A12 Chelmsford to A120 widening scheme TR010060

9.17 Supplementary Reptile Survey Report (Blue Mills)

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Supplementary Reptile Survey Report (Blue Mills)

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1 Executive Summary

1.1.1 This is a supplementary report of the A12 Chelmsford to A120 widening scheme Development Consent Order Application. This report presents the results of additional reptile surveys and assessment of whether the results affect the evaluation of reptile presence along the proposed scheme. It also presents the policy and legislative context within which the environmental impact assessment has been carried out. Likely significant effects of the proposed scheme on reptiles, and mitigation for reptiles, are considered in Chapter 9 of the Environmental Statement (ES) [TR010060/APP/6.1].

1.1.2 Reptile surveys were previously undertaken by National Highways in 2017. The purpose of this report is to present the results of additional surveys undertaken in 2022 for the gas main diversion (Little Braxted to Springfield A1A2, Chapter 2 of the ES [TR010060/APP/6.1]) (see Figure 1). A further survey report contains the results of reptile surveys undertaken in 2022 for the wider scheme (Tetra Tech, 2023).

1.1.3 This report presents an evaluation on the presence/likely absence of reptiles based on field surveys for the gas main diversion undertaken in 2022. It presents the policy and legislative context within which the environmental impact assessment (EIA) process was carried out.

1.1.4 Reptiles were surveyed following best practice guidance from Froglife in Advice Sheet 10, Reptile Survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation (Froglife, 1999).

1.1.5 Common lizard was recorded on one visit and slow worms were recorded on five visits. The presence of two juvenile slow worm confirms a breeding population. The results indicate that the size of the reptile population within this survey area is ‘low’ (Froglife, 1999), however limitations relating to the nature of the survey area may have resulted in an underestimate of the population which should be taken into account when developing mitigation for this part of the proposed scheme.

2 Introduction

2.1 Background

2.1.1 The A12 Chelmsford to A120 Widening Scheme (the 'proposed scheme') comprises improvements to the A12 between junction 19 (Boreham) at TL 741094, and junction 25 (Marks Tey) at TL 917238, a distance of approximately 24km, or 15 miles. The proposed scheme involves widening the A12 to three lanes throughout. It also includes safety improvements, such as closing existing at grade accesses and reducing access to cyclists along the dual carriageway by providing an alternative route for walkers, cyclists and horse riders.

2.1.2 The proposed scheme would require new crossings of watercourses and potential improvements to existing culvert and bridge crossings. There are eight crossings of main rivers, six of which comprise existing crossings and two of which comprise new crossings on proposed offline sections of road. Three of the crossings would require minor realignments at the crossing points.

2.1.3 The proposed scheme is classed as a Nationally Significant Infrastructure Project (NSIP) under the Planning Act (2008), triggering the need to apply for a Development Consent Order (DCO). A DCO application was submitted to the Planning Inspectorate (PINS) by National Highways in August 2022 and was accepted by the Planning Inspectorate on 12 September 2022. The application was supported by an Environmental Statement (ES) which included numerous appendices. Appendix 9.9 (Reptile Survey Report) of the ES [APP-133] summarised the baseline data collected with respect to reptiles.

2.1.4 Presence/likely absence reptile surveys were undertaken between August and October 2017 by suitably qualified and experienced ecologists. Optimal habitats within the footprint of the proposed scheme were surveyed for reptiles, in what is hereafter referred to as 'the study area' (Figure 1).

2.1.5 An update to the field survey was not undertaken pre submission of the DCO, as agreed with stakeholders, because the habitats on site are not considered to have changed significantly since surveys were undertaken. Results of the 2017 surveys are applicable to all suitable reptile habitats within the entire proposed scheme due to the similarity and continuity of habitats.

2.1.6 The surveys documented in this report form part of a suitable of surveys to update the baseline prior to construction of the proposed scheme.

2.2 Purpose of the report

2.2.1 The surveys documented in this report form part of a suite of surveys to update the baseline prior to construction of the proposed scheme. This report presents the results of reptile surveys of the gas main diversion (Little Braxted to Springfield A1A2, Chapter 2 of the ES [TR010060/APP/6.1]) undertaken in 2022. It should be read in conjunction with Tetra Tech (2023) which summarises the results for other areas of the proposed scheme.

