

Camberwell New Cemetery Area B

Reptile survey

For the

London Borough of Southwark

May 2016



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1. EXECUTIVE SUMMARY

1.1 BACKGROUND

It is proposed to develop land at Area B, Camberwell New Cemetery, Brenchley Gardens, London hereafter referred to as the site for use as a cemetery as part of a 'Cemetery Strategy'. A burial ground accommodating c. 1200 burial spaces with associated hard and soft landscaping is proposed, with the current preferred option (Option 04) consisting of the excavation of contaminated fill and the replacement of 'clean soil', relocation of the car park to the west of the site and the creation of a secondary pedestrian entrance. The development includes for habitat retention and compensatory habitat creation to ensure that the key existing site habitats are safeguarded or else re-created.

It should, however, be noted that there are three other potential development options for the site (Options 01, 02 and 03). The option described in this report and upon which this report's conclusions and recommendations are made is referred to as the preferred option (Option 04).

1.2 REPTILES

Two British reptile species have been encountered within the proposed development site, namely common lizard and slow worm. It also cannot be discounted that individual grass snakes may frequent the site at least on occasion.

Common reptiles are protected under national wildlife legislation (the Wildlife & Countryside Act, 1981, as amended) from intentional killing or injury and are also listed as National BAP priority species. Site clearance, construction and / or development works within the areas where reptiles have been found to be present and other suitable reptile habitats across the site, without mitigation, could result in the intentional killing and injury of reptiles.

Given that intentional killing or injuring reptiles would be an offence under national wildlife law, a reptile mitigation strategy would need to be prepared to ensure that the works proceed lawfully. Further details are provided in the main text of this report.

2. INTRODUCTION

2.1 DEVELOPMENT BACKGROUND

It is proposed to develop land at Area B, Camberwell New Cemetery, Brenchley Gardens, London hereafter referred to as the site for use as a cemetery as part of a 'Cemetery Strategy'. A burial ground accommodating c. 1200 burial spaces with associated hard and soft landscaping is proposed, with the current preferred option (Option 04) consisting of:

- the excavation of contaminated fill and the replacement of 'clean soil'
- relocation of the car park to the west of the site
- relocation of the maintenance compound to the north-western section
- blocking off of the secondary access with screen planting
- creation of a garden / mausoleum space towards southern boundary
- the creation of a pedestrian footpath along the eastern edge of the new area , from car park through the cemetery to the sports ground
- proposed swales with bridges

The development includes for habitat retention and compensatory habitat creation to ensure that the key existing site habitats are safeguarded or else re-created. These measures are summarised as follows:

- Compensatory hedge, shrub and scrub planting along the site's boundaries that will provide year round interest.
- Additional native tree planting to complement existing species at the site.
- Creation of a number of long, 300 mm deep, grass lined swales approximately 1.5-2 m wide.
- The creation of a garden / mausoleum space adjacent to the southern site boundary.
- Retention of as many trees as possible across the site, including the woodland strip running along the northern site boundary.

It should, however, be noted that there are three other potential development options for the site (Options 01, 02 and 03). The option described in this report and upon which this report's conclusions and recommendations are made is referred to as the preferred option (Option 04).

2.2 SURVEY OBJECTIVES

The main objectives of the reptile presence / absence survey work were to:

- determine the presence or likely absence of reptiles at the site;
- identify any legal and planning policy constraints relevant to reptiles which may affect the proposed development; and,
- determine the need for further survey work and inform any necessary mitigation and enhancement opportunities for reptiles.

3. REPTILES

3.1 METHODOLOGY

Seven separate visits to the site were carried out to assess the presence / likely absence of reptiles. As per published guidance (Froglife, 1999; Gent & Gibson, 2003; HGBI, 1998) and accepted professional reptile survey protocol, two survey methods were used:

- checking artificial refugia
- a visual search for basking reptiles

3.2 REFUGIA CHECK

On 24th February 2016, 109no. artificial refugia were deployed in suitable locations throughout the site. The refugia constituted 0.5m x 0.5m and 1.0m x 0.5m pieces of roofing felt. Refugia were laid out with the black-surface uppermost and placed such that they were in contact with the ground and/or vegetation beneath.

