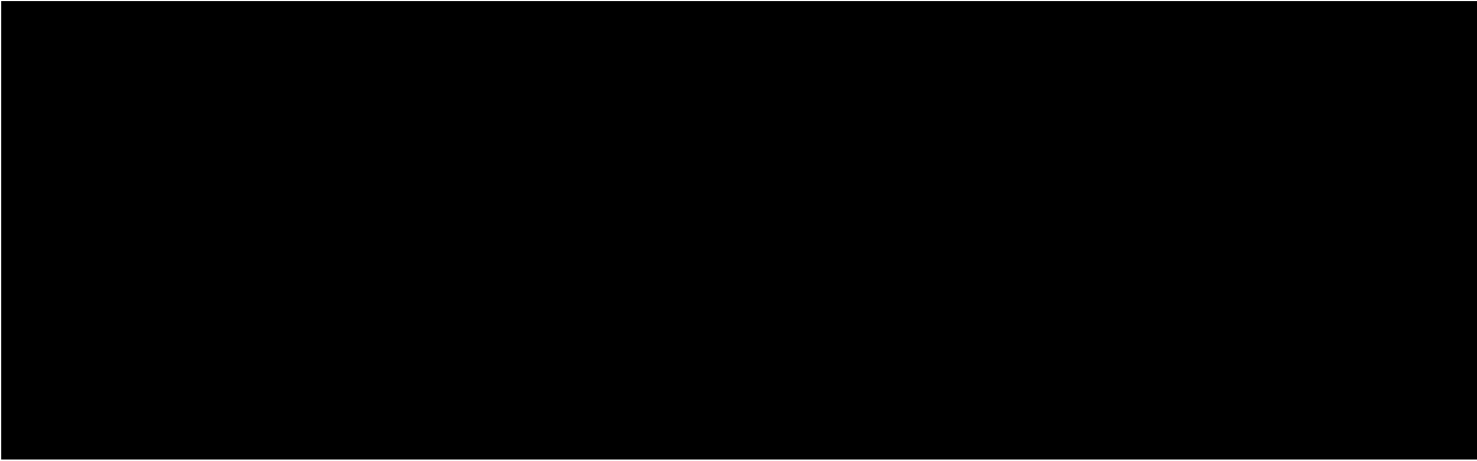


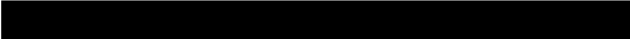


From: Michael Eastham
Sent: 04 October 2017 09:38
To: Planning.Responses
Subject: FW: LU/278/17/RES - Construction of the southern section of the Lyminster Bypass

Please upload on Ocella.

Thanks,

Michael

From: Richardson, Matt 
Sent: 04 October 2017 09:31
To: Michael Eastham
Cc: Graham, Laura
Subject: FW: LU/278/17/RES - Construction of the southern section of the Lyminster Bypass

Dear Michael

I am writing further to your email below and have copied through an email that our ecologist has forwarded through.

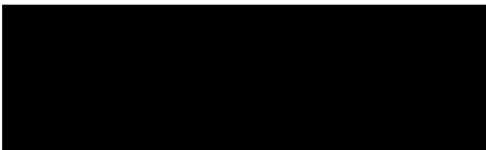
I trust that this is sufficient for your colleague.

Kind regards

Matt

Matt Richardson
Strategic Land Planning Manager

Persimmon Homes Thames Valley
Persimmon House
Knoll Road
Camberley
Surrey
GU15 3TQ



From: Simon Boswell [REDACTED]
Sent: 04 October 2017 09:06
To: Neil Oliver
Cc: Richardson, Matt; Graham, Laura
Subject: RE: LU/278/17/RES - Construction of the southern section of the Lyminster Bypass

Hi Neil,

The original Phase 1 and subsequent reptile survey reports are attached. These are detailed in our Ecological Management Plan but Liz may want to see the originals.

Best Wishes

Simon Boswell
Principal Ecologist
ECOSA Ltd



Did you know we also provide habitat creation, habitat management and wildlife fencing services?



Head Office: ECOSA Ltd, Ten Hogs House, Manor Farm Offices, Flexford Road, North Baddesley, Hampshire SO52 9DF. [REDACTED]

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From: Michael Eastham [<mailto:Michael.Eastham@arun.gov.uk>]
Sent: 02 October 2017 12:23
To: Graham, Laura
Subject: LU/278/17/RES - Construction of the southern section of the Lyminster Bypass

Hi Laura,

Liz Rogers, the Ecological Officer has replied to the consultation on the construction of the southern section of the Lyminster Bypass with the following response:

“No protected species surveys have been undertaken on the site so we are unable to establish if protected species are present. Prior to determination we require that an extended phase one habitat survey is undertaken on the site to determine if there is potential for protected species. If there is potential for protected species then further surveys would be required. These survey plus any mitigation strategies required will need to be submitted as part of the planning application prior to determination”.

Please could you ensure that the requisite information is submitted.

Kind regards,

Michael

<http://www.arun.gov.uk>

NLPG UPRN 100062237016

DX 57406 Littlehampton

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Ref: A086068

Sent by email only to: david.lee@persimmonhomes.com

December 2015

Dear David,

Toddington Lane, North Littlehampton – South Lyminster Bypass

Background

WYG Environment was commissioned by Persimmon Homes to complete reptile presence/likely absence surveys, a bat roost assessment and update invertebrate habitat assessment at Toddington Lane, North Littlehampton (hereafter referred to as 'the site'). This is following recommendations from the Update Ecological Appraisal (WYG, 2014).

Site location and general description

The site as a whole is located within, Littlehampton, West Sussex, centred on Ordnance Survey National Grid Reference TQ 031 036. The section of the site to the south of the West Coastway Railway line comprises areas of semi-improved grassland separated into small field compartments via with small stretches of fencing, tree lines and hedgerows. However the site is separated by the West Coastway railway line; to the north of the line the site consist of Fairhaven nursery which is predominantly hardstanding and industrial buildings. There are areas of scrub scattered throughout the southern area of the site, which is particularly dense at the southern extent. The northern field compartment is grazed by horses. The site is bordered by the Toddington Lane to the north, the residential properties to the east, allotments to the west and by A259 Worthing Road to the south. The wider area is dominated by residential properties.

Development Proposals

The construction of a the South Lyminster road bypass, which will extended from Toddington Lane in the north to the A259 Worthing Road in the south bridging the West Coastway railway line.

Reptile Presence/Likely Absence Surveys

Methodology

The method used for carrying out the presence/likely absence survey for followed guidelines set out by Gent and Gibson (2003). Further guidance was taken from the Froglife **Advisory Sheet No. 10 Reptile Survey (Froglife 1999)**. The reptile presence/likely absence were completed between 9th and 28th October 2015. Please find enclosed information regarding results of the surveys.