2.3 Survey objectives

2.3.1 The key objectives of the 2022 reptile surveys were to:

a. determine the presence or likely absence of each species of reptile within the study area in areas which had not previously been surveyed

a. determine the distribution of reptiles in the study area

b. determine the size of populations of reptiles within part of the proposed scheme

c. inform the detailed design of mitigation proposals

3 Reptile ecology

3.1.1 There are six species of reptile native to the United Kingdom. This includes three species of lizard: common lizard *Zootoca vivipara*, slow worm *Anguis fragilis*, and sand lizard *Lacerta agilis*; and three species of snake: grass snake *Natrix natrix*, adder *Vipera berus*, and smooth snake *Coronella austriaca* (Froglife, 1999).

3.1.2 Reptiles tend to favour habitats that are open, sunny and with south-facing margins or slopes, with lots of edge habitat and a heterogeneous vegetation structure. Typical reptile habitats include heathlands, woodlands of varying structure, chalk downland and sand dunes as well as numerous man-made habitats such as disused allotments, suburban wasteland, and road/railway embankments (Froglife,1999). Reptiles hibernate in winter when food is scarce.

3.1.3 Common lizard, slow worm, grass snake and adder have a wide distribution and occur in a variety of habitats. The two rarest species, sand lizard and smooth snake, have a restricted distribution with naturally occurring populations found in the heathlands of Dorset, Hampshire, and Surrey. Reintroductions have extended the ranges of both species, but neither is known to occur in Essex.

Common lizard

3.1.4 The common lizard grows up to 15cm long and is usually a shade of brown with spots or stripes, although they can vary in colour. They prefer open, sunny glades and are usually found in dry, exposed areas close to dense cover which they retreat to if disturbed. They predominately feed on spiders and insects (ARC Trust, 2017).

Slow worm

3.1.5 Slow worms can reach lengths up to 40cm. They have a shiny appearance where males are grey/brown in colouration and females are brown with dark dorsal sides. Slow worms rarely bask in the open and instead are usually found under cover such as logs or in compost heaps. Slow worms predominately feed on slow moving prey such as slugs (ARC Trust, 2017).

Grass snake

3.1.6 The grass snake is the longest British reptile, capable of reaching over 1m in length. They are grey/green in colour with a distinctive yellow and black collar around the neck and black bars down the side of the body. Grass snakes favour habitats near water as they primarily feed on fish and amphibians (ARC Trust, 2017).

Adder

3.1.7 Adders are the only native venomous snake in the United Kingdom and can reach lengths of up to 60cm long. Adder colouration can be variable amongst individuals and populations, with shades of green, grey, brown, red, and melanism. The most identifiable features of an adder are a red eye with a vertical slit and a distinctive, continuous dark ‘zig-zag’ stripe along the back, which is most frequently black in males and brown in females. Adders generally

prefer open habitats such as heathland, moorland, commons, sea cliffs, and woodland rides (ARC Trust, 2017).

4 Legislation and policy

4.1.1 The provisions of international legislation, incorporated into UK law and relevant to the assessment, are identified in Section 4.1.

4.1 Legislation

4.1.1 The four widely distributed species of native reptile (common lizard, slow worm, grass snake and adder) are protected under the Wildlife and Countryside Act (1981) (as amended) under part of Section 9(1) and all of Section 9(5). They are protected against intentional killing, injury, and trade.

4.1.2 Sand lizard and smooth snake are protected under Schedule 9 of the Wildlife and Countryside Act (1981) (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017.

4.1.3 It is an offence to intentionally kill, injure or capture a European Protected Species (EPS) of reptile, to possess a reptile or any part of a reptile, or sell or offer for sale without a licence. It is an offence to intentionally or recklessly disturb or destroy any place used by reptiles for shelter. The distribution of these species is highly localised and the habitats where they are found do not occur within the boundaries of the proposed scheme (Essex Biodiversity Partnership, 2011).

4.1.4 Licences can be granted by Natural England, the licensing authority in England, to allow activities that would otherwise be illegal, (in relation to sand lizard and smooth snake) to take place. The activities must be carried out in accordance with the provisions of the licence whereby the favourable conservation status of the species is maintained.

4.1.5 Section 40 of the Natural Environment and Rural Communities Act 2006 (NERC) places a duty on all public bodies to have regard to the conservation of biodiversity in England, when carrying out their normal functions (the biodiversity duty).

4.2 National Networks National Policy Statement

4.2.1 The National Networks National Policy Statement (NNNPS) sets out the Government's policies to deliver the development of NSIP on the national road and rail networks in England. The Secretary of State uses the NNNPS as the primary basis for making decisions on DCO applications.