The total area of the suitable reptile habitat throughout which the refugia were distributed is approximately 0.85 hectares. Therefore, the average refugia density approx. 128 refugia / hectare) is above the typical refugia density (a minimum of 50 refugia / hectare) used for reptile presence / absence surveying.

The location of each artificial refuge was recorded on a map of the surveyed areas (see Appendix 1). The refugia were subsequently left in place for approximately 5 weeks before the first of the survey visits was undertaken. Thereafter, the refugia were checked for reptiles either basking on top or concealed beneath them. Refugia checks took place during seven separate survey visits between 30th March 2016 and 16th May 2016 during appropriate weather conditions (see Appendix 2).

3.3 VISUAL SEARCH

During each of the seven survey visits suitable reptile habitat within the areas was also subject to a systematic search for basking reptiles.

3.4 LIMITATIONS

The surveys were carried out between 30th March 2016 and 16th May 2016, which is considered to effectively fall within the first recommended survey window (i.e. April – June [English Nature, 2004]). During these months reptiles spend most time basking and are thus more likely to be encountered.

Early on in the surveys it was noticed that the site was being used by vehicles and labourers during some fence repair work. The use of suitable reptile habitats by vehicles could not only have posed a direct risk of injury to reptiles but also could have dissuaded reptile individuals from using the refugia in these areas. The project team was alerted to these concerns and advice as to how to avoid harm to reptiles was provided.

Further, it was observed mid-way through the surveys that the site was frequented by crows and rooks which would attempt to turn over refugia in more exposed regions of the site in order to find food

beneath. These refugia were relocated to less exposed parts of the site to counter this possible increased predation risk.

For the duration of the survey, however, with the exception of the above, the majority of the refugia remained in their original positions.

In conclusion, although the potential for wide ranging species like grass snake to frequent the site on occasion cannot be discounted, the survey data is considered to provide a reliable and accurate indication of any resident reptile population at the site, together with appropriate estimates of their population size class and distribution across the site.

3.5 NATURAL ENGLAND REPTILE MITIGATION GUIDELINES

Natural England (NE) published new Reptile Mitigation Guidelines, first edition, (TIN102) in September 2011, but subsequently withdrew this pending a revision incorporating feedback from professional consultants. NE states that ‘..until a new version of the Reptile Mitigation Guidelines is available, all quotes, surveys and technical reports should be done according to previous guidance published by the Herpetofauna Groups of Britain and Ireland (HGBI, 1998). Accordingly, protocols and reporting of the present reptile survey have followed that guidance.

3.6 RESULTS

Two species of reptile were found within the site, namely common lizard and slow worm.

Indeed, according to the citation for the Borough Grade II Site of Importance to Nature Conservation ‘Camberwell New Cemetery, Honor Oak Crematorium and adjacent areas’, common lizard is known to occur within the rough grassland habitats of the One Tree Hill Allotments (to the west of the site) which falls within this SINIC.

The highest number of common lizards encountered on a single occasion was the 8 individuals identified on the third visit. The highest number of slow worms encountered on a single occasion was the 3 individuals identified also on the third visit.

The common lizards and slow worms that were observed on site were also of varying age classes, ranging from juvenile to adult. The variable number of individual common lizards (range = 0-8) and slow worms (range = 0-3) encountered on each survey visit (see Table 1a and Table 1b below) probably relate to variations in the prevailing levels of shade from vegetation, the time of day and weather conditions encountered during the reptile survey visits.

Table 1a. The total number of individual common lizards recorded per survey visit.

Visit No.						
1	2	3	4	5	6	7
0	0	8	1	0	4	7

Table 1b. The total number of individual slow worms recorded per survey visit.

