

CARLTON MAIN BRICKWORKS

Appendix 7.2 Reptile Presence / Absence Survey Report

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Drawing 1: Results of Reptile Survey

1.0 Introduction

SLR Consulting Limited (SLR) was commissioned by Michelmersh Brick Holdings Plc in May 2020 to carry out a reptile presence / absence survey at Carlton Main brick quarry, off Clayburn Road, on the southern edge of Grimethorpe, South Yorkshire (approximate central OS grid reference SE 413 082).

The survey was commissioned in order to inform the Ecology Chapter of an Environmental Impact Assessment (EIA) Report to accompany a planning application for a proposed extension to quarry workings.

The need for this survey was identified following a review of desk study information and an ecological walkover survey undertaken by SLR Consulting in May 2020. A reptile survey was also requested by Barnsley Metropolitan Borough Council's Biodiversity Officer in a Scoping Opinion dated January 2020.

This report presents the findings of a reptile presence / absence survey undertaken in June and July 2020. Reptile survey involved the deployment of artificial refuges in suitable reptile habitat within the quarry and the proposed extension area (herein referred to as the 'Site'), and subsequent inspection on seven occasions.

The aim of the survey was to determine the presence or likely absence of reptiles on the Site, and if present, to determine their location, species assemblage and likely population size(s), in order to inform the development of an appropriate mitigation strategy, if required.

The assessment of impacts resulting from the proposed development, and the development of mitigation measures, if required, are beyond the scope of this report and will be covered in the Ecology Chapter of the EIA.

2.0 Relevant Legislation¹

All native reptile species are subject to some degree of protection under the Wildlife and Countryside Act 1981 (as amended)² through inclusion on Schedule 5. The four widespread reptile species, comprising grass snake (*Natrix helvetica*), adder (*Vipera berus*), slow worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*), are protected under Section 9(5) and part of Section 9(1) against intentional killing, injury and sale. Only the rare smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*), with restricted distribution and not found in South Yorkshire, are afforded full protection under all parts of Section 9 of the Wildlife and Countryside Act 1981 (as amended).

It is not possible to obtain a licence to legally kill or injure reptiles for the purposes of development; therefore where reptiles are present it is necessary to take reasonable precautions to avoid committing such an offence before commencing works within areas of suitable reptile habitat.

All species of reptiles are 'species of principal importance for the purpose of conserving biodiversity in England' under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006³. The NERC Act 2006 places a duty on public authorities to have regard to the purpose of conserving biodiversity.

¹ Please note that this legal information is a summary and intended for general guidance only. The original legal documents should be consulted for definitive information.

² www.opsi.gov.uk/RevisedStatutes/Acts/ukpga/1981/cukpga_19810069_en_1

³ http://www.opsi.gov.uk/acts/acts2006/ukpga_20060016_en_1

3.0 Methodology

3.1 Desk Study

Existing reptile records (in addition to records of other protected and notable species) for the Site and a 2km radius were obtained from Barnsley Biological Records Centre (BBRC) in May 2020.

3.2 Field Survey

The reptile survey method employed was based on good practice guidelines published by the HGBI (1998)⁴, Froglife (1999)⁵ and Gent and Gibson (2003)⁶.

This involved the deployment of 120 artificial refuges (sections of heavy-duty roofing felt measuring c. 0.5-1m x 0.5-1m) which, due to their heat retaining characteristics, are attractive to basking reptiles, particularly during the spring or autumn months or the early or later parts of the day during summer. Refuges were deployed at a density of at least 15 per hectare within suitable habitat. This included open mosaic habitat (primarily establishing and developed grassland) on the margins of the existing quarry and associated spoil heaps, and the grassland and plantation woodland edges within the proposed extension area within New Park Springs Country Park. The level of survey effort therefore exceeded the 10 refuges per hectare recommended by Froglife⁵ and therefore increased the effectiveness of survey effort and the likelihood of recording reptiles.

The locations of the artificial refuges and the extent of suitable reptile habitat within the Site are shown in Drawing 1.

Although not specifically deployed to survey for amphibians, refuges can also be used as a place of shelter by amphibians; therefore, where encountered amphibians were also recorded.

The refuges were deployed on 4th June 2020 and then allowed to bed-in for 11 days. They were subsequently inspected seven times between 15th June and 20th July 2020, before being removed.

