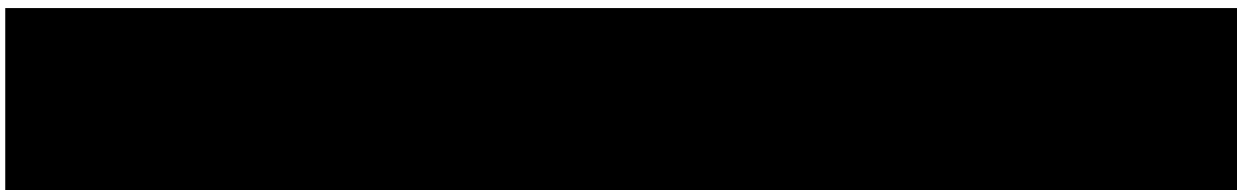




ENVIRONMENTAL CONSULTANTS

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Reptile Presence/Absence Survey Report

Land north of Mayflower Way, Angmering

Author: Sam Lunn, MSc, ACIEEM

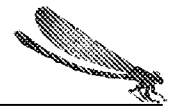
Reviewed by: Dan Bennett, BSc, MCIEEM

6th October 2017

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Issue No	Issue Date	Additions/Alterations	Initials	Notes
1.0	06/10/17	Original report	SL	
2.0	06/03/19	Updated site and layout plan	SL	



Report Summary

1. Suitable habitat for reptiles was identified during a Preliminary Ecological Appraisal that was undertaken by the Ecology Co-op in August 2017 and subsequently a reptile presence/absence survey was carried out between 31st August and 5th October 2017 on land north of Mayflower Way in Angmering, to ascertain what, if any, reptile species are present. This survey has been carried out further to a proposal to construct 24 residential units.
2. These surveys were undertaken by Hamish Muirden, a graduate member of the Chartered Institute for Ecology and Environmental Management (CIEEM).
3. The site is situated to the south of Angmering and north of the A259. The area of land surveyed is approximately 0.8 hectares and consists of ephemeral/ short perennials growing on bare ground and hard standing with mixed parkland/scattered trees and species poor hedgerow along the boundaries.
4. The survey was carried out by placing 12 artificial refugia in suitable areas across the site. A total of seven surveys were undertaken and the highest count of reptiles from these visits were used to estimate the population of each reptile species on the site as low, medium or exceptional.
5. During the seven surveys a peak count of 2 slow worms was recorded, indicating that the site supports a low population of this species.
6. Under the current proposals and in the absence of mitigation, there would be a negative impact on reptiles that is significant at a local level. To mitigate for the impact to the reptile population, an area of open green space indicated in the proposed landscape plans provided by Crossley Design Architecture (see Figure 2), will be seeded with a tussocky grassland mixture to create an on-site receptor area for the small population of slow worms currently present. This will provide a net gain in important habitat for reptiles and will have a positive impact on reptiles that is significant at a local level if successfully implemented.
7. Opportunities exist to enhance the on-site receptor area further through the creation of two hibernacula to provide additional shelter and foraging opportunities for reptiles.

This report has been prepared by The Ecology Co-operation Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client. This report only becomes the property of the client once payment for it has been received in full.

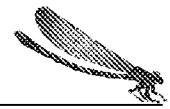
We disclaim responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.



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1 INTRODUCTION

1.1 Purpose of the Report

This report provides details of a reptile presence / absence survey carried out by Sam Lunn, an associate member of the Chartered Institute of Ecology and Environmental Management and Hamish Muirden gradCIEEM, on land north of Mayflower Way, Angmering. The grid reference for this site is TQ072033.

The objective of the survey is to identify the presence or likely absence of reptile species at the Mayflower Way site, determine approximate populations and provide mitigation advice should it be necessary.

This survey and report was carried out and produced at the request of Crayfern Homes Ltd.

1.2 Background

The Ecology Co-operation was commissioned to undertake a reptile survey after potential habitat was identified during a Preliminary Ecological Appraisal undertaken by The Ecology Co-operation in August 2017. Biodiversity records provided by the Sussex Biodiversity Records Centre (SxBRC), further provided a single record for slow worm, grass snake and common lizard, with the most recent record from 1996.

The assessment was carried out further to a proposal to construct a new residential development on the land north of Mayflower Way, Angmering (Figure 2).