Visit No.						
1	2	3	4	5	6	7
0	0	3	1	1	2	0

The distribution of the reptiles across the site for each visit is depicted by the plans in Appendix 3. Detailed information on each individual reptile recorded, including age-class and sex (where determined) is given in Appendix 4. Selected photographs of the site's habitats are provided in Appendix 5.

To summarise, reptiles were exclusively encountered on the hill (including just above the brow) in eastern section of the site (see Appendix 3). The distribution plans provided in Appendix 3 represent the minimum extent of the distribution of common lizards and slow worms at the site, and specifically pertain to the basking habitats for these individuals. Reptiles would additionally be expected to occur within adjoining habitats, including the dense and scattered scrub, woodland and any vegetated spoil mounds (and potentially those habitats which were excluded from the refugia survey on instruction of cemetery staff, i.e. tree lined margin to the existing access road etc.), which would be used for forage and shelter, and potentially for hibernation.

The survey findings indicate that the site does not evidently support any resident populations of the other common British reptile species.

In addition, one smooth newt was recorded incidentally sheltering beneath the artificial refugia.

3.7 POPULATION ASSESSMENT

a) Qualitative Population Assessment

In terms of the condition and general health of the reptile populations on site, a good mix of age classes (i.e. juvenile, immature, sub-adult and adult) were recorded for both slow worms and common lizards, indicating that breeding is occurring.

b) HGBI 1998 Population Size Class Population Assessment

In addition to the qualitative population assessment given above, an 'indicative' quantitative population assessment was also conducted using counts of adult animals (Table 2) as per the HGBI (1998) methodology.

Given that the area of suitable reptile habitat on site (over which the survey was conducted) was 0.85 hectares, the estimated densities of reptiles is at least 9 individual common lizards/hectare and at least 3 individual slow worms/hectare.

The population of common lizards and slow worms at the site can be compared with population size classes defined by the HGBI (1998), which is based upon adult counts. Table 2 below gives the daily adult and sub-adult counts for the survey visits at the site:

Table 2. Daily counts of sub-adult and adult reptiles during survey visits (number of adults only is given in parentheses).

Species	Visit No.						
	1	2	3	4	5	6	7
Common lizard	0 (0)	0 (0)	7 (5)	1 (1)	0 (0)	4 (2)	3 (3)

Species	Visit No.						
	1	2	3	4	5	6	7
Slow worm	0 (0)	0 (0)	2 (2)	0 (0)	1 (0)	0 (0)	0 (0)

Based upon the figures in Table 2, the site is tentatively assessed to support a low population density of common lizard (<20/ha) and a low population density of slow worms (<50/ha).

It should be noted that these are initial estimates of the likely magnitude of the reptile populations on site. More accurate estimates of population size would require further surveys.

3.8 DISCUSSION

Two British reptile species have been encountered within the proposed development site, namely common lizard and slow worm.

It cannot however be discounted that individual grass snakes may frequent the site at least on occasion.

Common reptiles are protected under national wildlife legislation (the Wildlife & Countryside Act, 1981, as amended) from intentional killing or injury and are also listed as National BAP priority species. Site clearance, construction and / or development works within the areas where reptiles have been found to be present and other suitable reptile habitats across the site, without mitigation, could result in the intentional killing and injury of reptiles.

Given that intentional killing or injuring reptiles would be an offence under UK wildlife law, a reptile mitigation strategy would need to be prepared to ensure that the works proceed lawfully. Further details are provided under the Recommendations section that follows.

3.9 RECOMMENDATIONS

Preparation of a detailed mitigation strategy is beyond the scope of the commissioned reptile presence / absence survey work, however, the principals of any reptile mitigation strategy alongside outline mitigation proposals are discussed as follows, to allow the preparation of such a detailed mitigation strategy to be made a condition of planning:

The reptile mitigation strategy would be prepared in accordance with English Nature's (2004) guidelines, with a view to achieving the twin objectives of:

- Protecting reptiles from any harm that may arise during the development activities; and,
- Ensuring that sufficient quality, quantity and connectivity of habitat is provided to accommodate the reptile populations with no net loss of local reptile conservation status.

