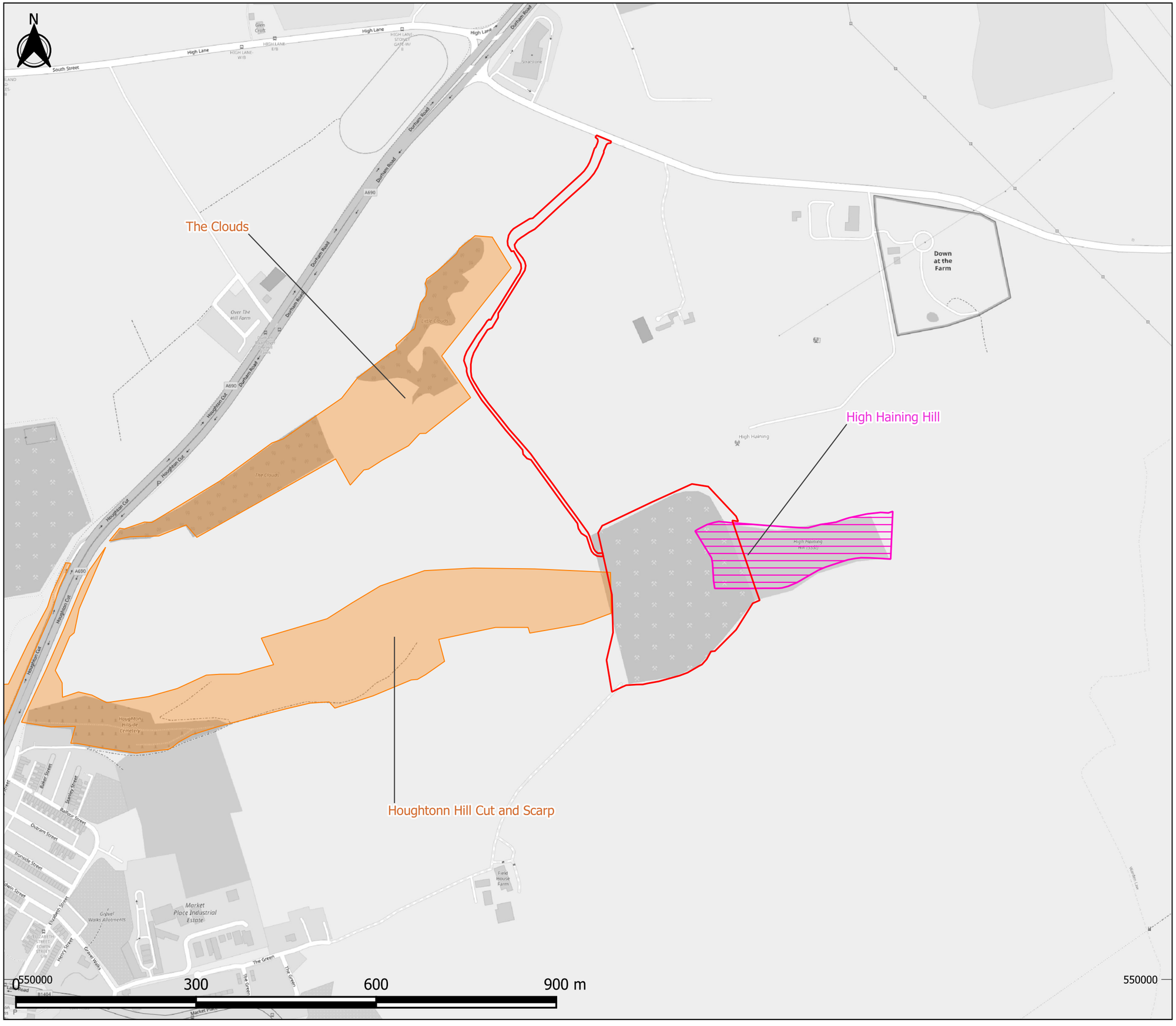
DATE: 04/06/2024 CHECKED: CD SCALE: 1:4,000