The survey was based on the following methods and was undertaken by suitably qualified and experienced WYG ecologists;

- Direct Observation – Whilst carrying out a walkover survey, locations of basking animals were noted and mapped inductively. This method is especially important for grass snakes as they generally bask close to their winter hibernacula.
- Refugia Searches – Any suitable naturally occurring refugia were carefully searched especially log-piles, rubble and discarded pallets or old carpets. In-situ refugia on site were mapped only if reptiles were found using them during the survey period.



- Mats – Artificial refugia were placed in suitable reptile habitat within rough grassland and at the edges of scrub vegetation for 3 weeks prior to the commencement of the surveys.

The seven reptile surveys visits were undertaken between the 9th and 28th October 2015 in suitable weather conditions.

Results

Desktop Study

Sussex Biological Records Centre (SxBRC) returned nine records within 2 km of the site, comprising slow worm (*Anguis fragilis*) and grass snake (*Natrix natrix*). The closest record

Consultation with SxBRC provided the following records for reptiles (see below, Table 1).

Table 1: Reptile Information from Records Office Consultation

Date	Grid Ref	Distance (Km) and Direction from site.	Reptile details
2003	TQ020027	1.9 km south west of the site	Slow worm
1986	TQ026042	0.95 km west of the site	Slow worm
1993	TQ029061	1.6 km north of the site	Slow worm
1993	TQ0502	2 km north of the site	Slow worm
1991	TQ028038	0.71 km west of the site	Grass snake
1993	TQ030063	1.8 km north of the site	Grass snake
1993	TQ0506	2 km west of the site	Grass snake

Site Survey

Weather Conditions

Table 2 provides the weather conditions in which the reptile surveys were completed. These were all completed during optimal weather conditions with temperatures between 9th October and 28th October 2015.

Table 2: Survey Weather Conditions

Survey	Date	Time	Air Temperature (°C)	Rain	Wind Speed	Cloud Cover (%)
1	09/10/15	13:40	16	Nil	0	20
2	12/10/15	15:00	12.1	Nil	2	30
3	15/10/15	12:00	11.8	Nil	1	80
4	19/10/15	11:30	12	Nil	1	30



5	22/10/15	11:15	13.4	Nil	2	60
6	26/10/15	11:25	14.4	Nil	2	90
7	28/10/15	11:40	13.3	Nil	1	90

Table 3 provides the maximum count of reptiles recorded during any one visit to the development site.

Table 3: Maximum counts of reptiles recorded during any one survey visit at the proposed development site – Fields A and B

Visit Number	Date	Species	Adult	Juvenile	Mat Number
1	09/10/15	Common Lizard	2	0	90
2	12/10/15	-	0	0	-
3	15/10/15	-	0	0	-
4	19/10/15	-	0	0	-
5	22/10/15	Common Lizard	1	0	90
6	26/10/15	-	0	0	-
7	28/10/15	-	0	0	-

Limitations

This area of the site (South Lyminster Bypass) was accessible on all occasions and was completed in accordance with the relevant guidelines; however the surveys did take place outside of the normal survey season (April to September). The overnight temperatures remained suitable and did not drop below ten degrees for a sustained period and daytime temperatures remained within the suitable range (9°C-18°C) therefore the survey result are considered valid.

Conclusions and Recommendations

Common lizards were recorded at within the South Lyminster Bypass area of the site. A maximum count of two adult common lizards were recorded on the 9th October 2015, however no juvenile common lizards were recorded within the development site.

Table 3: Calculating Populations (from Froglife 1999)

	Low population Score 1	Good population Score 2	Exceptional population Score 3
Adder	<5	5-10	>10
Grass snake	<5	5-10	>10
Common lizard	<5	5-20	>20
Slow worm	<5	5-20	>20

Figures in the table refer to maximum number of adults seen by observation and/ or under refugia (places at a density of up to 10 per hectare), by one person in one day.



Froglife guidelines (1999) (Table 3 above) suggest that the population of common lizards is 'low' within the South Lyminster Bypass area of the site based on the number of adults seen during the survey visits.

Given that reptiles have been recorded at the development site, reptile mitigation will need to be implemented at the site to prevent breaching the Wildlife and Countryside Act 1981. The mitigation programme is explained below. Given that three reptiles were recorded, reptile displacement northwards along the proposed route from the southern boundary and then eastwards from the road is considered to be the best option. **Reptile displacement can only be undertaken during animals' active period which runs from mid-March until mid-October and in suitable weather conditions.** Reptile capture may not take place between November and February, as reptiles are not active during this period.

Reptile Displacement

It is recommended that a two phased displacement of the works area is undertaken between March and October. An Ecological Clerk of Works will supervise the strimming of the vegetation firstly to a height of 300 mm then to a height of 150 mm. A finger tip search will then be conducted to check for reptiles. If any reptiles are found they will be translocated to the eastern retained section of this area of the site. Following the clearance of the area the erection of reptile exclusion fencing will take place and then finalised with a destructive search this must be agreed with the Local Planning Authority Ecologist before implementation. The details of these methods are described below.

Fence Installation

Temporary reptile-proof fencing will be installed around the entirety of the proposed works area to protect the retained suitable reptile habitat from the construction phase of the development and which will also be utilised as a receptor area for displaced reptiles. The fencing will either be specifically made reptile fencing or posts with plastic fencing as detailed below:

- Fence constructed from polythene or similar impermeable material.
- Supported by wooden posts dug at least 300 mm into the ground and standing at least 600mm above ground.
- The plastic sheet will be dug 150 mm into the ground with a 100 mm horizontal 'lip' turning back away from the working area.
- The plastic will be buried with compacted backfill so that no gaps remain.
- The plastic will be nailed to the fence posts and folded over at the top, away from the working area, and stapled to form an overhang.
- The plastic must contain no holes and, at the meeting of two sheets, the join must be secured with 100 mm waterproof tape.
- The fence must remain in place around the whole development area for the entire duration of the works phase.
- The fence must be maintained and any defects fixed as soon as possible.
- The areas where fencing is to be installed will be hand searched for reptiles by an ecologist prior to installation of the fence to ensure that no reptiles are harmed during this operation.

Destructive Search

Following the successful completion of the displacement of reptiles from the areas of proposed construction, these areas will be destructively cleared. This will involve two parts, hand search and a mechanical search, completed to the following specifications:

- A suitably qualified ecologist will supervise all aspects of the destructive search;
- Hand searches will be conducted, including the removal of debris on the ground in order to remove potential refuges;



- Using a medium sized excavator (approximately 8-10 tonnes) with a toothed bucket carry out a gradual scrape of the top one to two inches (25-50 mm) of top soil;
- Both the areas from where soil is removed and the subsequent spoil heaps should be checked for reptiles and amphibians;
- Carry out deeper scrapes where necessary, such as beneath rot systems, buried material, cracks or holes in the ground;
- The excavated spoil will be stored as directed by the ECOW, in consultation with the developers, in an area identified as unsuitable as reptile habitat.