The reptile mitigation strategy would include, but not necessarily be limited to, the following elements:

- Identification and enhancement (if necessary) of a suitable reptile receptor – either within the cemetery (preferred and deemed practicable) or off-site locally
- Erection of reptile exclusion fencing (as necessary) – around the proposed works area
- Reptile trapping programme during the reptile active season (mid March to mid October) - with the ultimate number of trapping visits being governed by when the project ecologist is confident that site's common lizard population has been reliably excluded as demonstrated by genuine depletion in capture rates and / or 5no. zero counts
- Vegetation clearance works within suitable reptile habitat, to be conducted sensitively, using hand-held tools, and under direct ecological supervision
- All common lizards and slow worms encountered and captured during the trapping programme, supervised vegetation clearance works and destructive search will be handled gently and carefully by an ecologist experienced in handling reptiles and with due attention paid to the handling considerations outlined by Gent & Gibson (1998).
- The number of captured animals will be recorded, and where possible, sex and age class determined. Each captured common lizard or slow worm will be placed into a separate clean cloth bag and then into a plastic lidded container (with ventilation slits) for safe transport and release into the proposed receptor area. Specifically, any reptiles will be released within suitable, dense vegetation and/or one of the provided artificial habitat features.
- Regular integrity checks of the reptile exclusion fencing during the capture programme and the subsequent development works.
- Vegetation clearance and reptile trapping to be following by a destructive search (topsoil strip) if appropriate during the reptile active season (mid March to mid October), under ecological direction
- Following the reptile mitigation works, the re-development works would proceed, without direct ecological supervision, but with the commitment by the contractors to adopt the agreed protocol in the unlikely event that a common lizard or lizards or else any other reptile is / are encountered or during the development works. Specifically in such an instance the works should halt immediately and contact should be made with the project ecologist, whom would advise how the reptile / reptiles are to be appropriately dealt with and any measures that need to be taken prior to the resumption of the works.
- Formalisation of this protocol - the works contractors would be required to read and sign-off a contractor reptile awareness sheet, confirming their adherence to the protocols. Species identification sheets would also be provided for display in the contractor's site office.
- Post-development (including landscaping) removal of the reptile exclusion fencing, outside the reptile hibernation window
- Post-development receptor reptile population monitoring and receptor habitat management

4. REFERENCES

English Nature (2004) Reptiles: Guidelines for Developers. English Nature, Peterborough.

Froglife (1999) Froglife Advice Sheet 9 Reptile Survey

Gent, T., & Gibson S, (2003) Herpetofauna Workers Manual

HGBI (1998) Evaluating local mitigation / translocation programmes: Maintaining Best Practice and lawful standards. HGBI advisory notes for Amphibian & Reptile Groups (ARGs). HGBI, c/o Froglife, Halesworth. Unpubl.

Institute of Ecology and Environmental Management (2006) Ecological Impact Assessment Guidelines