1.3 Site Description

The site is situated to the south of Angmering and north of the A259 (see Figure 1). The area of land surveyed is approximately 0.8 hectares and consists of ephemeral / short perennials growing on bare ground and hard standing with mixed parkland/scattered trees and species-poor hedgerow along the boundaries.

Most of the site is comprised of ephemeral / short perennial on disturbed land (see Figure 3) and is dominated by bristly ox tongue *Helminthotheca echioides* and thistles *Asteraceae spp.*. Other species present include buddleja, sea mayweed *Tripleurospermum maritimum*, willowherb *Epilobium sp.*, fleabane *Pulicaria dysenterica*, common nettle *Urtica dioica*, field bindweed *Convolvulus arvensis*, smooth cat's ear *Hypochaeris glabra*, common ragwort *Jacobaea vulgaris*, spearmint *Mentha spicata*, bird's foot trefoil *Lotus corniculatus*, lesser burdock *Arctium minus*, hogweed *Heracleum sphondylium*, early forget-me-not *Myosotis ramosissima*, creeping cinquefoil *Potentilla reptans*, verbena *verbena bonariensis*, teasel *Dipsacus sp.*, ribwort plantain *Plantago lanceolata* and cowslip *Primula veris*.



Figure 1. An aerial image showing the location of the site. The approximate site boundary is outlined in red.

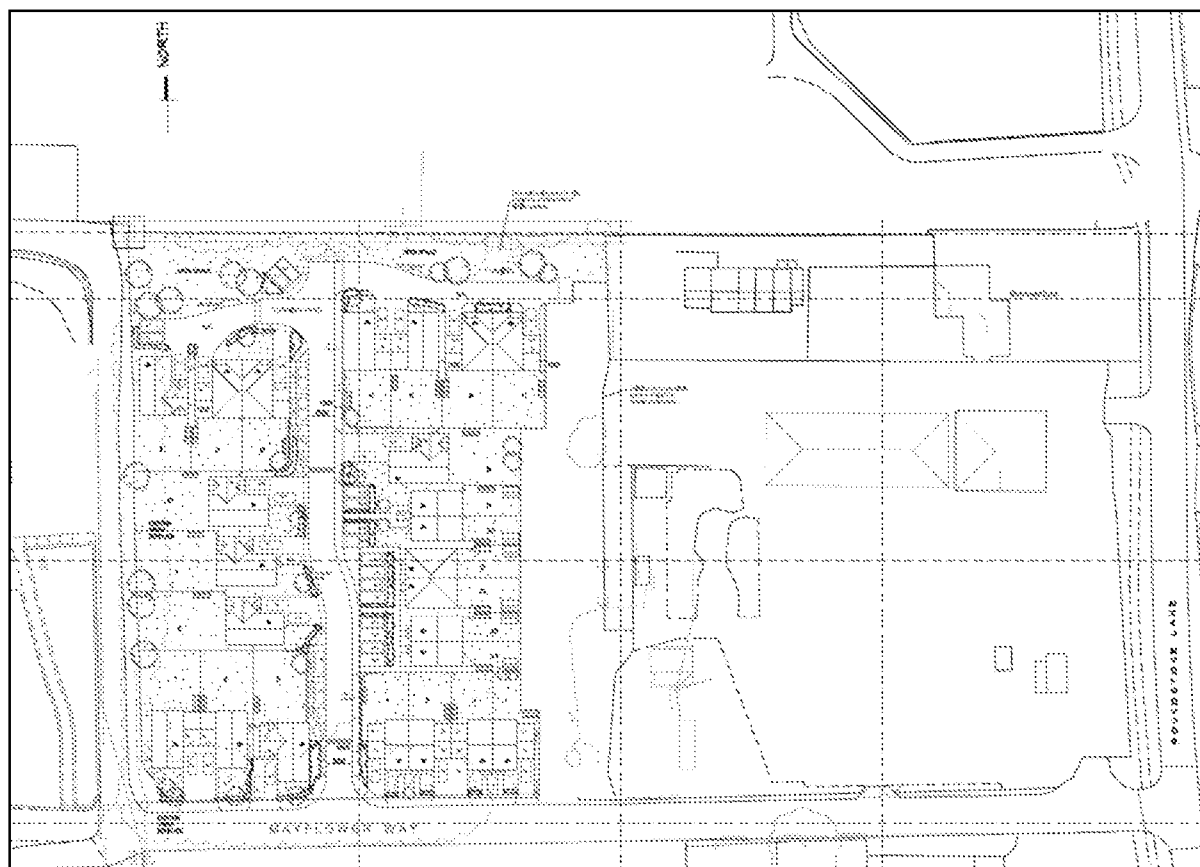


Figure 2. The proposed site plan. Provided by Crossley Design Architecture. Drawing no. 2.10.