Habitat Management

It is recommended that the vegetation located within the areas of retained habitat adjacent to the proposed road be allowed to grow and to be seeded with native species to create a tall wildflower/grassland meadow to enhance the habitat providing an important reptile foraging habitat by encouraging invertebrates to the area.

Bat Roost Assessment

Methodology

The bat roost assessment was completed on the 1st September 2015 by WYG Ecologist, Emmanuelle Amiral, Assistant Ecologist using methodology based on the Bat Conservation Trust's (BCT) Bat Survey: Good Practice Guidelines (2012) and the Joint Nature Conservation Committee (JNCC's) *Bat Workers Manual* (2004). Only those trees likely to be directly or indirectly affected by the proposed works, within the proposed development site, were examined.

Bat roost potential is determined by a variety of factors including physical attributes of the tree, and proximity to good feeding sites and safe commuting routes. A brief summary of the known factors which influence a trees potential to support bats provided in Table 4.1 below.

Table 4.1: Factors influencing potential for trees to be used by bats (adapted from BCT, 2012)

Features of trees used by bats	Signs indicating possible use by bats
• Natural Holes • Woodpecker Holes • Cracks/Splits in Major Limbs • Loose Bark • Behind Dense, Thick-stemmed Ivy • Hollows/Cavities • Within Dense Epicormic Growth • Bird and Bat Boxes	• Tiny Scratches around Entry Point • Staining around Entry Point • Bat Droppings in/around/below Entrance • Audible Squeaking at Dusk or in Warm Weather • Flies around Entry Point • Distinctive Smell of Bats • Smoothing of Surfaces around Cavity

The trees which were surveyed were all within the site boundary as those likely to be affected by the development.

These trees were visually inspected for their bat roosting potential, including potential access points into the trees and connectivity to the wider environment. These were categorised in accordance with Table 4.2,



through a visual assessment of the trees to record the presence of features such as crevices, holes, fissures, split bark and arboreal ivy (*Hedera Helix*).

Table 4.2: Categories of trees, based on their potential to support bat roosts (taken from BCT, 2012)

Tree Category	Description
Known of Confirmed Roost	Confirmed bat roost tree with field evidence demonstrating bats are present e.g. droppings, scratch marks, grease marks or urine staining.
1*	Trees with multiple, highly suitable features capable of supporting larger roosts.
1	Trees with definite bat potential, supporting fewer suitable features than Category 1* trees or with potential for use by single bats.
2	Trees with no obvious potential although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.
3	Trees with no potential to support bats

Please note that Tables 4.1 and 4.2 identify what are generally considered to be the most important influences on bat roost preferences. There are 18 species of bats in the UK, each with its own specific requirements. Additionally males generally have different roost preferences to females and, therefore, it is not practical to assess a feature against all the possible permutations of an 'ideal' roost.

Limitations

The trees which the survey focused on were all those within the proposed development site boundary as those most likely to be affected by the development, if proposed plans are changed, further surveys may be required.

The survey will remain valid for 12 months, if works or further surveys have not commenced within this time, it is recommended that an update survey is completed to determine whether their potential value to roosting bats has changed.

Results

Desktop Study

Sussex Biological Records Centre (SxBRC) returned records of up to eight species of bat recorded within 2 km of the site, comprising an unidentified pipistrelle (*Pipistrellus sp.*), common pipistrelle (*Pipistrellus pipistrellus*), brown long-eared bat (*Plecotus auritus*), Natterer's bat (*Myotis Nattereri*), whiskered bat (*Myotis mystacinus*), barbastelle (*Barbastelle barbastellus*) and a serotine (*Eptesicus serotinus*). The nearest record is of a common pipistrelle, located approximately 1.2 km south east of the site at Wallace Road, Rustington.

Consultation with SxBRC provided the following records for bats (see below, Table 5).

Table 5: Bat Species within 2km of the site

Date	Grid Ref	Distance (Km) and Direction from site.	Species details
------	----------	--	-----------------



Date	Grid Ref	Distance (Km) and Direction from site.	Species details
2006	TQ042062	1.8 km north of the site	Whiskered Bat
2006	TQ042062	1.8 km north of the site	Natterer's Bat
1998	TQ054031	1.2 km south-east of the site	Common Pipistrelle
2006	TQ042062	1.8 km north of the site	Serotine
2006	TQ042062	1.8 km north of the site	Pipistrelle sp.
2006	TQ042062	1.8 km north of the site	Barbastelle
2006	TQ042062	1.8 km north of the site	Brown long-eared

Survey Results

The results of the tree assessment are given below:

Known Confirmed Roosts

No trees were identified as confirmed roosts at the time of the bat roost assessment.

*Category 1**

There were no trees identified within this area of the site as Category 1*.

Category 1

There were no trees identified within this area of the site as Category 1.

Category 2

There were no trees identified within this area of the site as Category 2.

Category 3

The bat potential of the trees within this area of the site falls under this category, and have negligible potential to support roosting bats.

Conclusions and Recommendations

Impacts

No trees offering potential to support roosting bats will be felled as a result of the development proposals.

Mitigation and Enhancement Measures

The proposed mitigation and enhancement measures are stated below:

- Where hedgerows are to be bisected to accommodate the Fitzalan Link road, tall mature trees or tree stands are to be retained or planted to create a vegetated 'hop-over'. These will maintain connectivity for commuting and/or foraging bats by guiding the bats up and over the link road and the height of traffic.



- The creation and enhancement of a 'bat-friendly' habitat through the planting of specific flora species to increase the presence of potential food sources for bats.
- Adequate consideration should be given to the type and position of lights to minimise the impact on bats that may be roosting, foraging or commuting in the area. Lights should only be used in those areas where it is necessary for Health and Safety and avoided in areas which are found to support bats. Light spillage should be controlled through the use of hoods and appropriate angling of the light itself and low or high pressure sodium lamps should be used instead of mercury or metal halide lamps. For further technical detail see the Institute of Lighting Engineers (ILE) *Guidance Notes For The Reduction Of Obtrusive Light* (2011).

Invertebrate Assessment

The dominate habitats onsite is semi-improved grassland with scrub/hedgerows, it is considered unlikely that notable species of invertebrate are present due to a lack of botanical diversity. The habitats on site are however likely to be a suitable for a range of widespread and common invertebrates associated with scrub/hedgerows and grassland. Mitigation measures such as providing floristically rich habitats are likely to enhance the invertebrate assemblage on site.

Please do not hesitate to contact us if you wish to discuss this further.

Yours sincerely,



Ben Cooke
Assistant Ecologist
for and on behalf of WYG



David West MCIEEM
Principal Ecologist



References

Froglife (1999). *Reptile Survey: Planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth.