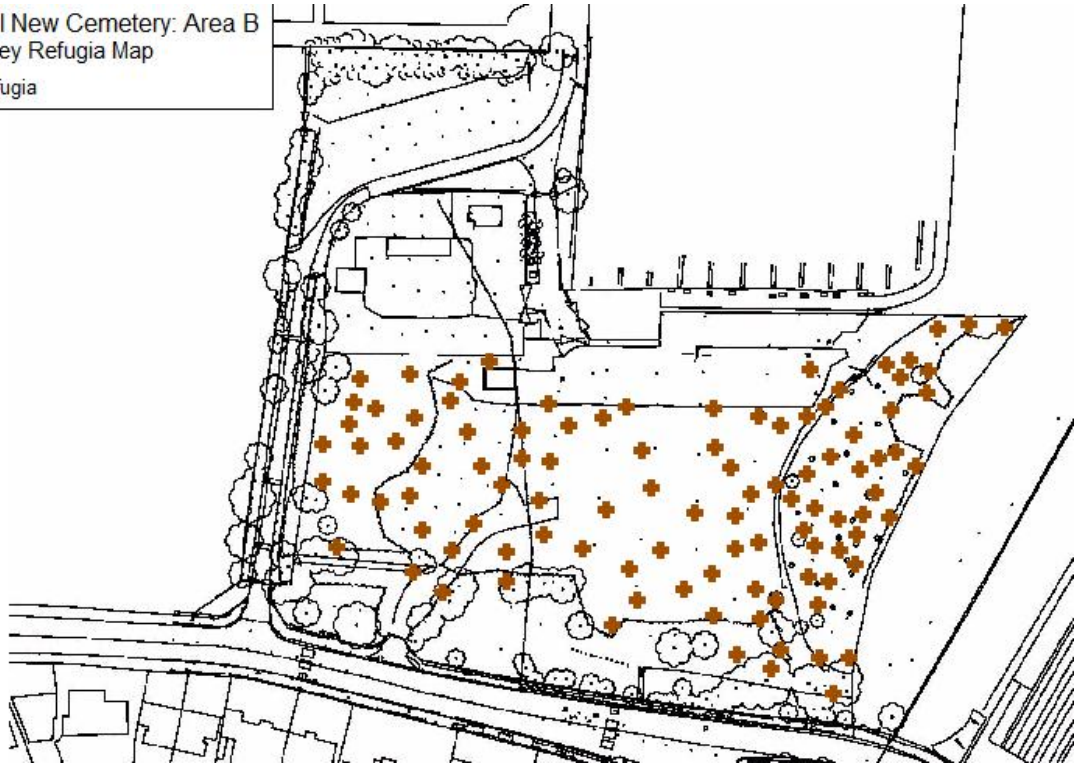
JNCC (1998) Herpetofauna Worker's Manual. JNCC, Peterborough.

Natural England (2011) Reptile mitigation guidelines (draft) TIN102

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5. APPENDIX 1: REPTILE REFUGIA LOCATION PLAN