DRAWN: SP APPROVED: SB VERSION:1.0

Projection: OSGB 1936/British National Grid - EPSG 27700

Sources: BSG Ecology survey data

Graphics Ref. No.: 06828



Legend

- Site boundary
- Sites of Special Scientific Interest
- Local Wildlife Sites

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JOB REF: P23-251

PROJECT TITLE

HIGH HAINING QUARRY

DRAWING TITLE

Figure 3: Statutory and non-statutory designated sites Map

DATE: 04/06/2024 CHECKED: CD SCALE: 1:6,000

DRAWN: SP APPROVED: SB VERSION:1.0

Projection: OSGB 1936/British National Grid - EPSG 27700

Sources: © Natural England

Graphics Ref. No.: 06829

BTO Code	Common Name
B.	Blackbird
BF	Bullfinch
BT	Blue Tit
CC	Chiffchaff
CH	Chaffinch
GO	Goldfinch
GT	Great Tit
HG	Herring Gull
K.	Kestrel
LI	Linnet
M.	Mistle Thrush
MP	Meadow Pipit
P.	Grey Partridge
R.	Robin
S.	Skylark
SD	Stock Dove
SL	Barn Swallow
ST	Song Thrush
WH	Whitethroat
WR	Wren
WW	Willow Warbler
Y.	Yellowhammer
YW	Yellow Wagtail

Legend

- CH Red
- CH Amber
- CH Green
- Confirmed Breeding
- Likely Breeding
- Non-Breeding
- Site boundary
- 50m from Site boundary

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PROJECT TITLE

HIGH HAINING QUARRY

DRAWING TITLE

Figure 4a: Breeding bird territory map

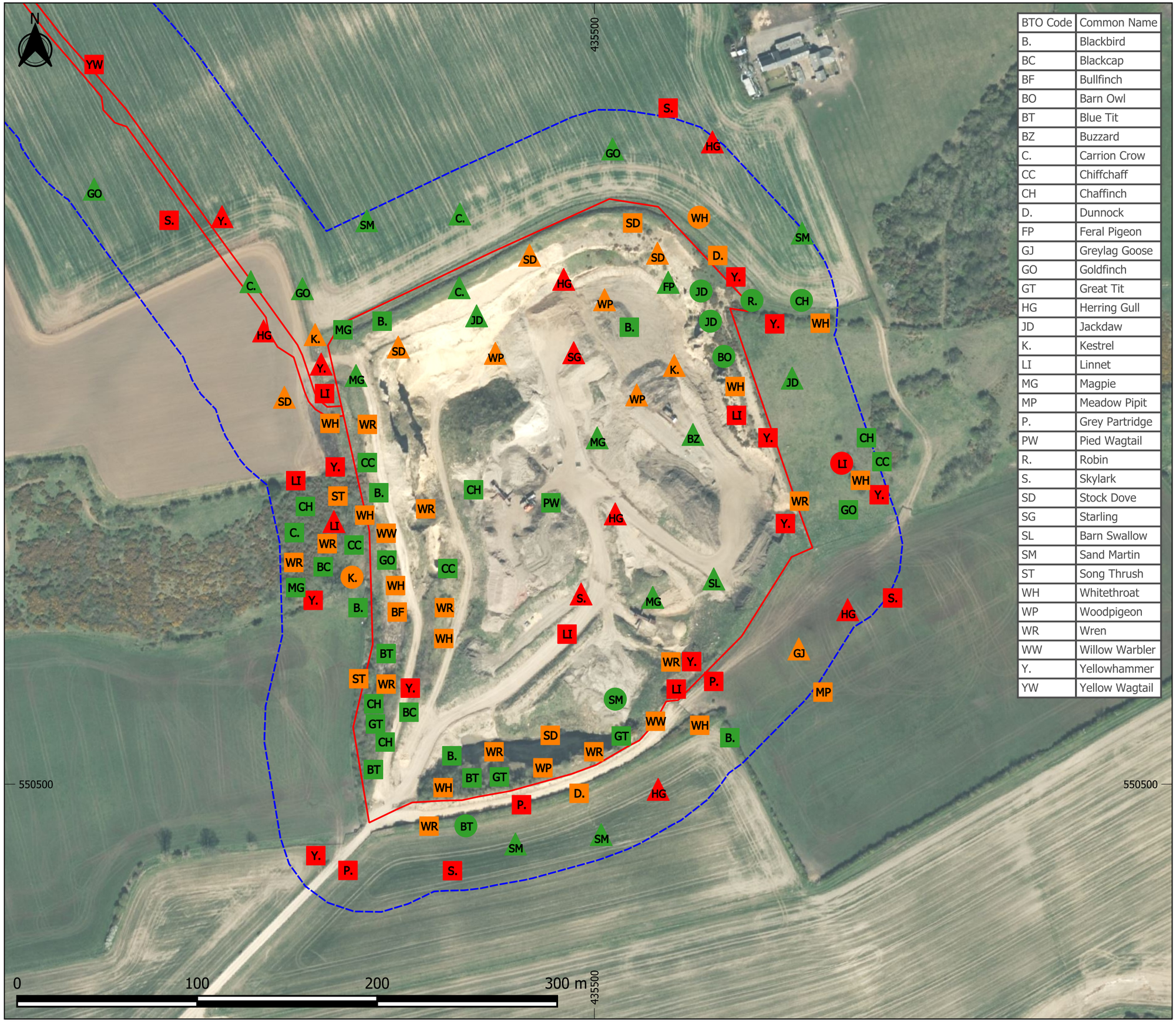
DATE: 04/06/2024 CHECKED: CD SCALE: 1:2,100