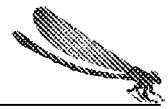


Figure 3. Site dominated by bristly ox tongue and thistles.

1.4 Legal Protection

This section briefly describes the legal protection afforded to reptiles. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation, but summarises the salient points.

Common lizard *Lacerta vivipara*, grass snake *Natrix helvetica*, slow-worm *Anguis fragilis*, and adder *Vipera berus* are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), in respect of Section 9 (5) and part of Section 9(1). This protection was extended by the Countryside and Rights of Way (CROW) Act 2000. Under the legislation it is an offence to:

- Intentionally or deliberately kill or injure any individual of these species; or
- Sell or attempt to sell any part of these species either alive or dead.

2 METHODOLOGY

The survey was carried out by placing artificial refugia around the site, in areas of suitable habitat for reptiles, which heat up in the sun and provide cover. A total of 12 survey sheets were in the long vegetation and scrub across the land north of Mayflower Way in Angmering on the 31st August 2017 and left for a minimum of ten days to 'bed in' before the commencement of the survey. Reptiles are attracted to these refugia to warm up in the mornings and late afternoon to regulate their temperature and a suitably qualified surveyor is able to count the number and in some cases the sex of each species



present. All survey visits were completed within the allocated temperature range stated in the national guidelines (9-18C) and without the influence of rain.

A total of seven surveys are undertaken and the highest count of reptiles from these visits is used to estimate the population of each reptile species on the site as low, medium or exceptional. The survey refugia were placed around the site, focusing on the areas of long vegetation and scrub where they would warm up in the morning or afternoon sun. The coverage of the survey sheets was spaced evenly around the site where possible avoiding areas that would be constantly shaded by trees.



Figure 4. The locations of all 12 reptile refugia placed in suitable habitat for reptiles.

3 RESULTS

Table 1: Results of reptile survey undertaken at Mayflower Way, Angmering. SW – Slow worm, GS – Grass snake, CL – Common Lizard, Juv – Juvenile, SA – Sub adult, F- Female, M – Male.

Date	Start Time of Survey	Air Temp/ Refugia Temp °C	Weather Notes, cc = Cloud cover	Species Total
12/09/2017	09:35	13/17	05% cc, light breeze, sunny	1 x F SW, 1 Juv
14/09/2017	09:25	11/13	80% cc, cloudy	1 x F SW
19/09/2017	15:00	15/18	80% cc, light breeze, sunny	1 x F SW
22/09/2017	09:45	11/16	0% cc, still, sunny	None
26/09/2017	10:00	16/18	80% cc, still, sunny	1 x F SW
02/10/2017	11:30	15/18	60% cc, still, sunny	1 x F SW
05/10/2017	11:40	16.5/24	50% cc, still, sunny	1 x F SW, 1 x M SW

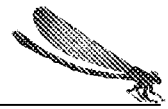


Figure 5 The yellow dot represents the location where all slow worms were found throughout the survey.

3.1 Constraints/Limitations

There were no notable constraints to this survey process.

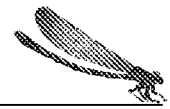
4 IMPACTS AND MITIGATION

A peak count of two adult slow worms were recorded within the site during the survey and all slow worms were found within the south-west corner of the site (Figure 5). Under Froglife guidelines, this suggests a very low population of slow worms are present, given the number found and the limited amount of suitable habitat present within the site.

Under the current proposals and without mitigation, there will be a certain negative impact on reptiles that is significant at a local level.

The proposed plans provided by Crossley Design Architecture (Figure 2) show an area of open space along the north boundary. To mitigate for the impact of the development upon the reptile population, this space will be seeded with a tussocky grassland mixture to create an on-site receptor area for the small population of slow worms currently present. This will provide a net gain in important habitat for reptiles and will have a positive impact on reptiles that is significant at a local level after mitigation.

Opportunities exist to enhance the on-site receptor area further through the creation of two hibernacula to provide additional shelter and foraging opportunities for reptiles.