Each of the reptile refuge inspections were combined with 'passive searching', whereby potentially suitable habitat was searched for reptiles basking on, for example, tufts of grass, rocks or logs.

The date and time of each visit, and the weather conditions prevailing during the visit, were recorded, as presented in Table 3-1. Surveys were only conducted in suitable weather conditions, when the air temperature was between 10 and 20 °C.

Table 3-1: Dates, times and prevailing weather conditions of reptile survey visits

Date	Start time	Temp. start °C	Finish time	Temp. finish °C	Weather
15 th June 2020	8:30	15	10:45	16	Dry; humid; overcast (8/8 cloud cover); light northerly breeze
25 th June 2020	6:30	17	9:15	20	Dry; sunny (0/8 cloud cover); light northerly breeze

⁴ Herpetofauna Groups of Britain and Ireland (HGBI) (1998) *Evaluating local mitigation/ translocation programmes: maintaining best practice and lawful standards*. HGBI advisory notes for amphibian and reptile groups HGBI c/o Froglife, Halesworth

⁵ Froglife (1999) *Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth.

⁶ Gent, T. and Gibson, S. (2003) *Herpetofauna Workers Manual*. JNCC, Peterborough.

Date	Start time	Temp. start °C	Finish time	Temp. finish °C	Weather
1 st July 2020	8:30	15	12:00	16	Dry; overcast (8/8 cloud cover) but bright; slight northerly breeze
7 th July 2020	8:15	15	11:15	15	Dry; overcast (8/8 cloud cover); gentle south-westerly breeze
14 th July 2020	8:45	15	11:30	15	Dry; sunny intervals after previous rain (4-6/8 cloud cover); moderate westerly breeze
17 th July 2020	10:30	18	13:55	20	Dry; partial cloud (varying from 2/8 to 7/8 cloud cover); gentle westerly breeze
20 th July 2020	9:30	17	13:00	19	Dry; partial cloud (varying from 4/8 to 6/8 cloud cover); gentle north-westerly breeze

3.3 Personnel

Surveys were undertaken by SLR Associate Ecologist Hazel Douglas MBiolSci, Senior Field Ecologist Dan Alexander PhD PgCert BSc (Hons) SCIEEM and Senior Field Ecologist Jim Flanagan HNC BA (Hons) ACIEEM. All surveyors are suitably trained ecologists with experience in reptile survey.

This report was authored by Dan Alexander and peer reviewed by Hazel Douglas. Hazel has over seven years' experience within ecological consultancy and is experienced in protected species surveys, including reptiles.

3.4 Limitations

The lack of evidence of any one particular protected species does not necessarily preclude its presence at the Site either at this current time or in the future. It is considered however that the timings of the survey visits were suitable for reptiles and given the level of survey effort employed it is likely that any reptile species present would have been recorded.

A small number of the artificial refuges within the extension area were discovered to have been moved on the 17th July, presumably by a member of the public. These were deployed back in place on 17th July, and therefore does not constitute a significant limitation to survey.

4.0 Results

4.1 Desk Study

The desk study from BBRC returned 32 records of grass snake, dating from 2016-2017, mostly from Edderthorpe Ings located c. 0.7km south-west of the Site, as well as at Houghton Main colliery c. 1.4km to the south. The closest grass snake record is located c. 0.2km to the west of the Site on the far side of the A6195, dating from 2016.

A total of 19 common lizard records were provided, dating between 2001 and 2019. One record is from the north-eastern edge of the proposed extension area dating from 2019, described as basking on a pulled-up fence post. The remainder of the records are from Edderthorpe Ings, Houghton Main colliery, Cudworth Common, and a layby verge between Cudworth Common and New Park Springs, all to the south or south-west of the Site.

4.2 Field Survey

The survey results are provided in Table 4-1. The locations of reptiles recorded are illustrated in Drawing 1.

Table 4-1: Results of reptile survey

Date	Reptile species		Amphibian Species
	Common lizard	Grass snake	
15 th June 2020	1 x adult	-	-
25 th June 2020	1 x adult	-	-
1 st July 2020	-	-	-
7 th July 2020	2 x adults	-	-
14 th July 2020	1 x adult	-	-
17 th July 2020	1 x adult	1 x shed skin (juvenile)	-
20 th July 2020	5 x adult	-	-

Two reptile species were recorded at the Site, namely common lizard and grass snake.