DRAWN: SP APPROVED: SB VERSION:1.0

Projection: OSGB 1936/British National Grid - EPSG 27700

Sources: BSG Ecology survey data

Graphics Ref. No.: 06830



BTO Code	Common Name
B.	Blackbird
BC	Blackcap
BF	Bullfinch
BO	Barn Owl
BT	Blue Tit
BZ	Buzzard
C.	Carrion Crow
CC	Chiffchaff
CH	Chaffinch
D.	Dunnock
FP	Feral Pigeon
GJ	Greylag Goose
GO	Goldfinch
GT	Great Tit
HG	Herring Gull
JD	Jackdaw
K.	Kestrel
LI	Linnet
MG	Magpie
MP	Meadow Pipit
P.	Grey Partridge
PW	Pied Wagtail
R.	Robin
S.	Skylark
SD	Stock Dove
SG	Starling
SL	Barn Swallow
SM	Sand Martin
ST	Song Thrush
WH	Whitethroat
WP	Woodpigeon
WR	Wren
WW	Willow Warbler
Y.	Yellowhammer
YW	Yellow Wagtail

Legend

- CH Red
- CH Amber
- CH Green
- Confirmed Breeding
- Likely Breeding
- Non-Breeding
- Site boundary
- 50m from Site boundary

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PROJECT TITLE

HIGH HAINING QUARRY

DRAWING TITLE

Figure 4b: Breeding bird territory map

DATE: 04/06/2024 CHECKED: CD SCALE: 1:2,000

DRAWN: SP APPROVED: SB VERSION:1.0

Projection: OSGB 1936/British National Grid - EPSG 27700

Sources: BSG Ecology survey data

Graphics Ref. No.: 06831

Legend

Site boundary

Barn Owl Flight Line

10/08/2023

13/09/2023

No flight lines of Barn Owl were recorded during the final bat emergence survey on 26/09/2023. Barn owl was recorded but only screeching (Heard not seen).

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PROJECT TITLE

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DRAWING TITLE

Figure 5: Barn owl summary

DATE: 04/06/2024 CHECKED: CD SCALE: 1:1,500

DRAWN: SP APPROVED: SB VERSION:1.0

Projection: OSGB 1936/British National Grid - EPSG 27700

Sources: BSG Ecology survey data

Graphics Ref. No.: 06832

Legend

Site boundary

Bat Roost Potential

Negligible

Low

Medium

High

Bat Passes

Flight

Listening/Surveyor Point

Surveyor Location (Dawn survey)

Night Vision Aids (NVAs)

10/08/2023 Dusk Survey
13/09/2023 Dawn Survey
26/09/2023 Dusk Survey

No emergent flights recorded. All flights recorded were single commuting passes. NVAs did not record any emergences.

