LAND AT HURST QUARRY, HURST ROAD, BIDDULPH, STAFFORDSHIRE -

REPTILE SURVEY

REVISED FEBRUARY 2017

ces ecology
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CONTENTS

1.0 INTRODUCTION

1.1 Cheshire Ecological Services Ltd. (CES), the consultancy arm of Cheshire Wildlife Trust, to which all profits are covenanted, was commissioned to conduct a reptile survey of land at Hurst Quarry, Biddulph, in connection with proposals to develop the site for low density residential use.

1.2 The purpose of the survey was to establish the presence or likely absence of reptiles at the site, assess the predicted development impact on reptiles, and recommend further survey or mitigation if required.

1.3 This report should be read in conjunction with the 2016 CES Extended Phase 1 Habitat Survey report for the site, which provides a comprehensive description of the proposed development site and surrounding land, and the habitats they support.

2.0 STUDY AREA DESCRIPTION

2.1 The study area included former working areas of Hurst Quarry and two adjacent grassland fields which are proposed to be made available to help deliver habitat compensation/enhancement in connection with the proposed development. Aerial imaging of the study area is presented in Appendix A: Site Location Plan.

2.2 At the time of survey the quarry was not operational. Hurst Quarry has previously been used for the extraction of sand and sandstone.

2.3 The proposed development site is contained within the former quarry site and totals approximately 9.5 hectares. It comprises a range of habitats at varying stages of successional transition; from bare ground to unimproved grassland, heath, dense scrub and broadleaved woodland. Two reservoirs and a number of ponds are present within the proposed development site. The latter are largely ephemeral/fluctuating and have previously been used for washing quarried material. The majority of land within the proposed development site is contained within a bowl, which is bounded to the north and west by steep sandstone cliffs and to the south and east by wooded embankments.

2.4 The adjacent grassland fields within the study area that are being made available for habitat compensation/enhancement have a combined coverage of approximately 2.5 hectares and are delineated by dry-stone walls and stock fencing. At the time of survey one field was cattle grazed and supported relatively low levels of trees and scrub, and another appeared to be used for a hay or silage crop.

2.5 Pastoral farmland surrounds much of the survey area. Troughstone Hill Site of Biological Importance (SBI) is located immediately adjacent to the study area's north-eastern boundary and comprises a mosaic of dry heath, acid grassland, bracken and birch dominated woodland. Spring Wood is located adjacent to the site's southern boundary beyond Hurst Road and comprises an extensive stand of mature broadleaved woodland which extends to Biddulph Grange Gardens.

3.0 REPTILE ECOLOGY, LEGISLATION & CONSERVATION STATUS

3.1 All six species of reptile native to the UK are protected against intentional killing, injury or sale under Schedule 5, Section 9, of the *Wildlife and Countryside Act*, 1981 (as amended).

3.2 The sand lizard and smooth snake are afforded a higher degree of protection under European law, which, amongst other things, makes it an offence to damage, destroy or obstruct their places of shelter or disturb these species in such a place. However, the distribution of these species is limited, and is largely restricted to a few southern counties in England (with the exception of some coastal sites in Merseyside and North Wales, which support populations of sand lizard). It is reasonable to dismiss the potential presence of these European protected species at the site on the grounds of range and habitat requirements.

3.3 The distribution of the remaining native reptile species, i.e. adder, grass snake, slow-worm and common lizard, is widespread. These species are referred to as the 'widespread reptiles'.

3.4 With some variation between species, reptiles prefer undisturbed habitats with open areas for basking and warmth, and more vegetated areas for shelter and foraging. Reptiles shelter and hibernate in crevices underground, such as within old mammal burrows, cracks within concrete bases or within spoil/rubble mounds. Depending upon the availability of suitable habitat, individual adders may range up to 1km from their hibernation sites. The home ranges of slow worms and common lizard is much less.

3.5 The grass snake is the UK's only widespread egg-laying reptile; the rest give birth to live young. They typically lay their eggs within mounds of decaying vegetation which provides both protection and warmth for the developing eggs. Grass snakes also differ from the other species of native reptile as they are semi-aquatic, utilising water bodies for dispersal and feeding. The range of an individual grass snake can be large, however, they show a high fidelity to aquatic habitats such as ponds, lakes and slow-flowing water courses, and their home range is usually centred on such features.