Gent, T. and Gibson, S. (2003). *Herptofauna Workers Manual*. Joint Nature Conservation Committee, Peterborough.

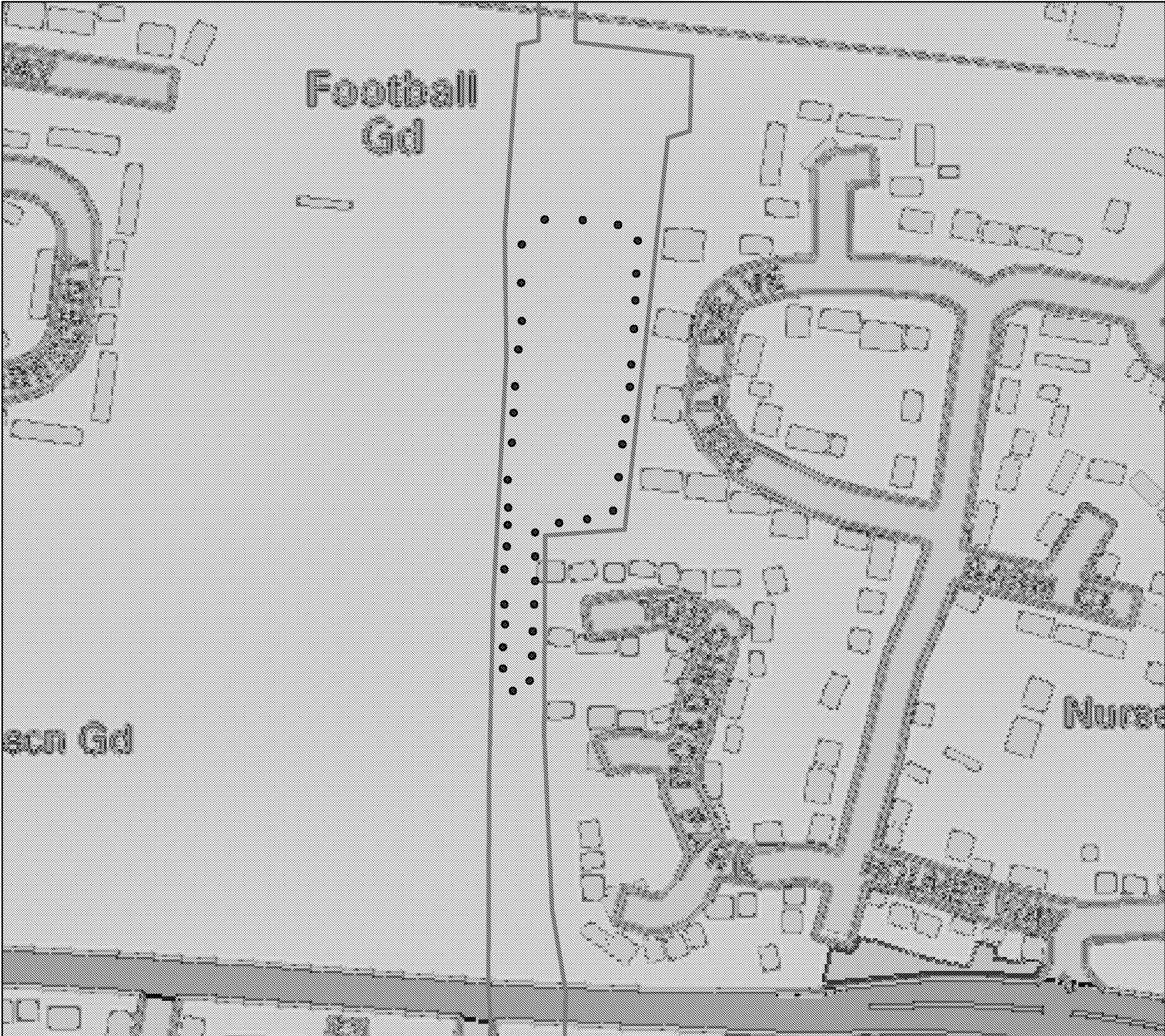
Hundt (2012). *Bat Surveys, Good Practice Guidelines 2nd Edition*, Bat Conservation Trust, London.

Institute of Lighting Professionals (ILP). (2011). *Guidance for the Reduction of Obtrusive Light*, ILP, Rugby.

Mitchell-Jones, A.J. & McLeish, A.P. (Eds) (2004). *Bat Workers Manual*, 3rd Edn. JNCC, Peterborough.



Appendix A



N

Legend

- South Lyminster Bypass Refugia
- Site Boundary



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creative minds safe hands

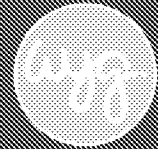
WYG Planning & Environment

Toddington Lane, North Littlehampton

South Lyminster Bypass- Reptile Refugia Locations

Project No:		Drawn by: Date:	Checked By: Date:	Approved By: Date:
A086068		BC 23/09/15	ES 14/10/15	NT 23/10/15
Office	Type	Drawing No.		Revision
45	94	Figure 1		

Base map provided by Persimmon Homes



Greencore Group Plc.

Reptile Presence/Absence Survey Report

**Proposed Lyminster Bypass
(South), North Littlehampton,
West Sussex**

18th December 2009

North Littlehampton Proposed Lyminster Bypass (south) Reptile Survey Report



Document Control

Project: North Littlehampton

Client: Greencore Group Plc.

Job Number: A044029

File Origin: H:\Environmental Projects\A Projects - Awarded Projects\A044029 North Littlehampton - Ecology\700 Reports\ Reptile report

Document Checking:

Prepared by: Clare May
Consultant Ecologist

Signed:

Checked by: Nancy Davies
Senior Ecologist

Signed:

Verified by: Rossa Donovan

Signed:

Issue	Date	Status
1	18.12.09	Final
2		
3		
4		



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Appendices

Appendix A – Report conditions

Appendix B – Figures

Appendix C – Consultation response from Sussex Biodiversity Records Centre

Appendix D – Photos

Appendix E – Reptile Ecology and Legislation



0.0 EXECUTIVE SUMMARY

Site Location	The site is located in North Littlehampton, West Sussex and is Ordnance Survey Grid Reference TQ 030 037 (503086, 103744). The site comprises an area of public horticultural nursery; public allotment and sheep grazed fields, totalling approximately 8.5ha. Fairhaven Nursery located in the north is divided from the south of the site by a railway line that runs east-west.
Project Overview	The proposed development on site consists of the construction of residential and commercial properties, and a train station following the clearance of existing buildings, allotments, some trees, scrub and grassland.
Site Overview	The site comprises the following areas: Fairhaven Nursery, Worthing Road allotments and a series of sheep grazed fields. Habitats in these areas include: arable, scrub and field margin vegetation, semi-improved grassland including horse paddocks and sheep grazed fields.
Survey Overview	Reptile presence/absence surveys were undertaken to assess the current reptile population across suitable habitats within the proposed Lyminster Bypass (south). Seven survey visits were undertaken between the 1 st and 23 rd October 2008.
Results and Conclusions	Low populations of common lizard and slow worms were recorded on site during the survey, with a maximum of one adult common lizard and one adult slow worm recorded during any one survey visit. In addition, juveniles of both slow worm and common lizard were recorded; indicating good recruitment and the presence of a successful breeding population. The majority of the reptiles were recorded along the allotment/sheep grazed field boundary see figure A044029/RepArea6 for locations of reptiles).
Constraints	A number of factors are likely to have constrained the reptile survey, including disturbance during grass cutting and through some horse/sheep and human interference. Some areas of habitat originally deemed suitable for reptiles were made less suitable following some habitat management. Additionally, the survey was undertaken in October, which is considered to be a sub-optimal period to survey reptiles. Therefore it is possible that the reptile populations are greater than that recorded and mitigation measures should accommodate any population discrepancies.
Recommendations	The survey results indicate a Low population of slow worms and common lizards, however due to the disturbance present at the site and the sub-optimal conditions towards the end of the reptile survey these results should be interpreted with caution as it is possible that a higher population of reptiles are present. Appropriate mitigation measures and associated survey work will be necessary prior to development. A reptile mitigation report will be required prior to the construction commencing at the site when full development phases and extent are fully confirmed to ensure full protection is given to reptiles. The reptile mitigation report will include



	a sympathetic mitigation approach in order to protect reptiles such as the erection of reptile fencing to ensure that the relevant wildlife protection legislation is complied with. Reptile mitigation will involve the installation of reptile-proof fencing around the on-site habitat known to support reptiles, trapping any reptiles and moving them to a safe receptor location, either on site or off site.
--	---



1.0 INTRODUCTION

WYG Environment (WYGE) was commissioned by Greencore Group Plc. to undertake a reptile presence/absence survey at the site proposed for the Lyminster Bypass (south). The extent of the survey area is provided in Appendix B.

This reptile survey is the result of recommendations made in the WYGE Ecological Scoping Phase One Habitat Survey report of the proposed Lyminster Bypass (south) by WYGE in August 2008.

The aims of the survey were:

- To confirm the presence/absence of reptile species within the area proposed for the Lyminster Bypass (south) on site;
- To give an indication of the species present and a population estimate;
- To provide appropriate mitigation measures where reptiles are found within the development footprint.

1.1 Site Description

The site comprises an area of public horticultural nursery; public allotment and sheep grazed fields. Fairhaven Nursery located in the north is divided from the south of the site by a railway line that runs east-west. The area of the site is approximately 8.5ha, however the area of the site supporting suitable reptile habitat is 3 ha. The full extent of the survey area is provided in Appendix B. Habitats in these areas include: scrub and field margin vegetation and semi-improved grassland including horse paddocks and sheep grazed fields.

The areas previously identified as being of potential reptile interest lie within Fairhaven Nursery- along the western limit of the site; within the sheep grazed fields to the south of the Nursery and within the eastern margin of Worthing Road allotments. The survey area comprised approximately 8.5ha of land, however the area deemed suitable for reptiles was.



The proposed development on site consists of the construction of residential and commercial properties, and a train station following the clearance of existing buildings, allotments, some trees, scrub and grassland.

1.2 Report Conditions

For a detailed review of the extent and limitations of this report, attention is drawn to the report conditions in Appendix A plus those detailed in the original accepted services offer letter.



2.0 CONSULTATION

2.1 Sussex Biodiversity Records Centre (SxBRC)

As part of the original extended Phase I habitat survey, Sussex Biodiversity Records Centre (SxBRC) were consulted to obtain all records of notable and protected species including reptiles within 2km of the site.

SxBRC records indicated the presence of two of the six of the UK's reptile species within 2km of the site: slow-worm (*Anguis fragilis*), and grass snake (*Natrix natrix*).

One record of a slow worm is less than 500m to the north west of the site; additionally the closest record of a grass snake was made approximately 100m to the west of the development site.

Common lizards have also been observed within the development site in the past at the Worthing Road allotment and within the horse grazed paddock in the northern limit of the sheep grazed fields (pers. comm. local allotment residents and current tenants). Furthermore, slow worms have also been observed within the allotment areas within compost heaps and within the sheep grazed fields (pers. com. local allotment residents and current tenants).

Full records are located in Appendix C.



3.0 METHODOLOGY

The method used was that prescribed by Gent and Gibson (2003) for carrying out a presence / absence survey for reptiles and guidance was also taken from the Froglife Advisory Sheet No 10 Reptile Survey (Froglife, 1999).

The survey was based on the following methods:

- *Direct Observation* – Whilst carrying out a walkover survey, locations of basking animals were noted and mapped indicatively. This method is especially important for grass snakes as they generally bask close to their winter hibernacula. Further the only reliable way of surveying sand lizards (*Lacerta agilis*) is by observing them whilst they are basking. sand lizards tend to bask along path edges, on open areas on banks, or within gaps in the vegetation or in the vegetation itself.
- *Refugia Searches* – Any suitable naturally occurring refugia was carefully searched especially log-piles, rubble and discarded palettes or old carpets. In-situ refugia on site were only mapped if reptiles were found using them during the survey period.
- *Mats* – Artificial refugia were placed in suitable reptile habitat within rough grassland and at the edges of scrub vegetation.

The recommended density of artificial refuges is approximately 10 mats per hectare of suitable habitat (Froglife, 1999). Artificial refuges were positioned throughout the site at a density of 10 mats per hectare of suitable habitat in September 2008. A total of 51 mats were laid throughout the site (refer to Drawing A044029/RepArea6, Appendix B for locations of the mats).

Seven reptile survey visits were undertaken between the 1st and 23rd of October 2008.



3.1 Constraints

The optimal survey period for reptiles is between March and May and in September. October is considered sub-optimal survey periods. All seven reptile surveys at the site were undertaken within October.

Towards the end of October 2008, the temperature became slightly cooler and there was a limited survey window for reptiles. No reptiles were recorded towards the end of the month where they had previously been before. This suggests that the survey conditions were sub-optimal and therefore this needs to be considered when assessing the size of the reptile population and the possible mitigation measures.

Furthermore, there was high disturbance at the site. The grass field in the Fairhaven Nursery area was cut following the placement of refugia at the site which also resulted in the creation of less favourable habitat for reptiles. Similarly, within the fields and allotments the mats were often disturbed by grazing sheep and horses and by human disturbance respectively. It should be noted that this disturbance is regular within these areas and these activities may reduce the overall carrying capacity of the habitats and reduce the reptile population on site.

In the event that the reptile populations on site are greater than that recorded, mitigation measures should accommodate any population discrepancies brought about by these survey constraints.