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PROJECT TITLE

HIGH HAINING QUARRY

DRAWING TITLE

Figure 6: Bat survey information

DATE: 04/06/2024 CHECKED: CD SCALE: 1:1,300

DRAWN: SP APPROVED: SB VERSION:1.0

Projection: OSGB 1936/British National Grid - EPSG 27700

Sources: BSG Ecology survey data

Graphics Ref. No.: 06833

9 Appendix 1 Photo sheet

Photo sheet from Phase 1 habitat survey 5 June 2023

Photograph 1. Proposed access

Photograph 2. Access into pastureland

Photograph 3. Pastureland margins

Photograph 4. Trees 1-3

Photograph 5. Tree 5, down slope

Photograph 6. Tree 6

Photograph 7. Trees 7, 8, 9

Photograph 8. Trees 10, 11

Photograph 9. Trees 12, 13 and two leggy hawthorn specimens

Photograph 10. Hawthorn/gorse dense scrub at field margin

Photograph 11. Pasture field

Photograph 12. Hedgerow between pasture and arable fields

	
Photograph 13. Trees 14, 15, 16	Photograph 14. Arable crop
	
Photograph 15. Arable field headland	Photograph 16. Northern bund, northern cliff face, bare ground at cliff tops and better quality ephemeral/short perennial vegetation
	
Photograph 17. Views eastwards. Trees on cliff faces visible	Photograph 18. Western bund

	
Photograph 19. Example ephemeral/short perennial vegetation showing calcareous influence within northwest of site	Photograph 20. Northern bund showing coarse grassland/tall ruderal mosaic with some bramble scrub
	
Photograph 21. Lowland calcareous grassland of national importance. Intact hedgerow to north	Photograph 22. Example of calcareous flora.
	
Photograph 23. Ephemeral/short perennial showing calcareous influence in the east of the site with gorse scrub	Photograph 24. Bund in southeastern corner.

	
Photograph 25 Example of quarry basin vegetation .	Photograph 26. Example of variable vegetation in quarry basin
	
Photograph 27. Further example of quarry basin vegetation	Photograph 28. Quarry tracks, bare ground, aggregate and vegetation
	
Photograph 29. Made ground within the quarry	Photograph 30. Habitats within the south of the site. Increased vegetative cover

	
Photograph 31. Target note 2	Photograph 32. Habitats looking northwest from south of site
	
Photograph 33. Target note 3	Photograph 34. Vegetation which is more grass dominated (example Target note 7)
	
Photograph 35. Regenerating broadleaf woodland with bramble understorey	Photograph 36. Mixed woodland (planted)

	
Photograph 37. Grassland (species-poor)	

10 Appendix 2 Target Notes

Target Note Number	Description/notes	Photograph number
TN 1.	The presence of bullrush (*Typha latifolia*) indicates semi-aquatic conditions. There is now only damp mud approximate 2m x 1m in area.	
TN 2.	Standing water with no established vegetation.	Photograph 32
TN 3.	Appears to have formerly held water which has been drained and dug out. Indicator species remaining include abundant marsh marigold *Caltha palustris.*	Photograph 33
TN 4.	Cliff faces and inaccessible however *Buddleia*, gorse and scattered broadleaved trees are present	
TN 5.	A non-ruderal area where vegetation deviates from species recorded to a dense growth of garlic mustard (*Alliaria petiolata).* This is a common and widespread species	
TN 7.	Areas within the quarry, in the basin but also on the older bunds, that are less diverse and dominated by common grasses with ruderal of scrub species. Mapped as a coarse grassland/ tall ruderal mosaic	Photograph 37
TN 8.	Two peregrine falcons *Falco peregrinus* observed during the condition assessment survey.	
TN. 9.	Brown hare observed in the fields during Phase 1 and breeding bird surveys	
TN 10.	Immature ash trees making up a hedge line	
TN. 11	A number of trees interspersed along a redundant hedgerow. Two mature ash and a sycamore tree have moderate potential for roosting bats.	Photograph 8 and 9

11 Appendix 3 Breeding Bird Report

12 Appendix 4 Legislation and Policy

National Planning Policy Framework (England)

The Government issued the National Planning Policy Framework (NPPF) in September 2023. Text excerpts from the NPPF are shown where they may be relevant to planning applications and biodiversity including protected sites, habitats and species.