3.6 All species of reptile native to England are listed as Species of Principal Importance under Section 41 of the *Natural Environment and Rural Communities* (NERC) *Act,* 2006, and are UK Biodiversity Action Plan (UKBAP) Priority species; making them a material consideration for planning. The UK BAP list of Priority species has now been superseded by the S41 list (for England), however, as it is still widely recognised the two should be considered interchangeable (with the exception of hen harrier).

3.7 Grass snake is a Local Biodiversity Action Plan (LBAP) species, for which the Staffordshire Region Biodiversity Partnership has developed a species action plan for the conservation of this species at the county level. LBAP species are also a material consideration for planning. Given the legal protection afforded to the widespread reptiles and their conservation status, it is important to consider the potential presence of reptiles at a proposed development site, and, if necessary, adopt an appropriate mitigation strategy for their protection and conservation.

4.0 REPTILE SURVEY METHODOLOGY

Desk-based study

4.1 As part of the Extended Phase 1 Habitat Survey a data-search pertaining to protected and Priority species was sourced from Staffordshire Ecological Record (SER), the local biological recording centre for Staffordshire. The search covered records originating from within a 2km radius of the centre of the study area within the past twenty years (i.e. since 1996). This data sourced from SER was re-evaluated as part of the reptile survey. The data is considered to be current and relevant to the survey effort.

4.2 SER's online Atlas of Reptiles and Amphibians of Staffordshire (date last updated: March 2014) was reviewed to search for the recorded distribution of reptiles within Staffordshire since 1995. The highest search resolution of 2km grid squares was selected.

4.3 OS mapping and aerial imaging of the surrounding land was reviewed to establish the potential presence of water bodies and other potentially suitable reptile habitat with connectivity to the proposed development site.

Field survey

4.4 The survey was led by CES Ecologist Matthew Lawton BSc (Hons) ACIEEM and assisted by Ecologist Rose Billings BSc (Hons). Both ecologists are experienced in surveying for the widespread reptile species.

4.5 The methodology employed during this survey followed that detailed in Froglife Advice Sheet 10: Reptile Survey (1998), and current guidance issued by Natural England relating to reptiles.

4.6 Prior to the commencement of the survey, the proposed development site was subject to a thorough walkover inspection to identify potential 'reptile hot-spots' i.e. features of interest that may be used by reptiles for sheltering, hibernating, breeding, basking and/or foraging purposes. This was undertaken by CES Principle Ecologist James Grundy ACIEEM and Ecologist Natasha Firth BSc (Hons) MSC Grad CIEEM on 10th March 2016. Reptile hotspots are typically sunny locations within close proximity of longer vegetation or refugia, such as areas of rough grassland, scrub and hedgerows, rubble piles and cracks in concrete bases, and compost heaps. All potential reptile hotspots were marked on a site plan and are presented in Appendix B: Potential Reptile Hotspot Plan. Photographic plates of the potential reptile hotspots are presented in Appendix C.

4.7 Given the availability of suitable reptile shelter and basking sites within the areas identified as potential reptile hotspots (namely piles of stone and areas of bare ground adjacent to dense vegetation), it was initially considered that the deployment of Artificial Cover Objects (ACO) would not be necessary as ample sheltering and basking opportunity already existed. Subsequently, survey visits commenced in March 2016 and involved searching for basking and sheltering animals amongst existing

natural features. The duration of each visit was four hours. Following three successive visits with negative results, it was considered appropriate to deploy artificial cover objects so as to provided increased robustness to the survey findings should no reptiles be identified and the status of 'likely absence' of reptiles be concluded.

4.8 On 11th May 2016 a total of 50 ACO were deployed at the site in all areas identified as potential reptile hotspots. The locations of the ACO are presented in Appendix D. The ACO comprised a mixture of corrugated tin sheets, roofing felt sheets and plywood sheets, each measuring approximately 50cm x 50cm in size. The ACO were allowed to bed-down for a total of fifteen days before recommencement of the survey. This 'bedding-in' period is required to allow suitable sheltering conditions beneath the ACO to develop, and to allow reptiles to discover the objects.

4.9 A further seven survey visits (with ACO) on non-consecutive days between 2nd June and 27th July 2016 followed. This period of the survey lies outside of the optimum period to survey for reptile (i.e. April to May and September), however it was undertaken during the reptile active period of April to September and survey visits were only undertaken during suitable weather conditions; when the air temperature was between 9°C and 18°C and without rain or strong wind.