3.2 Analysis

Analysis of the results follows the guidelines set out in the Froglife (1999) document and in Table 1 below. This enables a broad assessment of the size of the reptile population at each location and assesses the areas in relation to the criteria used to select Key National Reptile Sites.

Table 1. Key Reptile Sites criteria

	LOW POPULATION SCORE 1	GOOD POPULATION SCORE 2	EXCEPTIONAL POPULATION SCORE 3
ADDER	< 5	5 - 10	> 10
GRASS SNAKE	< 5	5 - 10	> 10
COMMON LIZARD	< 5	5 - 20	> 20
SLOW WORM	< 5	5 - 20	> 20

N.B. Figures in the table refer to maximum number of adults seen by observation and/or under tins/mats, placed at a density of 10 per hectare, by one person in one day.



4.0 RESULTS

4.1 Summary of Results

Two of the six UK native reptiles were recorded on site; these were slow worm and common lizard. Reptiles were only recorded during four of the seven visits - no reptiles were observed on the remaining three visits.

Whilst a maximum of four common lizards and four slow worms were recorded on any one site visit, these were predominantly juveniles. Only one adult slow worm and one adult common lizard were recorded on any one day during the survey. The majority of the reptiles were recorded along the allotment/sheep grazed field boundary (see figure A044029/rep1 for locations of reptiles).

Tables 2 and 3 below display the survey conditions and details of the results observed.

Table 2 - Survey dates and weather conditions

Visit Number	Date	Time	Weather Conditions (Temperature)
	24/09/2008	Mats initially placed	
1	01/10/2008	13.00-14.00	Cloud clearing. Air temp; 13.1 °C, ground temp 15.5-16.0 °C.
2	08/10/2008	9.00-10.00	Clear day. Air temp; 11.2-14.2, ground temp; 11.3-13.0
3	11/10/2008	12.00-13.00	Part cloudy, Air temp; 17.4-18.2 °C and ground temp; 14.0°C.
4	14/10/2008	13.15-14.00	Overcast. Air temp; 15.7-15.8°C; ground temp 13.9 °C.
5	16/10/2008	11.30-11.45	Bright, clear day. Air temp 14.0-14.2°C, ground temp 13.8°C.
6	21/10/2008	11.30-12.00	Blue skies with cloud, sunny but with a cold breeze. Air temp 11.1-13.4°C and 12.5-13.4°C.
7	23/10/2008	12.30-13.15	Overcast but clearing with the sun breaking through, breezy. Air temp 15.0°C; ground temp 14.3°C.



Table 3 - Reptile survey results:

Visit Number	Date	Location/Mat No.	Species	No.	Activity ¹	Stage ²
1	1 st October 2008	21	Common lizard	2	RS	AF/JU
1	1 st October 2008	24	Common lizard	2	RS	IU/JU
1	1 st October 2008	39	Slow worm	1	AF	RS
2	8 th October 2008	24	Common lizard	1	RS	JU
3	11 th October 2008	24	Slow worm	2	RS	IU
3	11 th October 2008	26	Slow worm	1	RS	JU
3	11 th October 2008	26	Slow worm	1	RS	JU
4	14 th October 2008	n/a	-	-	-	-
5	16 th October 2008	24	Slow worm	1	RS	JU
5	16 th October 2008	26	Slow worm	1	RS	JU
6	21 st October 2008	n/a	-	-	-	-
7	23 rd October 2008	n/a	-	-	-	-

¹ RS resting; B breeding behaviour; A active; H hibernating AF adult female AU adult unsexed
IM immature male L larvae IF immature females IU immature unsexed J juveniles ES
eggs/spawn

²



5.0 CONCLUSION

Two of the six UK native reptiles were recorded on site during the reptile presence/absence survey, namely slow worm and common lizard. Reptiles were only recorded during four of the seven visits - no reptiles were observed on the remaining three visits.

Low populations of common lizard and slow worms were recorded on site during the survey, with a maximum of one adult common lizard and one adult slow worm recorded during any one survey visit. In addition, juveniles of both slow worm and common lizard were recorded; indicating good recruitment and the presence of a successful breeding population.

The majority of the reptiles encountered during the survey were located under mats within the sheep grazed fields, along the southern eastern boundary of the site. Only one adult slow worm was recorded within the grounds of Fairhaven Nursery, to the north of the site, during the first visit. No reptiles were recorded in the allotments area, however it had been reported that slow worms had been observed in compost heaps by local residents.

It is likely that observed disturbance on the site may have affected reptile presence, and that the site has the capacity to support a higher number of both common lizard and slow worms than that recorded. This disturbance was in the form of grass cutting at Fairhaven Nursery, and general disturbance caused by grazing sheep and horses at the sheep grazed fields and by human disturbance at the allotments. However, it should be noted this disturbance is regular within these areas and these activities may reduce the overall carrying capacity of these habitats leading to a reduced reptile population at the site.

Additionally, it is recognised that the survey was undertaken late in the season, and that on occasion the weather conditions were suboptimal to observe reptile activity. During the last two surveys at the site the temperature had fallen and no reptiles were recorded where previously they had been. This suggests that the survey conditions were sub-optimal and therefore this needs

to be considered when assessing the size of the reptile populations and possible mitigation measures.



6.0 RECOMMENDATIONS

The survey results indicate a Low population of slow worms and common lizards, however due to the disturbance present at the site and the sub-optimal conditions towards the end of the reptile survey these results should be interpreted with caution as it is possible that a higher population of reptiles are present.

This area of land will be affected by the proposed development. No further survey work is required, but appropriate mitigation measures and associated survey work will be necessary. To avoid breaching the Wildlife and Countryside Act, 1981 (as amended) by killing or injuring reptiles, reptiles will need to be removed from the development footprint prior to any works commencing by means of a translocation strategy.

A reptile mitigation report will be required prior to the construction commencing at the site when full development phases and extent are fully confirmed to ensure full protection is given to reptiles. The reptile mitigation report will include a sympathetic mitigation approach in order to protect reptiles such as the erection of reptile fencing to ensure that the relevant wildlife protection legislation is complied with. Reptile mitigation will involve the installation of reptile-proof fencing around the on-site habitat known to support reptiles, trapping any reptiles and moving them to a safe receptor location, either on site or off site.