The Government sets out the three objectives for sustainable development (economy, social and environmental) at paragraphs 8-10 to be delivered through the plan preparation and implementation level and 'are not criteria against which every decision can or should be judged' (paragraph 9). The planning system's environmental objective is 'to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity…'(paragraph 8c).

In conserving and enhancing the natural environment, the NPPF (Paragraph 174) states that 'planning policies and decisions should contribute to and enhance the natural and local environment' by:

- Protecting and enhancing...sites of biodiversity value... '(in a manner commensurate with their statutory status or identified quality in the development plan)'.
- Recognising the wider benefits from natural capital and ecosystem services including trees and woodland.
- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.
- Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.

In respect of protected sites, at paragraph 175, the NPPF requires local planning authorities to distinguish, at the plan level, '…between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value...take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.' A footnote to paragraph 175 refers to the preferred use of agricultural land of poorer quality if significant development of agricultural land is to take place.

Paragraph 179 refers to how plans should aim to protect and enhance biodiversity. Plans should: 'identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity [a footnote refers to ODPM Circular 06/2005 for further guidance in respect of statutory obligations for biodiversity in the planning system], wildlife corridors and stepping stones that connect them and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation;' and to 'promote the conservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.'

Paragraph 180 advises that, when determining planning applications, '…local planning authorities should apply the following principles:

- if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments) should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

- development resulting in the loss or deterioration of irreplaceable habitats, (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.'

In paragraph 181, the following should be given the same protection as habitats sites:

- potential Special Protection Areas and possible Special Areas of Conservation;
- listed or proposed Ramsar sites; and
- sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.'

In paragraph 182 the NPPF refers back to sustainable development in relation to appropriate assessment and states: 'the presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site'.

In paragraph 183, the NPPF refers to planning policies and decisions taking account of ground conditions and risks arising from land instability and contamination at sites. In relation to risks associated with land remediation account is to be taken of 'potential impacts on the natural environment' that arise from land remediation.

In paragraph 185 the NPPF states that planning policies and decisions should ensure that development is appropriate to the location and take into account likely effects (including cumulative) on the natural environment and, in doing so, they 'should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation' (paragraph 185c).

Government Circular ODPM 06/2005 Biodiversity and Geological Conservation (England only)

Paragraph 98 of Government Circular 06/2005 advises that "the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat. Local authorities should consult Natural England before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species' protection provisions affecting the site concerned..."

Paragraph 99 of Government Circular 06/2005[8] advises that "it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted".

Standing Advice (GOV.UK - England only)

The GOV.UK website provides information regarding protected species and sites in relation to development proposals: 'Local planning authorities should take advice from Natural England or the Environment Agency about planning applications for developments that may affect protected species.' GOV.UK advises that 'some species have standing advice which you can use to help with planning decisions. For others you should contact Natural England or the Environment Agency for an individual response.'

[8] *ODPM Circular 06/2005. Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich.

The standing advice (originally from Natural England and now held and updated on GOV.UK9) provides advice to planners on deciding if there is a 'reasonable likelihood' of protected species being present. It also provides advice on survey and mitigation requirements.

When determining an application for development that is covered by standing advice, in accordance with guidance in Government Circular 06/2005, Local planning authorities are required to take the standing advice into account. In paragraph 82 of the aforementioned Circular, it is stated that: 'The standing advice will be a material consideration in the determination of the planning application in the same way as any advice received from a statutory consultee…it is up to the planning authority to decide the weight to be attached to the standing advice, in the same way as it would decide the weight to be attached to a response from a statutory consultee.'