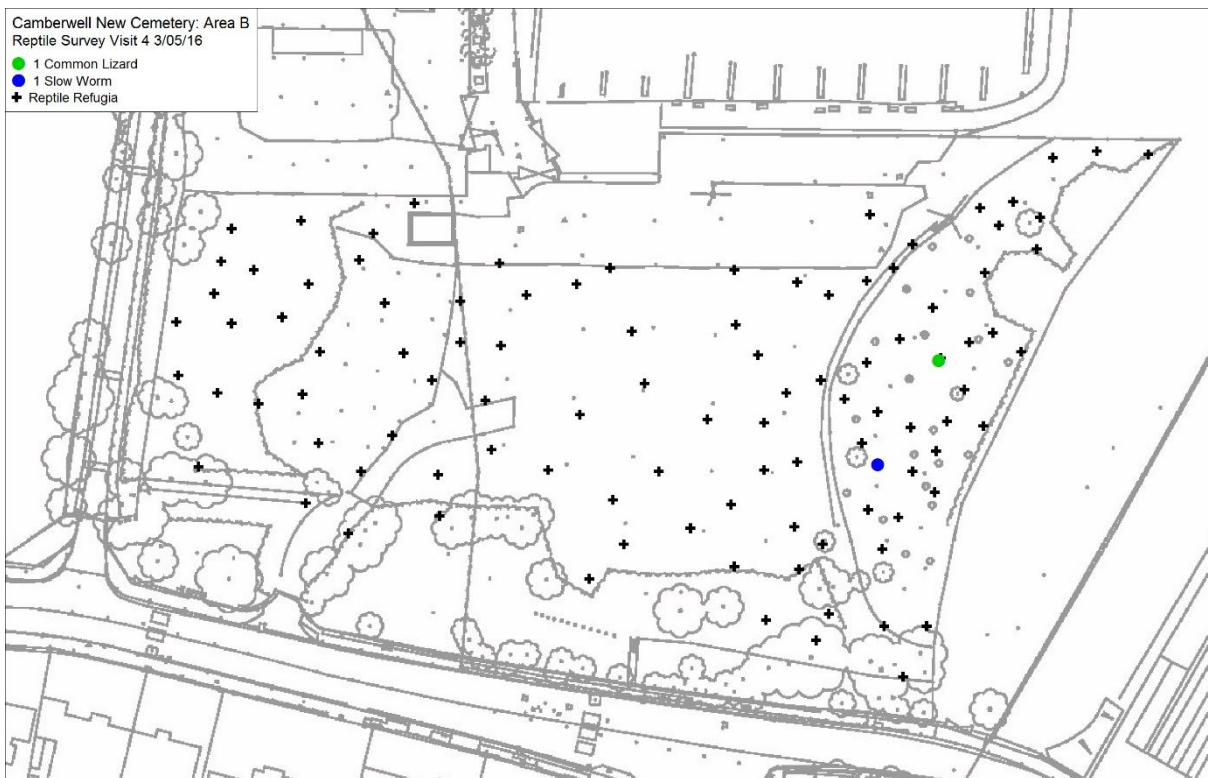
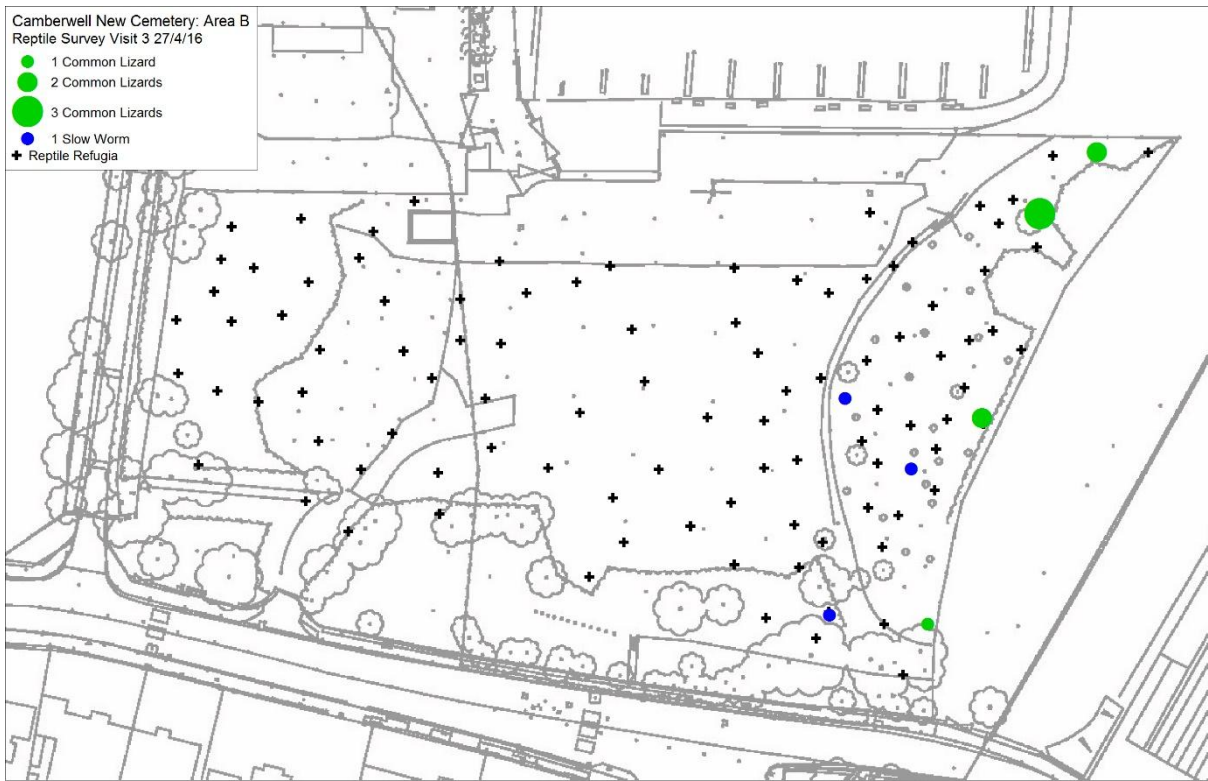
Camberwell New Cemetery: Area B
Reptile Survey Refugia Map
+ Reptile Refugia