4.2.2 Paragraph 5.22 of the NNNPS states that the applicant's assessment should describe any likely significant effects on internationally, nationally and locally designated sites of ecological conservation importance; protected species; habitats (including irreplaceable habitats such as ancient woodland and veteran trees); and other species identified as being of principal importance for the conservation of biodiversity. The surveys described in this report will inform the assessment of significant effects within the ES.

4.2.3 In addition to the national policy set out in the NNNPS, the proposed scheme has also had regard to relevant legislation and local plans and policy.

4.3 Priority species

4.3.1 The NERC places a responsibility on local authorities and government departments to consider the purposes of conserving biodiversity in a manner consistent with their normal duties, such as policy and decision-making. This Act ties together wildlife legislation and planning policies.

4.3.2 The UK BAP was the UK's response to the Global Convention on Biological Diversity (CBD) in 1992. It lists priority species and habitats that are identified as being the most threatened and require conservation action (JNCC, 2012). In 2012, the UK Post-2010 Biodiversity Framework (2012) succeeded the UK BAP and is the UK Government's response to a new strategic plan of the CBD which was published in 2010.

4.3.3 Much of the work previously carried out under the UK BAP is now focussed at a county level. The UK BAP list of priority species and habitats remains important and has been used to draw up the Section 41 statutory list (see section 4.3.5).

4.3.4 Local BAPs (LBAPs) integrate the conservation measures provided in the UK BAP to enhance biodiversity at the local and regional level.

4.3.5 Section 41 of the NERC and the UK BAP include all six species of reptile native to the UK. Only the widespread species of reptile occur in Essex and are not listed on the Essex LBAP.

5 Methodology

5.1 Desk study

5.1.1 A desk study was undertaken in 2020 to obtain information pertaining to reptiles in the study area and surrounding landscape. The desk study provided sufficient coverage of the gas main diversion.

5.1.2 The methodology and the results of the desk study are presented in detail in Appendix 9.9 Reptile Survey Report [TR010060/APP/6.3].

5.2 Field study

5.2.1 Reptile surveys were conducted between August and October 2022 for a specific land parcel in relation to the gas main diversion (see Figure 1). Surveys were carried out in accordance with current best practice guidance (Froglife, 1999).

5.2.2 Areas of optimal reptile habitat were identified from the initial site walkover conducted in July 2022 and interpretation of aerial photographs. Optimal habitats within the survey area were surveyed for reptiles.

5.2.3 The optimum period for surveying reptiles is during the months of April, May, and September when the weather is warm and dry with little to no wind or rain. Optimal temperature ranges are generally considered to be between 9°C and 18°C, but this varies depending on the weather. Temperatures at the higher end of the range may be more favourable on cloudy days, temperatures at the lower end of the range will be more favourable on bright sunny days (Froglife, 1999).

5.2.4 Artificial Refugia (AR) made from pre-cut roofing felt (0.5m x 0.5m) were placed in areas of habitat suitable for reptiles, approximately 10m apart. Artificial Refugia provide shelter and basking opportunities for reptiles, as they heat up more quickly than the surrounding habitat, and reptiles can use them to help regulate their body temperature.

5.2.5 A total of 47 ARs were placed across the survey site during August 2022. A map showing the locations of ARs around the site is provided in Figure 1.

5.2.6 Artificial Refugia were left to ‘bed-in’ for a minimum of one week prior to commencing the surveys. After the initial ‘bed-in’ period, ARs were checked 15 times in between August and October.

5.2.7 Natural basking spots and refugia (eg. log piles, drain covers and discarded car tyres) identified within the survey area were checked for reptile presence or signs of recent activity such as sloughs (shed reptile skin). Any reptiles seen on or under ARs were recorded (species, sex, age class or sloughed skins), along with any reptiles or other notable species observed in the surrounding habitat.

5.2.8 The approximate area of the survey site has been calculated using aerial photographs overlaid with a shape file of the refugia locations. A GIS tool was used to map the area of suitable habitat within which each group of refugia was situated, in order to demonstrate refugia had been placed at the minimum density required for evaluation of the data (10 per hectare).

5.2.9 Peak counts of adults for each species of reptile were calculated for each survey site. These data were compared to values in Froglife (1999) to determine if populations are ‘low’, ‘good’ or ‘exceptional’.

Limitations

5.2.10 Land access was not permitted to the survey area until July 2022 therefore no surveys were carried out between April and May. However, a majority of the surveys took place in September, another optimal month for surveying, and so this is not deemed a significant limitation to the validity of the data.