The Environment Act 2021

The Environment Act includes the provision of mandatory biodiversity gain for developments in England; this will be mandated through an amendment to the Town and Country Planning Act 1990. The two-year transition period following Royal Assent (November 2021) means that mandatory biodiversity gain will become law in autumn 2023. This will require:

- The provision of a required percentage of biodiversity gain, currently set nationally to be at 10%
- The use of the national Biodiversity Metric to calculate the biodiversity gain
- The provision of a biodiversity gain plan to demonstrate how biodiversity gain will be delivered on and or off-site; statutory instruments and regulations are in preparation by Defra and Natural England to provide templates for reporting
- Biodiversity gain will be secured for a fixed period, currently nationally set at 30 years
- Demonstration of how the biodiversity gain will be secured; conservation covenants will be used to deliver this which are in preparation by Defra and Natural England
- A national register of land used for biodiversity gain will be established; this will involve setting up a new biodiversity credits market, the approach for which is in preparation by Defra and Natural England

NB. The policy basis for net gain is already set out in the NPPF. During the transition period, we would expect local planning authorities to increasingly require the measures set out within the Environment Act as part of their development decision making process.

National Planning Policy Framework (England)

The Government issued the National Planning Policy Framework (NPPF) in September 2023. Text excerpts from the NPPF are shown where they may be relevant to planning applications and biodiversity including protected sites, habitats and species.

The Government sets out the three objectives for sustainable development (economy, social and environmental) at paragraphs 8-10 to be delivered through the plan preparation and implementation level and 'are not criteria against which every decision can or should be judged' (paragraph 9). The planning system's environmental objective is 'to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity…'(paragraph 8c).

In conserving and enhancing the natural environment, the NPPF (Paragraph 174) states that 'planning policies and decisions should contribute to and enhance the natural and local environment' by:

- Protecting and enhancing...sites of biodiversity value... '(in a manner commensurate with their statutory status or identified quality in the development plan)'.
- Recognising the wider benefits from natural capital and ecosystem services including trees and woodland.

[9] https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications#standing-advice-for-protected-species

- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.
- Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.

In respect of protected sites, at paragraph 175, the NPPF requires local planning authorities to distinguish, at the plan level, '…between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value...take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.' A footnote to paragraph 175 refers to the preferred use of agricultural land of poorer quality if significant development of agricultural land is to take place.

Paragraph 179 refers to how plans should aim to protect and enhance biodiversity. Plans should: 'identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity [a footnote refers to ODPM Circular 06/2005 for further guidance in respect of statutory obligations for biodiversity in the planning system], wildlife corridors and stepping stones that connect them and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation;' and to 'promote the conservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.'

Paragraph 180 advises that, when determining planning applications, '…local planning authorities should apply the following principles:

- if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments) should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- development resulting in the loss or deterioration of irreplaceable habitats, (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.'

In paragraph 181, the following should be given the same protection as habitats sites:

- potential Special Protection Areas and possible Special Areas of Conservation;
- listed or proposed Ramsar sites; and
- sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.'

In paragraph 182 the NPPF refers back to sustainable development in relation to appropriate assessment and states: 'the presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site'.

In paragraph 183, the NPPF refers to planning policies and decisions taking account of ground conditions and risks arising from land instability and contamination at sites. In relation to risks associated with land remediation account is to be taken of 'potential impacts on the natural environment' that arise from land remediation.

In paragraph 185 the NPPF states that planning policies and decisions should ensure that development is appropriate to the location and take into account likely effects (including cumulative) on the natural environment and, in doing so, they 'should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation' (paragraph 185c).

Government Circular ODPM 06/2005 Biodiversity and Geological Conservation (England only)

Paragraph 98 of Government Circular 06/2005 advises that "the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat. Local authorities should consult Natural England before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species' protection provisions affecting the site concerned..."

Paragraph 99 of Government Circular 06/2005[10] advises that "it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted".

Standing Advice (GOV.UK - England only)

The GOV.UK website provides information regarding protected species and sites in relation to development proposals: 'Local planning authorities should take advice from Natural England or the Environment Agency about planning applications for developments that may affect protected species.' GOV.UK advises that 'some species have standing advice which you can use to help with planning decisions. For others you should contact Natural England or the Environment Agency for an individual response.'

The standing advice (originally from Natural England and now held and updated on GOV.UK11) provides advice to planners on deciding if there is a 'reasonable likelihood' of protected species being present. It also provides advice on survey and mitigation requirements.