7.0 DOCUMENTS CONSULTED

- Arnold & Ovenden (2002) A Field Guide to the Reptiles and Amphibians of Britain and Europe. HarperCollins, London.
- Office of the Deputy Prime Minister (August 2005). Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS 9). H.M.S.O., London.
- Froglife (1999) Reptile Survey: Planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.
- Herpetofauna Groups of Britain and Ireland (1998) Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards. HGBI advisory notes to for Amphibian and Reptile Groups (ARGs). HGBI, c/o Froglife, Halesworth. Unpubl.
- Joint Nature Conservation Committee (1998) Herpetofauna Worker Manual, JNCC, Peterborough.
- Wildlife and Countryside Act 1981. H.M.S.O., London.
- WYGE Phase 1 Ecological Scoping Survey Report- Areas 2 and 6



Appendices

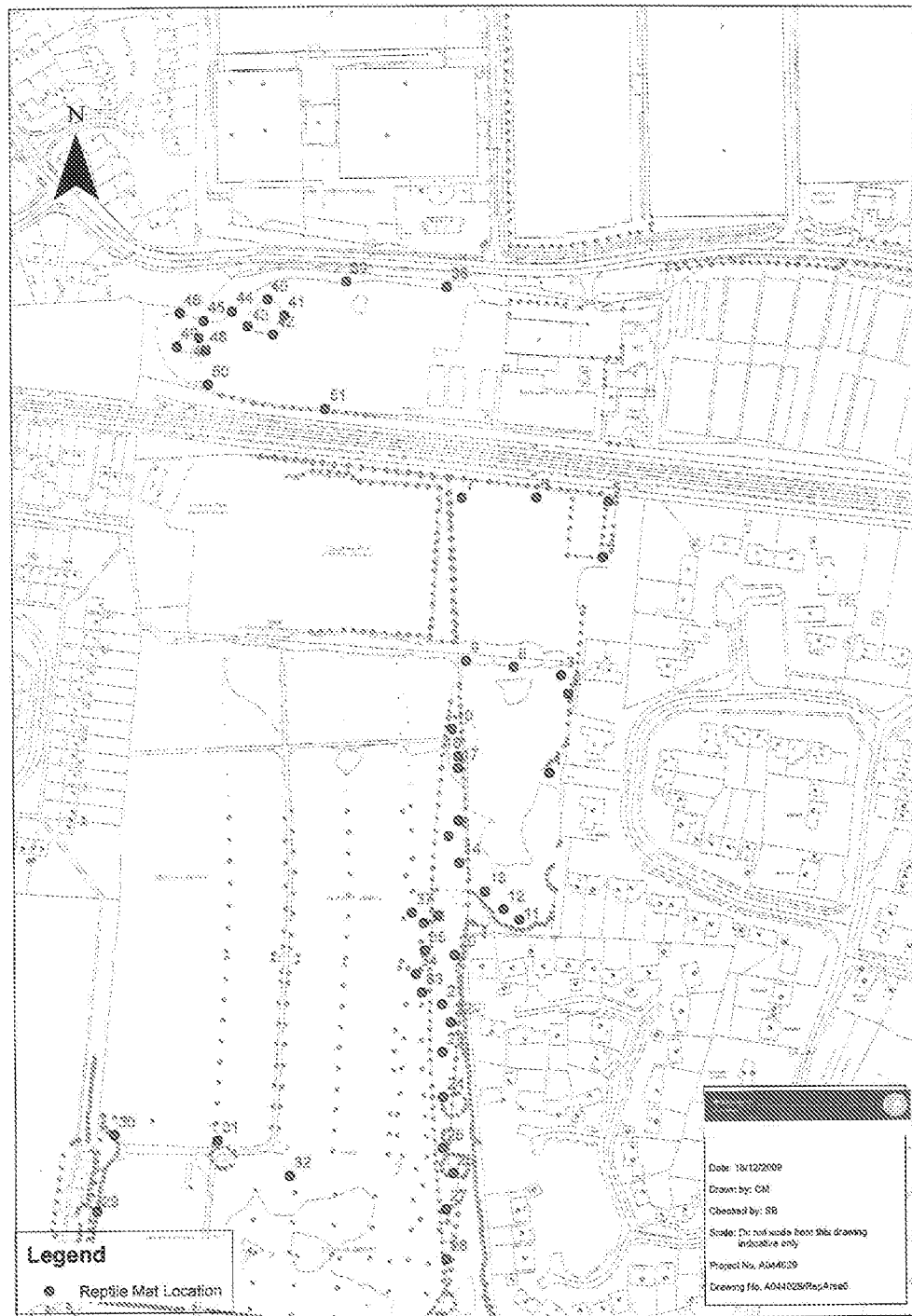
C1 - REPORT CONDITIONS

Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of the workmanship and compliance with the specifications on site during construction. WYGE accept no liability for issues with performance arising from such factors.

WYG Environment Planning Transport Ltd.

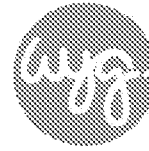
North Littlehampton Proposed Lyminster Bypass (south) Reptile Survey Report





Extent of Survey Area

North Littlehampton Proposed Lyminster Bypass (south) Reptile Survey Report



AU44029

Reptile and amphibian records from Sussex Biodiversity Records Centre



Mompha lacteella

An SxRSI species MICROMOTH

Grid Reference	Recorder	Date	Locality
TQ00M	Mark Parsons	1725-1970	Poling, West Sussex

Satyrrium w-album

White Letter Hairstreak

A butterfly with elm-feeding larvae that declined dramatically after Dutch elm disease. Recorded from 17 1km squares since 2000, mostly near the Downs in East and West Sussex.

An RSI and PSR species BUTTERFLY

Nationally Notable

Grid Reference	Recorder	Date	Locality
TQ00L	BBCS British Butterfly Con. Soc.	1996-2000	West Sussex

Hemaris fuciformis

Broad-Bordered Bee Hawk

A day flying nationally scarce (b) species resembling a bee. It is found in deciduous woods in southern England and south Wales with the Brecks of East Anglia being a stronghold. In Sussex it occurs in three areas - the north west, the far east and the area around Vert Wood and Laughton in East Sussex. Caterpillars feed on Honeysuckle.

An SxRSI species MACROMOTH

Nationally Notable A

Grid Reference	Recorder	Date	Locality
TQ030026	Houghton	11/07/2003	70 Cornwall Road, Littlehampton, West Sussex

Anguis fragilis

Slow-Worm

A legally protected legless lizard resembling a small snake. Slow-worms are widespread in southern England and found in open habitats such as rough grassland, heath and on road and railway embankments. They are often common in urban and suburban areas. Like most reptiles and amphibians they have declined considerably and need protection wherever they occur.

REPTILE

UK BAP Priority Species/W&CA Sch 5 Sec 9.1 (killing/injuring)/Wildlife & Countryside Act Sch5 Sec 9.5a/Wildlife & Countryside Act Sch5 Sec 9.5b

Grid Reference	Recorder	Date	Locality
TQ0102	SAR6 Sussex Amphibian & Reptile Grp	19/07/1996	Littlehampton By-Pass, West Sussex
TQ020027	Barry Kemp	25/06/2003	Lineside Way Industrial Park, Littlehampton, Littlehampton CP
TQ026042	SAR6 Sussex Amphibian & Reptile Grp	17/04/1986	Lyminster (Nr. Pub), West Sussex
TQ029061	Dennis Dey	01/01/1993	Convent Of Poor Clares, Arundel, West Sussex
TQ0502	Dennis Dey	01/01/1993	56b Ash Lane, Rustington, West Sussex

North Littlehampton Proposed Lyminster Bypass (south) Reptile Survey Report



Natrix natrix

Grass Snake

A widespread, but legally protected, snake with a normally olive body flecked with black and a distinctive yellow collar. Frequent in Sussex near places where its food, largely frogs, is readily available. Like most reptiles and amphibians, grass snakes have declined considerably and need protection wherever they occur.