4.1 Mitigation Measures in detail

4.1.1 On-site receptor area

It is important that the on-site receptor is created prior to any construction works and before any reptile translocation begins. This is due to the low suitability of the habitat in its current state. Steps to follow are detailed below:

- A large part of the site is comprised of bare earth and rubble and therefore in order to convert the receptor area into rough grassland, the designated section in the northern part of the site must be cleared of any rubble materials down to ground level through a destructive search under watching brief by an ecologist. Any reptiles identified during the search will be relocated to the southwest corner where the only reptiles discovered during the reptile survey were found.
- The area should then be fenced off using semi-permanent reptile fencing that encompasses the entire area (see appendix 1 for fencing procedure).
- The soil of the receptor area must be rotovated and seeded with a tussocky grassland mixture such as EM10 from Emorsgate Seeds. This mixture has been devised to create areas of tussocky grassland that, once established, require little or no maintenance.

4.1.2 Reptile fencing

The habitat within the site is comprised of bare earth and a large amount of rubble, often piled up, that has been colonised by ephemeral/short perennial flora. It is unlikely that the entire site, following the boundaries, could be fenced with reptile-proof fencing due to the challenging ground conditions present. Therefore, as three roads surround the site along the west, south and east boundaries, the translocation is proposed to take place using the three roads and the newly fenced receptor area to the north as physical barriers to movement.

4.1.3 Reptile Translocation Strategy

Given the size of the population present, the size of the site and its isolated nature, it has been considered appropriate to have a target total of 30 translocation visits, which would be made from no earlier than mid-March with 'refugia' (in this case bitumen and corrugated metal sheets) placed at a density of 100 per hectare in line with national guidelines (Gent and Gibson, 1998). Translocation visits will be undertaken as long as the air temperature is between 9 degrees and 18 degrees in the morning or mid-afternoon in the absence of wet or very windy weather. Multiple visits can be made during suitable weather conditions on a single day, as long as they are spaced apart by at least 1 hour. All captured reptiles will be placed into a large smooth-sided bucket with some green hay at the bottom and then released within one hour to the on-site receptor site.

All translocation data will be presented within a report that is provided to both the council and Crayfern Homes.

The translocation process will have a target of 30 trapping visits, though the translocation effort will only be ceased once at least 10 visits in suitable weather conditions are made without identifying any reptile presence within the construction zone. Whilst the construction zone will be declared free of reptiles following 10 clear consecutive visits, an ecologist would still be present during the initial construction



phases to undertake a 'watching brief' of all initial ground works with construction halted if any reptiles are identified within the construction zone. Site staff would be briefed prior to the commencement of construction on the importance of protecting the reptile fencing and contacting an ecologist in the event that any reptiles or other wildlife is identified within the construction zone.

4.2 Reptile enhancements

The creation of the tussocky grassland on-site receptor area will increase the amount of suitable habitat at the site for reptiles. In order to enhance this further two hibernacula will be established.

These can be built using logs and branches, piled on top of each other, with grass cuttings, earth and turf laid over the top to provide insulation (see Figure 6). These hibernacula would also provide benefits for other species including solitary bees, wasps and other insects.