When determining an application for development that is covered by standing advice, in accordance with guidance in Government Circular 06/2005, Local planning authorities are required to take the standing advice into account. In paragraph 82 of the aforementioned Circular, it is stated that: 'The standing advice will be a material consideration in the determination of the planning application in the same way as any advice received from a statutory consultee…it is up to the planning authority to decide the weight to be attached to the standing advice, in the same way as it would decide the weight to be attached to a response from a statutory consultee.'

The Environment Act 2021

The Environment Act includes the provision of mandatory biodiversity gain for developments in England; this will be mandated through an amendment to the Town and Country Planning Act 1990. The two-year transition period following Royal Assent (November 2021) means that mandatory biodiversity gain will become law in autumn 2023. This will require:

- The provision of a required percentage of biodiversity gain, currently set nationally to be at 10%
- The use of the national Biodiversity Metric to calculate the biodiversity gain

[10] *ODPM Circular 06/2005. Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich.

[11] https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications#standing-advice-for-protected-species

- The provision of a biodiversity gain plan to demonstrate how biodiversity gain will be delivered on and or off-site; statutory instruments and regulations are in preparation by Defra and Natural England to provide templates for reporting
- Biodiversity gain will be secured for a fixed period, currently nationally set at 30 years
- Demonstration of how the biodiversity gain will be secured; conservation covenants will be used to deliver this which are in preparation by Defra and Natural England
- A national register of land used for biodiversity gain will be established; this will involve setting up a new biodiversity credits market, the approach for which is in preparation by Defra and Natural England

NB. The policy basis for net gain is already set out in the NPPF. During the transition period, we would expect local planning authorities to increasingly require the measures set out within the Environment Act as part of their development decision making process.

European protected species (Animals)

The Conservation of Habitats and Species Regulations 2017 (as amended) consolidates various amendments that have been made to the original (1994) Regulations which transposed the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.

"European protected species" (EPS) of animal are those which are shown on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these pieces of legislation make it an offence to:

a. Intentionally or deliberately capture, injure or kill any wild animal included amongst these species
b. Possess or control any live or dead specimens or any part of, or anything derived from a these species
c. deliberately disturb wild animals of any such species
d. deliberately take or destroy the eggs of such an animal, or
e. intentionally, deliberately or recklessly damage or destroy a breeding site or resting place of such an animal, or obstruct access to such a place

For the purposes of paragraph (c), disturbance of animals includes in particular any disturbance which is likely—

a. to impair their ability—
    i. to survive, to breed or reproduce, or to rear or nurture their young, or
    ii. in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
b. to affect significantly the local distribution or abundance of the species to which they belong.

Although the law provides strict protection to these species, it also allows this protection to be set aside (derogated) through the issuing of licences. The licences in England are currently determined by Natural England (NE) for development works and by Natural Resources Wales in Wales. In accordance with the requirements of the Regulations (2017, as amended), a licence can only be issued where the following requirements are satisfied:

a. The proposal is necessary 'to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment'
b. 'There is no satisfactory alternative'
c. The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Definition of breeding sites and resting places

Guidance for all European Protected Species of animal, including bats and great crested newt, regarding the definition of breeding and of breeding and resting places is provided by The European Council (EC) which has prepared specific guidance in respect of the interpretation of various Articles of the EC Habitats Directive.[12] Section II.3.4.b) provides definitions and examples of both breeding and resting places at paragraphs 57 and 59 respectively. This guidance states that 'The provision in Article 12(1)(d) [of the EC Habitats Directive] should therefore be understood as aiming to safeguard the ecological functionality of breeding sites and resting places.' Further the guidance states: 'It thus follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are not being used, but where there is a reasonably high probability that the species concerned will return to these sites and places. If for example a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can re-use it in winter. On the other hand, if a certain cave is used only occasionally for breeding or resting purposes, it is very likely that the site does not qualify as a breeding site or resting place.'

Birds

All nesting birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to disturb them whilst they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.

The Conservation of Habitats and Species Regulations 2017 (as amended) places duties on competent authorities (including Local Authorities and National Park Authorities) in relation to wild bird habitat. These provisions relate back to Articles 1, 2 and 3 of the EC Directive on the conservation of wild birds (2009/147/EC, 'Birds Directive'[13]) (Regulation 10 (3)) requires that the objective is the 'preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat, as appropriate, having regard to the requirements of Article 2 of the new Wild Birds Directive…' Regulation 10 (7) states: 'In considering which measures may be appropriate for the purpose of security or contributing to the objective in [Regulation 10 (3)] Paragraph 3, appropriate account must be taken of economic and recreational requirements'.