5.2.11 Limitations during the field surveys included surveying during sub-optimal weather conditions for reptiles for two of the surveys (Annex C). This is not considered a significant constraint as 13 out of 15 surveys were undertaken during optimal conditions, and therefore the population sizes recorded across the duration of the surveys are considered to be accurate.

5.2.12 The survey site contained a high proportion of natural refugia such as logs. This reduced the likelihood of reptiles using the AR for the surveys. In addition, due to the number of trees within the survey area, the proportion of the day in which any particular refugia was in sunlight was reduced. Both factors may mean the results underrepresent the size of the population.

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

5.2.14 The survey data reflect the site at the time of survey. Species can move in and out of an area following a survey, and habitats are subject to change.

5.2.15 This report should be read in full and excerpts may not be representative of the findings.

5.2.16 This report has been prepared exclusively for Jacobs’ client and no liability is accepted for any use or reliance on the report by third parties

6 Results

6.1 Desk study

6.1.1 The results of the desk study for reptiles for the proposed scheme are presented in the ES Appendix 9.9 Reptile Survey Report.

6.1.2 The landowner of the survey area informed surveyors of personal observations of adder being present within the site. No adders were observed during the surveys.

6.2 Field study

6.2.1 The habitats identified (within the 2022 survey area described in this report) as having potential to support reptile populations included rough grassland and areas with interfaces of tall and short vegetation, such as dense scrub or tall ruderal vegetation around field margins. Multiple ponds and wet ditches throughout the survey area provide suitable foraging habitat for grass snakes.

6.2.2 Two species of reptile were recorded within the survey (Figure 1 and Appendix A). Slow worm were recorded on five of the survey visits and common lizard on one of the survey visits. These species were also recorded within other parts of the proposed scheme in 2017 (Appendix 9.9 Reptile Survey Report [TR0100/60/APP/6.3]), in addition to grass snake.

6.2.3 The peak count of slow worms was two adults recorded on site visit one. The peak count of common lizard was one on survey visit 15. A summary of the survey results is provided in Table 6.1.

Table 6.1 Field survey results

Site visit no.	Reptile species	Adult count (max. count per visit)	Juvenile count (max. count per visit)
1	Slow worm	2 females	0
2	None	0	0
3	None	0	0
4	None	0	0
5	None	0	0
6	None	0	0
7	Slow worm	1 female	0
8	None	0	0
9	None	0	0
10	None	0	0
11	None	0	0
12	Slow worm	0	0
13	Slow worm	1 female	0

Site visit no.	Reptile species	Adult count (max. count per visit)	Juvenile count (max. count per visit)
14	Slow worm	0	1
15	Slow worm	0	1
	Common lizard	1 female	0

7 Discussion

7.1 Summary

7.1.1 Habitats with the potential to support populations of common species of reptile (excluding adders) were recorded within the survey area along the gas main diversion. Habitats included rough grassland and areas with interfaces of tall and short vegetation such as dense scrub or tall ruderal vegetation around field margins. Waterbodies within the site boundary are suitable foraging habitat for grass snake.

7.1.2 Two species of common reptile has been recorded within the survey area (although grass snakes have been recorded within the wider proposed scheme, Appendix 9.9 Reptile Survey Report [TR010060/APP/6.3]). As only two species of reptile were recorded on site it does not constitute a 'key reptile site' in accordance with Froglife (1999).

7.1.3 Of the 15 survey visits, slow worm was recorded on five (survey visits 1, 7, 13, 14 and 15) and common lizard was recorded on survey visit 15 only. The presence of juvenile slow worms confirms a breeding population.

7.1.4 A peak count of one adult common lizard and two adult slow worms was recorded on any one site visit and therefore in accordance with Froglife guidance (1999) the population size is assessed as 'low' for both species for this part of the proposed scheme (moderate populations of slow worm and common lizard have been recorded within other parts of the proposed scheme Appendix 9.9 Reptile Survey Report [TR010060/APP/6.3]). However, as per the limitations of the survey (section 5.2) due to the nature of the habitats within the site the results of the surveys may underestimate the size of the population present and this should be taken into account when determining mitigation for this part of the proposed scheme.

7.1.5 The majority of the reptiles was recorded in a field of suitable habitat adjacent to the Order Limits with only one slow worm being recorded within the Order Limits (Figure 1). Due to the connectivity of the habitats and the proven presence of reptiles within the Order Limits it can be assumed reptiles are present in low numbers both inside and outside the Order Limits in this part of the proposed scheme.