4.10 During each survey visit all ACO were checked for the presence of basking reptiles on, and sheltering reptiles beneath, the sheets, in addition to all suitable natural basking and refuge sites. The duration of each survey visit was four hours. In total, a combined survey time of forty hours was spent surveying for reptiles at the site.

5.0 SURVEY RESULTS

Desk-based study

5.1 The data-search sourced from SER did not return any records of reptiles, however, this does not necessarily indicate the absence or continued absence of reptiles from the search area. The citation for the adjacent Troughstone Hill SBI does not make reference to reptiles, or list them as a reason for SBI designation.

5.2 SER's online Reptile and Amphibian Atlas for Staffordshire indicates that since 1995 adder, grass snake, common lizard and slow-worm have been recorded within approximately 10km of the site, but not within the 2km grid square in which the proposed development site lies

5.3 A review of OS and aerial imaging of the surrounding land highlights the presence of several water bodies within 250m of the study area.

Field survey

5.4 Potential reptile hotspots were identified as being:

- Mosaic of grassland, heathland and scrub with areas of bare ground located to the north of the former quarry site – suitable basking, foraging and shelter opportunities
- Drystone walls and piles of stone located on the grassland fields to the north-east of the former quarry site – suitable hibernation opportunities
- Woodland edges with south-facing aspects – suitable basking, foraging and shelter opportunities
- Troughstone Hill SBI – south-facing heathland aspect offering optimum reptile habitat

5.5 Survey details and results are presented below in Table 1.

Table 1: Reptile Survey Results Table

Survey visit	Date	Survey period	Weather conditions & peak temp.	Surveyor	Results
1	13/04/2016	09.00 – 13.00	Cloudy, mild 16°C	ML	No reptiles recorded
2	18/04/2016	09.00 – 13.00	Sunny, warm 18°C	ML	No reptiles recorded
3	09/05/2016	08.30 – 12.30	Overcast, mild 16°C	ML	No reptiles recorded
-	17/05/2016	50 ACO out		ML	-
4	02/06/2016	10.30 – 14.30	Sunny, warm 18°C	RB	5 common toad, 1 common frog only
5	09/06/2016	09.30 – 13.15	Sunny, warm 18°C	RB	18 common toad
6	21/06/2016	09.30 – 13.30	Cloudy, warm 16°C	RB	7 common toad, 2 common frog only
7	26/06/2016	08.30 – 12.30	Cloudy, warm 15°C	RB	4 common toad, 1 field vole, 1 common shrew only
8	02/07/2016	10.00 – 14.00	Cloudy, warm 15°C	RB	5 common toad only
9	06/07/2016	09.30 – 13.30	Cloudy, warm 17°C	RB	3 common toad only
10	27/07/2016	09.30 – 13.30	Cloudy, warm 18°C	ML	7 common toad only

6.0 DISCUSSION

6.1 No reptiles or evidence of reptiles, such as sloughed skins or eggs, were recorded during any of the ten survey visits.

6.2 No potential grass snake egg laying sites were identified within the survey area.

6.3 Ample opportunities for reptile foraging, shelter and hibernation exist within the survey area and likely area of works.

6.4 Common toad was regularly recorded sheltering beneath the ACO, with a peak count of 18 adults recorded. The site is known to support common toad breeding (refer to the GCN survey report). Common toad is listed on Section 41 of the NERC Act, and is a UK BAP Priority species. Field vole, common shrew and common frog were also detected sheltering beneath the ACO.

6.5 In accordance with current statutory and non-statutory guidance relating to reptile survey, the status of 'likely absence' of reptiles at the Hurst Quarry site has been concluded.

6.6 However, it is noted that the proposed development site lies within close proximity (<100m) of Troughstone Hill SBI, which offers optimum habitat for widespread reptiles; common lizard and adder in particular. SER's online Reptile and Amphibian Atlas for Staffordshire indicates that since 1995, adder and common lizard have been recorded within 10km of the site but not within the 2km grid square in which the site lies. It is therefore reasonable to conclude that these species may be present on Troughstone Hill SBI, but not recorded or any records not submitted.