In relation to the duties placed on competent authorities under the 2017 Regulations, Regulation 10 (8) states: 'So far as lies within their powers, a competent authority in exercising any function [including in relation to town and country planning] in or in relation to the United Kingdom must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds (except habitats beyond the outer limits of the area to which the new Wild Birds Directive applies).'

Reptiles

All native reptile species receive legal protection in Great Britain under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Viviparous lizard, slow-worm, grass snake and adder are protected against killing, injuring and unlicensed trade only. Sand lizard and smooth snake receive additional protection as "European Protected species" under the provisions of the Conservation of Habitats and Species Regulations 2017 (as amended) and are fully protected under the Wildlife and Countryside Act 1981 (as amended).

All six native species of reptile are included as 'species of principal importance' for the purpose of conserving biodiversity under Section 41 (England) of the NERC Act 2006 and Section 7 of the Environment (Wales) Act 2016.

Current Natural England Guidelines for Developers[14] states that 'where it is predictable that reptiles are likely to be killed or injured by activities such as site clearance, this could legally constitute intentional killing or injuring.' Further the guidance states: 'Normally prohibited activities may not be illegal if 'the act was the incidental result of a lawful operation and could not reasonably have been avoided'. Natural England 'would

[12] Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. (February 2007), EC.
[13] 2009/147/EC Birds Directive (30 November 2009. European Parliament and the Council of the European Union.

[14] English Nature, 2004. *Reptiles: guidelines for developers.* English Nature, Peterborough. https://webarchive.nationalarchives.gov.uk/20150303064706/http://publications.naturalengland.org.uk/publication/76006

expect reasonable avoidance to include measures such as altering development layouts to avoid key areas, as well as capture and exclusion of reptiles.'

The Natural England Guidelines for Developers state that 'planning must incorporate two aims where reptiles are present:

- To protect reptiles from any harm that might arise during development work;
- To ensure that sufficient quality, quantity and connectivity of habitat is provided to accommodate the reptile population, either on-site or at an alternative site, with no net loss of local reptile conservation status.'

Invasive non-native species

An invasive non-native species is any non-native animal or plant that has the ability to spread causing damage to the environment.

Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to release, or to allow to escape into the wild, any animal which is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state or is listed under Schedule 9 of the Act.

It is an offence to plant or otherwise cause to grow in the wild invasive non-native plants listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Hedgerows

Article 10 of the Habitats Directive[15] requires that 'Member States shall endeavour…to encourage the management of features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure…or their function as stepping stones…are essential for the migration, dispersal and genetic exchange of wild species'. Examples given in the Directive include traditional field boundary systems (such as hedgerows).

The aim of the Hedgerow Regulations 1997[16], according to guidance produced by the Department of the Environment[17], is "to protect important hedgerows in the countryside by controlling their removal through a system of notification. In summary, the guidance states that the system is concerned with the removal of hedgerows, either in whole or in part, and covers any act which results in the destruction of a hedgerow. The procedure in the Regulations is triggered only when land managers or utility operators want to remove a hedgerow. The system is in favour of protecting and retaining 'important' hedgerows.

The Hedgerow Regulations set out criteria that must be used by the local planning authority in determining which hedgerows are 'important'. The criteria relate to the value of hedgerows from an archaeological, historical, wildlife and landscape perspective.

Wild mammals in general

The Wild Mammals (Protection) Act 1996 (as amended) makes provision for the protection of wild mammals from certain cruel acts, making it an offence for any person to intentionally cause suffering to any wild mammal. In the context of development sites, for example, this may apply to rabbits in their burrows.

[15] Council Directive 92/43/EEC of 2i May 1992 on the conservation of natural habitats and of wild fauna and flora.
[16] Statutory Instrument 1997 No. 1160 – The Hedgerow Regulations 1997. HMSO: London
[17] The Hedgerow Regulations 1997: a guide to the law and good practice, HMSO: London