A peak count of five common lizards was recorded on 20th July.

The majority of common lizards recorded were found within grassland in the extension area (Plate 1), although a single common lizard was also recorded on the eastern margin of the existing brickworks quarry on 17th July, and two common lizards were recorded on a vegetated mound in the south-east corner of the existing brickworks quarry on 20th July (see Drawing 1).

The common lizard peak count equates to approximately 0.63 individuals per hectare of suitable habitat surveyed. This corresponds to a Low population size using the definition by HGBI⁷ (refer to Table 4-2), and a Good population as defined by Froglife⁸ (refer to Table 4-3) (albeit it is at the lowest end of the 'Good' population

⁷ Herpetofauna Groups of Britain and Ireland (HGBI) (1998) *Evaluating local mitigation/ translocation programmes: maintaining best practice and lawful standards*. HGBI advisory notes for amphibian and reptile groups HGBI c/o Froglife, Halesworth

⁸ Froglife (1999) *Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth.

size class). The HGBI population definition is based on the density of individuals, and therefore takes the survey area into consideration, whereas the Froglife population definition is based solely on the number of individuals and does not account for the size of the area surveyed.



Plate 1: Example of adult common lizard recorded on refuge within extension area on 15th June

Table 4-2: Reptile Population Size Classification (HGBI, 1998)⁷

Reptile	Low	Medium	High
Common Lizard	<20 / ha	>40 / ha	>80 / ha
Grass Snake	<2 / ha	2– 4 / ha	>4 / ha

Table 4-3: Reptile Population Size Classification (Froglife, 1999)⁸

Reptile	Low	Good	Exceptional
Common Lizard	<5	5–20	>20
Grass Snake	<5	5–10	>10

A shed snake skin (slough) was found under a refuge within the south-eastern margin of the existing brickworks quarry on the 17th July (Plates 2 and 3). Through an analysis of the size and nature of the shed skin viewed under a microscope, using the Amphibian and Reptile Conservation (ARC) reptile identification guide⁹, it was possible to confirm that it was shed by a juvenile grass snake. The dorsal scales have keels (which rules out smooth snake), the underside of the skin has large ventral scales that span the whole of the underside of the body, and there are divided anal/pre-anal scales present (which rules out adder). There are also large plates on the head especially behind the eyes, which rules out adder and slow worm.

⁹ Amphibian and Reptile Conservation (ARC) and Holmes, F. (2010) Reptile Identification. ARC, Bournemouth.

If the shed skin is counted as one individual, this equates to approximately 0.13 individuals per hectare; this corresponds to a Low population of grass snake, as defined by both HGBI and Froglife.



Plate 2: Shed skin of grass snake recorded on quarry margin on 17th July



Plate 3: Photograph of shed skin of grass snake, illustrating its size

No amphibians were recorded during any of the surveys.

5.0 Summary

The Site was found to support a low population of grass snake using both the HGBI and Froglife definitions. The Site also supports a low population of common lizard using the HGBI definition (which accounts for area surveyed), although the peak count of five individuals puts it into the Good population size category using the Froglife definition (i.e. not accounting for area), albeit it is at the lowest end of this category.

Common lizard was most frequently recorded within the grassland habitat in the proposed extension area, although the density of individuals recorded was low in all areas surveyed. A shed skin of a juvenile grass snake was found on the south-east quarry margin.

The assessment of impacts on reptiles resulting from the proposed development and the development of appropriate mitigation measures, will be covered separately in the Ecology Chapter of the EIA.

DRAWINGS

Drawing 1: Results of Reptile Survey

441000

441500

408500

408000

03563.00037.21.03.0 Figure 1 Results of Reptile Survey



LEGEND

- Site Boundary
- Artificial Refugia
- Adult Common Lizard
- Grass Snake Skin
- Suitable Reptile Habitat

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CARLTON MAIN BRICKWORKS

REPTILE PRESENCE / ABSENCE
SURVEY REPORT

RESULTS OF REPTILE SURVEY

DRAWING 1

Scale 1:3,000 @ A3

Date APRIL 2021

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