REPTILE

UK BAP Priority Species

Grid Reference	Recorder	Date	Locality
TQ012067	SARG Sussex Amphibian & Reptile Grp	2002	West Sussex
TQ028038	Dennis Dey	01/01/1991	Sandfield House, Lyminster, West Sussex
TQ030063	Dennis Dey	01/01/1993	Convent of Poor Clares, Arundel, West Sussex
TQ0506	Dennis Dey	14/08/1993	Wepham Woods, West Sussex

Myotis mystacinus

Whiskered Bat

Very similar to Brandt's bat, *Myotis brandtii*, and only separated from that species in 1970. On average not quite as large and with small anatomical differences. Summer roosts are mainly in buildings and trees, while winter roosts, so far as has been established, are in tunnels and caves. Though somewhat scarcer than Brandt's bat, the whiskered bat is found throughout the British Isles apart from central and northern Scotland. The majority of records from our area are from West Sussex, with a few from East Sussex.

Like all bats, a legally protected species and listed on the Sussex Rare Species Inventory.

BAT

Grid Reference	Recorder	Date	Locality
TQ042062	Frank Greenaway	24/07/2006	Poling Copse, Poling Copse, Arundel

Myotis nattereri

Natterer's Bat

A medium-sized, long-eared bat of open woodland, wood pasture and mixed farmland, often flying near water. In summer it roosts in old buildings, barns and hollow trees and it hibernates in caves, mines and other underground places.

Found throughout much of the British Isles, but generally scarce. The UK population of Natterer's bats is probably of international importance (Roberts & Hutson, c. 1994) and it is widespread in Sussex. Like all bats, a legally protected species

BAT

Grid Reference	Recorder	Date	Locality
TQ042062	Frank Greenaway	24/07/2006	Poling Copse, Poling Copse, Arundel

Pipistrellus pipistrellus 45kHz

45 KHz Pipistrelle

Pipistrelles are often recorded as either 45 kHz or 55 kHz depending on the pitch of the echolocation calls picked up by bat detectors. Bats in this 45 kHz category are now simply *Pipistrellus pipistrellus* with the 55 kHz becoming *P. pygmaeus*. Pipistrelles are the commonest bats in the British Isles and are found in all types of countryside, except very exposed areas, as well as in towns and suburbs. Summer roosts are usually in buildings, though tree holes and bat boxes are also used. Winter roosts are in buildings, tree holes and caves.

BAT

Grid Reference	Recorder	Date	Locality
TQ054031	Recorder @ Sussex Bat Group	24/05/1998	12 Wallace Road, Rustington, West Sussex

- 2 Confidential records exist for this enquiry area. Please contact the record centre if you require further information.

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A044029



Photo 1: Field within Fairhaven Nursery- only one slow worm was observed at this area of the site.



Photo 2: Eastern limit of allotment/ western limit of sheep grazed fields. Numerous slow worms and common lizards were recorded here.



Photo 3: Tall herb within sheep grazed fields- occasional reptile presence here.

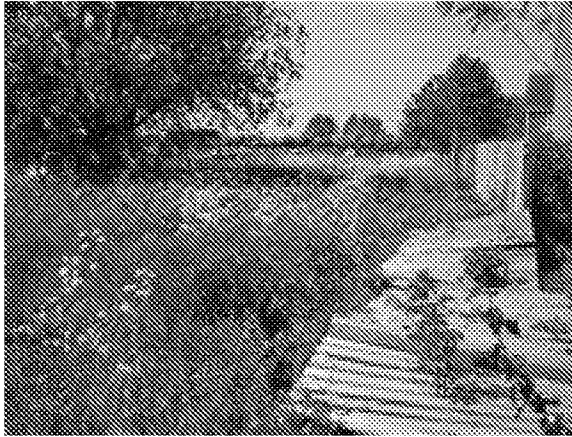


Photo 4: Eastern boundary of the sheep grazed fields.



REPTILE ECOLOGY

Six native species of reptile occur in Britain. One snake (smooth snake *Coronella austriaca*) and one lizard (sand lizard *Lacerta agilis*) are considered rare; the others being relatively widespread, although there is a distinct southern bias in reptile distribution within Britain. Nomenclature utilised in this report (including vernacular names) for reptiles follows that in Arnold and Ovenden (2002).

Reptiles will generally occupy a variety of habitats, although they occur most frequently in grassland, moor, heathland and sparsely vegetated areas.

Important components of the habitat are the places where they can seek refuge, for example log-piles, builder's rubble, old carpets etc. These refugia should also be close to an area where reptiles can bask in the sun, as these species are thermophilic (heat loving) and their body temperatures reflect that of their surroundings. South to south-west facing slopes with open, sparse, as well as tussocky, vegetation provide ideal conditions.

Consequently, reptiles tend to be more abundant in southern England and in habitats that warm up rapidly in the sun. All British reptile species hibernate from late autumn to early spring, emerging when temperatures are sufficiently warm. During the early part of the day and especially after periods of wet weather, reptiles will spend much of their time basking.

The slow-worm (*Anguis fragilis*) is probably the most commonly encountered British reptile. It is often found in gardens and is widespread throughout the British Isles. This species prefers to raise its body temperature by warming itself from under stones, logs or piece of discarded rubbish such as a sheet of corrugated iron or wood, which when exposed to the sun warm rapidly. Its appearance is always shiny, the males are grey, and the females brown with dark sides and a thin line down the back. Slow-worms give birth to live young in September. The young are very thin, about 4cm long with black bellies and gold or silver backs with a thin black line down the middle.

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A044029

All British reptiles receive protection under the Wildlife and Countryside Act 1981 (as amended). The four more common species of reptile; the common lizard, the grass snake, the slow worm and the adder receive protection from Section 9(1) and all of Section 9(5) of the Wildlife and Countryside Act, 1981 (as amended), which makes it an offence to intentionally kill or injure an animal or sold or traded in any way.

In addition to the above, the two rare species of British reptile, the smooth snake and the sand lizard are listed in Schedule 5 of the Wildlife and Countryside Act, 1981 (as amended) and under Annexe IV of the Conservation of Natural Habitats and of Wild Fauna and Flora Directive, 1992 ('the Habitats Directive') as a European protected species.

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A044029