7.1.6 Although there are adder records within 2km of the proposed scheme Appendix 9.9 Reptile Survey Report [TR010060/APP/6.3] and there is anecdotal evidence from the landowner, no adders were recorded during field surveys. Woodland habitat often supports adders and is present within the site boundary; however, the blocks are small and relatively isolated. Other habitats such as heathland and moorland are absent from the site, which often support adder. It is therefore assumed that adders are absent from the survey area and wider proposed scheme.

7.2 Evaluation

7.2.1 The common lizard is the most widespread reptile species in the UK. Common lizard populations, alongside grass snake, slow worm, and adder populations,

are in decline (BTO, 2018) due to the destruction and fragmentation of their habitats (London, Essex and Hertfordshire Amphibian and Reptile Trust, 2020 and Baker *et al.,* 2004).

7.2.2 There is no change to the valuation of the study area for reptiles presented in Appendix 9.9 Reptile Survey Report as the survey results within this survey area are not significantly different to the survey results that have been identified across the rest of the Order Limits.

7.2.3 The reptile population in the proposed works is considered to be of Local Importance for Biodiversity.

Abbreviations

Abbreviation	Term
AR	Artificial Refugia
CBD	Convention on Biological Diversity
DCO	Development Consent Order
EIA	Environmental Impact Assessment
LBAPs	Local Biodiversity Action Plans
NERC	Natural Environment and Rural Communities
NNNPS	National Networks National Policy Statement
NSIP	Nationally Significant Infrastructure Project
UK BAP	UK Biodiversity Action Plan

Glossary

Glossary	Definition
Artificial Refugia	Sheets of material such as roofing felt or corrugated tin; reptiles are attracted to these materials as they are generally warmer than the surrounding environment. Standard sizes are 1m x 0.5m or 1m x 1m.

References

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h. Joint Nature Conservation Committee and Defra (on behalf of the Four Countries' Biodiversity Group). (2012). *UK Post-2010 Biodiversity Framework*. Available online: http://jncc.defra.gov.uk/page-6189. [Accessed September 2017].

i. Joint Nature Conservation Committee (JNCC) (2017). *The UK Biodiversity Action Plan (UK BAP)*. Available online: http://jncc.defra.gov.uk/ukbap. [Accessed September 2017].

j. London Essex and Hertfordshire Amphibian and Reptile Trust. [redacted]. [Accessed December 2020].

k. Natural Environment and Rural Communities (NERC) Act 2006. Available online: http://www.legislation.gov.uk/ukpga/2006/16/contents. [Accessed September 2017].

l. Tetra Tech (2023) A12 Chelmsford to A120 Widening Scheme: Reptile Survey Report. Revision 5.