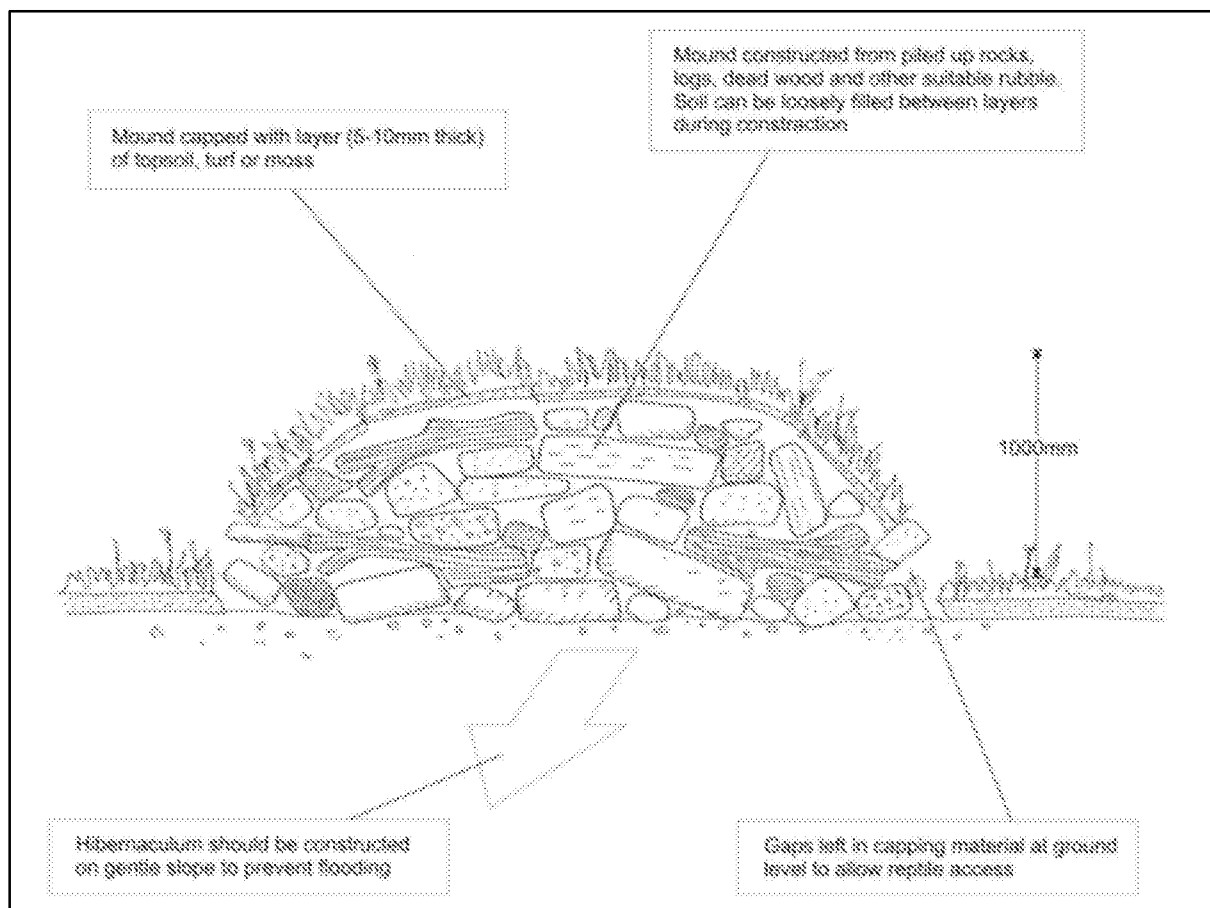
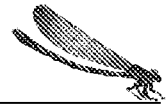


Figure 6. A diagram of a reptile hibernaculum. Taken from a reptile report for Exmoor National Park (www.exmoor-nationalpark.gov.uk).

Should you need any further advice on the information provided above, please do not hesitate to contact the Ecology Co-op.



5 Appendix 1 – Reptile fencing

A temporary fencing material will be installed to a depth of not less than 20cm below ground and supported by stakes every 2.5 metres fixed with clout nails and washers (Fig. 7). The fencing will be backfilled with earth and tightly compacted to make sure that it acts as an impassable barrier.



Figure 7 – an example of the temporary fencing material that will be used.

The reptile fencing would be required to make a continuous fence line to envelop all of the on-site receptor area and would need to remain in-situ until all construction work deemed a risk to reptiles has been completed – i.e. earthworks and associated landscaping. This will prevent any animals from the surrounding areas to migrate onto the site during works. Figure 7 below shows the proposed route of the reptile fence upon the Mayflower Way development site.

Construction method:

1. At least 24 hours prior to the construction of the reptile fence, the fence route would be strimmed (using brush-cutters where necessary) of vegetation to a height of not more than 5cm and a two metre width, with all cuttings raked off and removed. This will ensure that reptiles are discouraged from the fencing construction zone. The strimming process will be completed in two passes, with the grass cut to a height of 10-15cm on the first pass, to reduce the risk of harming reptiles during the strimming process. The strimming process will be overseen by a suitably qualified ecologist who will also conduct a thorough hand search prior to strimming.
2. The managed construction zone will not be allowed to grow taller than 5cm prior to the construction of the fence and materials will not be stored along the fencing route, which could otherwise attract reptiles to them as refugia.