6.7 The northern extents of the proposed development site offer suitable habitat to both common lizard and adder. Given the proposed development site's close proximity to Troughstone Hill SBI, and that connecting features/habitats link the two (namely drystone walls and rough grassland), it is possible that prior to commencement of development, reptiles potentially associated with the adjacent SBI could colonise the former quarry site. Additionally or alternatively, it is possible that reptiles already occur within the former quarry site but in such low numbers that they were not detectable by this survey. Furthermore the majority of suitable reptile habitat within the site is relatively new (owing to the recent cessation of quarrying), therefore any populations of common lizard or adder potentially present would be unlikely to be established or present in significant numbers. Also, use of the site by reptiles for hibernation purposes only would not have been detected by this survey. Therefore, it is not appropriate to conclude that reptiles are definitely absent from the site, or that they will remain 'likely to be absent' in the long-term.

6.8 OS mapping indicates the presence of a number of ponds and flowing streams within 250m of the proposed development site. The presence of these water bodies has been confirmed by CES during the 2016 GCN survey. It is therefore possible that grass snake occur within the local area, although this species currently appears to be absent from the site. Given that the ponds within the former quarry site support a large amphibian breeding population (which may attract grass snake), it is possible that this

species may begin to utilise them as a feeding resource prior to commencement of development.

6.9 Slow worms favour garden habitats where they take refuge in compost heaps. It is noted that several gardens abut the western boundary of the site. The development is unlikely to adversely impact on any potential slow worm populations beyond the site boundary. Slow worm are considered likely to be absent from the proposed development site in the long term.

Predicted Scale of Impact

6.10 A review of the proposed development layout indicates that suitable reptile habitat will be lost and impacted by the development; most notably the grassland/heath mosaic to the north of the site adjacent to Troughstone Hill SBI, which is suitable for, and may support in low numbers, common lizard and/or adder (refer to Appendix E: Proposed Development Layout).

6.11 Loss of ponds is currently considered unlikely to adversely impact on grass snake. Nevertheless, ponds are a Priority habitat and as such compensatory ponds are likely to be required by the LPA. This will effectively ensure the permanent provision of suitable aquatic habitat for grass snake prey species (i.e. amphibians).

6.12 In the absence of mitigation, the proposed development currently has the potential, albeit low potential, to result in inadvertent injury or death of low numbers of individual of widespread reptiles. Given the legal protection afforded to the widespread reptiles, avoidance and mitigation measures are therefore recommended to be implemented.

6.13 This survey has been commissioned to support an outline application for residential development of the site. Given the survey findings, it is recommended that the proposals involve the retention of the grassland/heathland mosaic to the north of the site. Retention of this area would effectively negate the requirement to incorporate mitigation measures for the protection of reptiles into the development. If this is not possible, the following actions should be followed:

RECOMMENDED REASONABLE AVOIDANCE MEASURES FOR REPTILES

- If site clearance has not commenced within two years of this survey having being undertaken (i.e. before March 2018), a further reptile presence/absence survey should be undertaken to establish the current status of reptiles at the site. Depending on the survey findings, the mitigation measures outlined in this report may no longer be appropriate and a new mitigation strategy may have to be formulated.

For development related works undertaken prior to March 2018

- Prior to commencement of any development related works at the site, a suitably experienced ecologist shall be appointed to ensure all mitigation measures relating to reptiles and other protected species are successfully implemented.

- Compensatory ponds shall be created prior to the drainage or in-filling of any water bodies on site. This will effectively ensure the permanent provision of breeding sites for amphibian populations, on which grass snakes may feed.

- All vegetation within the areas identified as 'potential reptile hotspots' that is to be lost to the development (refer to Appendix B - Reptile Hotspot Plan) will first be cut to approximately 10cm above ground level to discourage small mammals, amphibians and any reptiles that may be present from taking shelter during the site preparation phase. Ideally this should be undertaken by, or under the supervision of, a suitably experienced ecologist/operative. Vegetation reduction works will start at the point furthest away from any areas of suitable habitat that are to be retained, and will end adjacent to it, to encourage and allow wildlife to disperse. Vegetation reduction works will take place between October and February in any year, which will effectively avoid the bird nesting season and reptile breeding seasons.

- Vegetation shall be maintained at a sufficiently low level until these areas are developed to discourage animals from taking shelter within/adjacent the area of works.

- All substantial piles of rock and stone within the site shall only be removed outside of the reptile hibernation period to avoid causing death or injury to any reptiles potentially hibernating within. The appointed ecologist will instruct the developer/contractor which areas need to be subject to this measure.

- In the event that any reptiles are observed on site prior to or during construction, works in that area should stop and the appointed ecologist should be contacted immediately for advice.