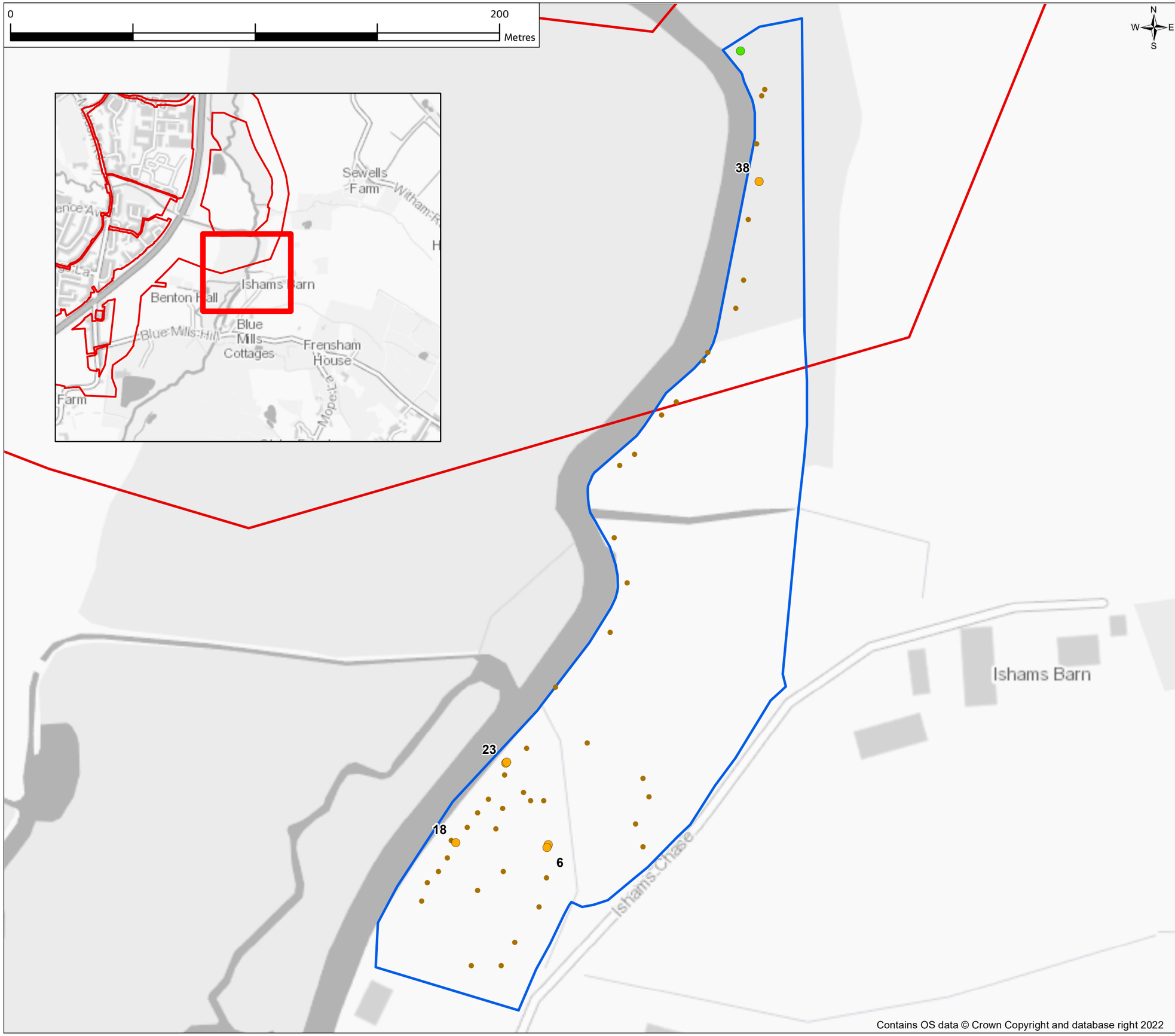
m. Wildlife and Countryside Act (1981) (as amended). HMSO, London.

Appendix A: Raw reptile field survey data

Visit number	Date	Slow worm			Common lizard		
		Male	Female	Juvenile	Male	Female	Juvenile
1	23/08/2022	0	2	0	0	0	0
2	01/09/2022	0	0	0	0	0	0
3	06/09/2022	0	0	0	0	0	0
4	07/09/2022	0	0	0	0	0	0
5	09/09/2022	0	0	0	0	0	0
6	12/09/2022	0	0	0	0	0	0
7	13/09/2022	0	1	0	0	0	0
8	16/09/2022	0	0	0	0	0	0
9	20/09/2022	0	0	0	0	0	0
10	21/09/2022	0	0	0	0	0	0
11	23/09/2022	0	0	0	0	0	0
12	26/09/2022	0	0	0	0	0	0
13	28/09/2022	0	1	0	0	0	0
14	30/09/2022	0	0	1	0	0	0
15	03/10/2022	0	0	1	0	1	0
Peak count of adults and juveniles		2		1	1		0

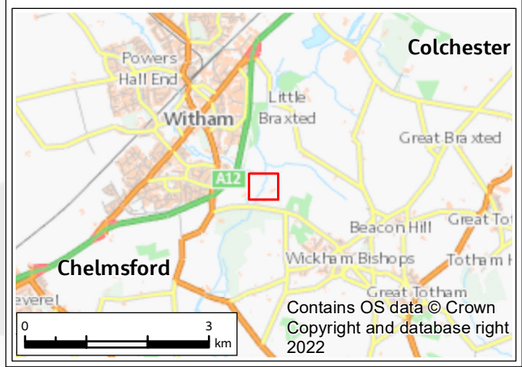
Figure 1 Reptile Surveys 2022, Refugia Locations

FIGURE 1



Legend

- Order Limits
- Survey Area
- Reptile refugia
- Slow worm sightings
- Common lizard sightings



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A12 CHELMSFORD TO A120 WIDENING SCHEME

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REPTILE SURVEYS 2022, REFUGIA LOCATIONS
SHEET 1 OF 1

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