6. APPENDIX 2: REPTILE SURVEY DATES & WEATHER

Visit No.	Date	Weather	Sample refuge temp. (°C)
1	30-03-16	Max temp. 15°C Min. temp 11°C, 2-6/8 cloud, dry, light wind	20°C
2	13-04-16	Air temp. 13.5°C, 2/8 cloud, dry, no wind.	19°C
3	27-04-16	Air temp. 11°C, 5/8 cloud, dry, light wind.	15°C – 22°C
4	03-05-16	Air temp. 15°C, 2/8 cloud, dry, light wind.	31°C
5	06-05-16	Max temp. 19°C Min. temp. 17°C, 1/8 cloud, dry, no wind to light wind.	37°C – 41°C
6	03-10-14	Air temp. 16°C, 1/8 cloud, wet, no wind to occasional light gusts.	18°C
7	07-10-14	Air temp. 19°C, 6/8 cloud, dry, no wind to light wind.	25°C

7. APPENDIX 3: REPTILE SURVEY RESULTS PLANS – VISITS 3 – 7



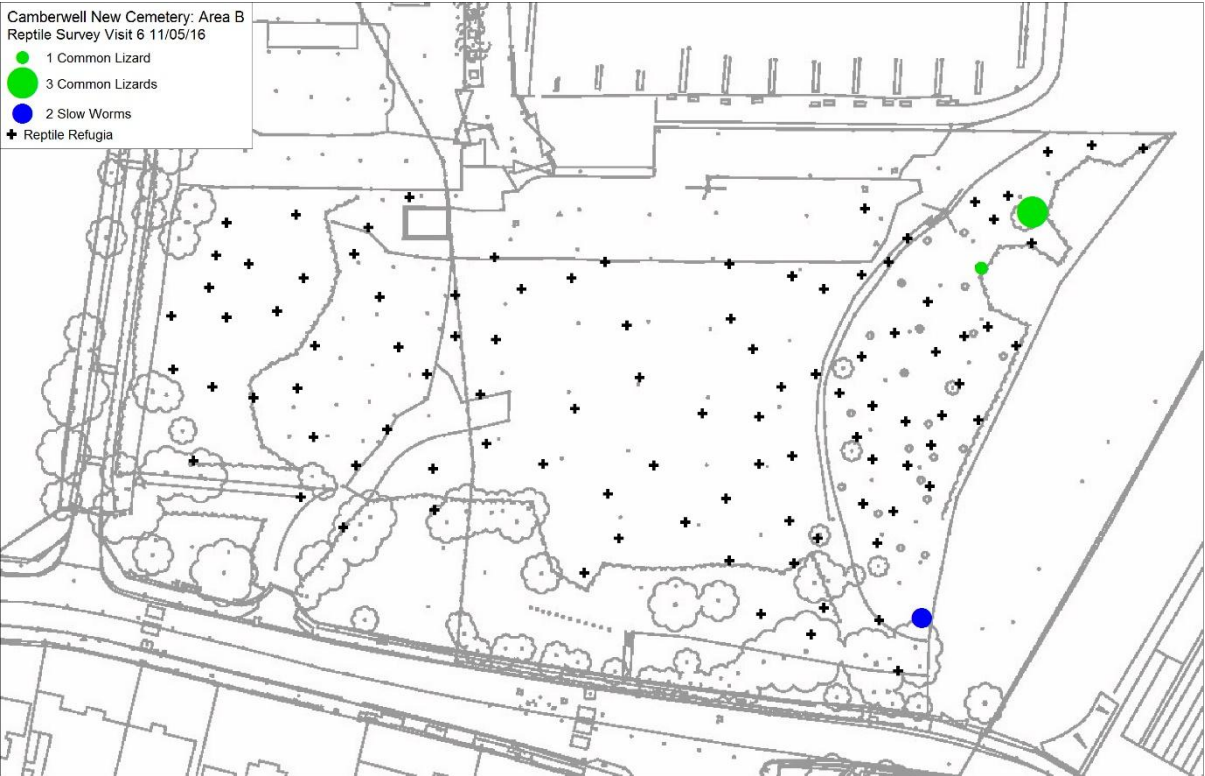
Camberwell New Cemetery: Area B
Reptile Survey Visit 5 6/05/16