3. The entire length of the fence will first be established by excavating a 20cm wide and 20cm deep trench, overseen under watching brief by a suitably qualified ecologist. Excavated earth will be piled on the outside edge of the trench so that it is easily backfilled once the fence has been installed.
4. Excavation work for the fencing trench will be carried out by an excavator not larger than 0.8 tons in weight to minimize ground disturbance.
5. Fence stakes will be positioned every 2.5 metres and will be sunk into the ground to a depth of at least 30cm to ensure that they are secure.
6. The fencing material will be rolled out along the outside edge of the trench and will be lifted into place when each full roll has been unraveled or cut into manageable sections.
7. The fencing sheet will be attached to the stakes using 2 clout nails and plastic washers at the top and 15cm from the bottom of each stake.
8. Once fixed the excavated earth will be backfilled along the trench and trodden in to ensure that it is lightly compacted to prevent animals from digging into it.
9. After establishment, reptile fence checks would be undertaken every week to look for any signs of damage. Once construction has commenced, the fence checks and maintenance will become the responsibility of the works contractor.

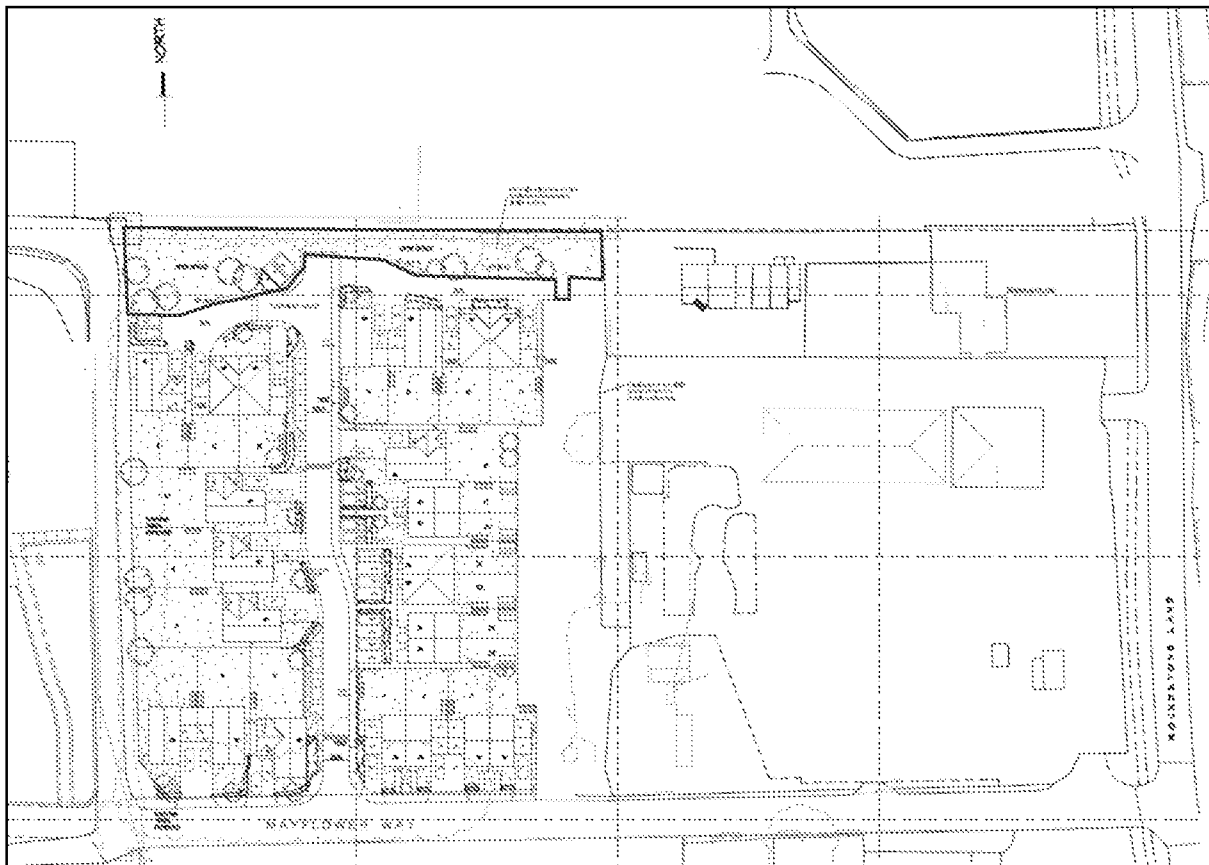


Figure 8 – The proposed reptile fencing route in purple.