7.0 CONCLUSION

7.1 The CES 2016 Reptile Survey of Land at Hurst Quarry did not discover any reptiles within the areas identified as being suitable to support reptiles.

7.2 The survey was partly constrained in that seven of the survey visits with ACO were undertaken outside of the optimum period for surveying for reptiles. However, three preliminary searches for reptiles were undertaken during the optimum period of April and May, which formed part of the overall survey effort. The total time spent surveying for reptiles at the Hurst Quarry site was forty hours. It is considered that adequate survey effort has been expended to conclude the current status of 'likely absence' of reptiles from the Hurst Quarry site.

7.3 However, there remains the possibility that reptiles do exist within the site; either in such low numbers that they were not detectable by this survey and/or their use of it is only intermittent or temporary. For that reason reptile absence cannot be definitively concluded; only likely absence may currently be assumed. Given that the widespread reptile species are legally protected against killing and injury, the reasonable avoidance measures for their protection detailed in this report should therefore be secured by means of planning condition/s, and incorporated into the development.

7.4 Given that the site supports suitable reptile habitat and has connectivity with other areas of suitable reptile habitat, it is possible that reptiles may colonise the site prior to commencement of development. If site clearance has not commenced by March 2018, then a further reptile 'presence/likely absence' survey should be undertaken to ascertain the current likely status of reptiles; continued likely absence may not be inferred beyond March 2018.

7.5 This survey has been commissioned to support an outline application for low density residential development of the site. It is recommended that the proposals involve the retention of the grassland/heathland mosaic to the north of the site. Retention of this area would effectively negate the requirement to implement mitigation measures for the protection of reptiles, or the requirement for further survey if works have not commenced before March 2018. If this is not possible the mitigation measures outlined in this report, involving re-survey if necessary, should be implemented.

7.6 The findings of this 2016 reptile survey should enable the local planning authority to make an informed decision as to whether it is possible to discharge their responsibilities under current planning guidance relating to breeding birds, when determining the outline application submitted in respect of the proposed development.

8.0 REFERENCES

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Natural England (2007) NE15 – Reptiles in your garden – your questions answered. Natural England.

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Appendices

Appendix A: Site Location Plan

Legend

- Survey Area
- Proposed Development Site Boundary

Client:	Renew Land Developments Ltd.	
Project:	Hurst Quarry, Biddulph	
Map:	Site Location Plan	
CES Ref:	CES/1258/09-16/NF	
Scale:	Not to scale / Indicative	
Date/Rev:	September 2016	0

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Appendix B: Potential Reptile Hotspot Plan

Legend

- Survey Area
- Proposed Development Site Boundary
- Indicative Location of Potential Reptile Hotspots

Client:	Renew Land Developments Ltd.	
Project:	Hurst Quarry, Biddulph	
Map:	Reptile Hotspot Plan	
CES Ref:	CES/1258/09-16/NF	
Scale:	Not to scale / Indicative	
Date/Rev:	September 2016	0

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Appendix C: Photographic Plates

Plate 1: Potential reptile hotspot - mosaic of grassland, heathland and scrub with areas of bare ground located to the north of the former quarry site

Plate 2: Potential reptile hotspot – a pile of stone located to the north-east of the study area outside of the proposed development site – offering potential hibernation opportunities

Plate 3: View of the land within the study area separating Troughstone SBI from the site – connected by a drystone wall

Plate 4: Potential reptile hotspot – woodland edge habitat to the north and west of proposed development site with sunny aspects

Appendix D: Artificial Cover Objects Plan

Legend

- Survey Area
- Proposed Development Site Boundary
- Indicative Location of Artificial Cover Objects (ACO)

Client:	Renew Land Developments Ltd.	
Project:	Hurst Quarry, Biddulph	
Map:	ACO Location Plan	
CES Ref:	CES/1258/09-16/NF	
Scale:	Not to scale / Indicative	
Date/Rev:	September 2016	0

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Appendix E: Proposed Development Layout (over aerial imaging)

Legend

Proposed Development Site Boundary

(Drawing Layout provided by Knights 1759)

Client:	Renew Land Developments Ltd	
Project:	Hurst Quarry, Biddulph	
Map:	Proposed Outline Layout Plan Over Aerial Image	
CES Ref:	CES/1258/02-17/NF	
Scale:	Not to scale / Indicative	
Date/Rev:	February 2017	1

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