- 1 Slow Worm
- + Reptile Refugia



Camberwell New Cemetery: Area B
Reptile Survey Visit 6 11/05/16

- 1 Common Lizard
- 3 Common Lizards
- 2 Slow Worms
- + Reptile Refugia



Camberwell New Cemetery: Area B
Reptile Survey Visit 7 16/05/16

- 1 Common Lizard
- 2 Common Lizards
- 4 Common Lizards
- + Reptile Refugia



8. APPENDIX 4: REPTILE SURVEY RESULTS TABLES

Visit 1 – 30th March 2016 – No reptiles encountered

Visit 2 – 13th April 2014 – No reptiles encountered

Visit 3 – 27th April 2016

Species	Sex	Size class	No. of individuals	Visual or Refuge and refuge no.
Slow worm	M	A	1	R felt no 59
Common lizard	U	I	1	R felt no 75
Slow worm	M	A	1	R felt no 79
Slow worm	M	I	1	R felt no 81
Common lizard	M	SA	1	R felt no 91
Common lizard	F	SA	1	R felt no 91
Common lizard	U	A	3	R felt no 102
Common lizard	U	A	2	R felt no 104

Key: M = male, F = female, U = unknown, A = adult, SA = sub-adult I = immature, J = juvenile, V = visual, R = refuge

Visit 4 – 3rd May 2016

Species	Sex	Size class	No. of individuals	Visual or Refuge and refuge no.
Slow worm	U	J	1	R felt no 78
Common lizard	U	A	1	R felt no 90

Key: M = male, F = female, U = unknown, A = adult, SA = sub-adult I = immature, J = juvenile, V = visual, R = refuge

Visit 5 – 6th May 2016

Species	Sex	Size class	No. of individuals	Visual or Refuge and refuge no.
Slow worm	M	SA	1	R felt no 76

Key: M = male, F = female, U = unknown, A = adult, SA = sub-adult I = immature, J = juvenile, V = visual, R = refuge

Visit 6 –11th May 2016

Species	Sex	Size class	No. of individuals	Visual or Refuge and refuge no.
Slow worm	U	J	2	R felt no 75
Common lizard	U	A	1	R felt no 93
Common lizard	U	A	1	R felt no 102
Common lizard	U	SA	2	R felt no 102

Key: M = male, F = female, U = unknown, A = adult, SA = sub-adult I = immature, J = juvenile, V = visual, R = refuge

Visit 7 –16th May 2016

Species	Sex	Size class	No. of individuals	Visual or Refuge and refuge no.
Common lizard	U	A	1	R felt no 84
Common lizard	U	A	1	R felt no 93
Common lizard	U	J	1	R felt no 93
Common lizard	U	A	1	R felt no 102
Common lizard	U	I	3	R felt no 102

9. APPENDIX 5 - SELECTED PHOTOGRAPHS

Context view of the wider site, including the amenity grassland area dominating the centre of the site



A view of the coarse grassland hill with scattered trees to the east of the site



A view of the hardstanding to the north of the site



A view of the wooded southern boundary



A view of the stored soil piles to the west of the site that have become colonised tall ruderal vegetation. In the background is the wooded western site boundary

