

# Riverside Energy Park

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## Environmental Statement Technical Appendices

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# 1 Executive Summary

Peter Brett Associates (PBA) was commissioned to undertake a reptile survey of the Riverside Energy Park (REP) project in Belvedere, London Borough of Bexley. The overall aim of the study was to provide baseline information on the numbers and distribution of reptile species within the REP site, Main Temporary Construction Compound, and Electrical Connection Route option through Crossness Local Nature Reserve (LNR).

To gather baseline information on the use of these areas by reptiles, a field survey was undertaken by PBA between March and June 2018. This survey identified the presence of low populations of three reptile species (grass snakes, common lizards and slow worms) to be present within the Main Temporary Construction Compound, and Electrical Connection Route option through Crossness LNR. No reptiles were recorded within the REP site.

Given that the Survey Area was found to support three species of reptile it meets the criteria of a Key Reptile Site.

**This Executive Summary contains an overview of the key findings and conclusions. However, no reliance should be placed on any part of the executive summary until the whole of the report has been read.**

## 2 Introduction

### 2.1 Overview

- 2.1.1 Peter Brett Associates (PBA) was commissioned by Cory Riverside Energy (Cory) ('the Applicant') to undertake a reptile survey of the Riverside Energy Park (REP) project situated adjacent to the southern bank of the River Thames in Belvedere, London Borough of Bexley. The overall aim of the study was to provide baseline information on the numbers and distribution of reptile species within the Survey Area, which included: the REP site, the Main Temporary Construction Compound adjacent to Norman Way, and the Electrical Connection Route option through Crossness Local Nature Reserve (LNR). This information will help to provide baseline information required to inform an Environmental Impact Assessment for REP.
- 2.1.2 A full description of REP can be found in **Chapter 3** of the Environmental Statement (**Document Reference 6.1**), and in **Schedule 1** to the draft Development Consent Order (**Document Reference 3.1**).
- 2.1.3 A full description of habitats within the Survey Area can be found in **Chapter 11** of the Environmental Statement.

### 2.2 Ecological Background

- 2.2.1 An extended Phase 1 habitat survey undertaken by PBA in autumn 2017 identified suitable habitat capable of providing a foraging and sheltering resource for reptiles both on the REP site and in surrounding adjacent areas (PBA, 2018).
- 2.2.2 Reptile surveys were undertaken in 1999 and 2001 on the REP site to inform the planning application for the existing Riverside Resource Recovery Facility (RRRF). These surveys revealed the presence of common lizards *Zootoca vivipara* which were subsequently translocated to an offsite receptor area (Terence O'Rourke, 2014).
- 2.2.3 The Thames Water Biodiversity Team Manager who is also site manager at the Crossness LNR provided details of a reptile translocation exercise that took place in 2017. During this, the nature reserve acted as a receptor area for reptiles being moved from a nearby development project. A total of 854 Slow worms and 390 common lizards were moved to the area, primarily released at the north of the LNR (north scrape area), close to the REP site (Thames Water Biodiversity Team Manager; pers comm).

### 2.3 Report Objectives/Aims

- 2.3.1 The aim of this report is to:
- Provide details of the methods used for the study;
  - Provide the results of the reptile survey undertaken in spring/summer 2018;
  - Interpret the results of the survey in relation to the REP, including information on population sizes and distribution patterns; and,
  - Provide an evaluation of the reptile populations recorded in the context of national and international trends and local records.

## 3 Methods

### 3.1 Survey Area

3.1.1 The Survey Area comprised all suitable habitat within and adjacent the REP site, suitable habitat along Norman Way to the south (to be used for the Main Temporary Construction Compounds), and the Electrical Connection Route option through Crossness LNR along the bridleway south to the A2016/Eastern Way. These areas combined are referred to as the Survey Area as shown on **Figure 11.6**.

### 3.2 Reptile Presence/Absence Survey

- 3.2.1 The reptile presence/absence survey involved the use of artificial refugia and visual searching techniques.
- 3.2.2 A total of 105 artificial refugia (0.5 m by 0.5 m and 0.5 m by 1 m pieces of roofing felt, bitumen felt and corrugated metal) were deployed in suitable habitat within the Survey Area. A total of 50 of these were initially deployed on 19<sup>th</sup> March 2018 (see Figure 11.6) and were left in-situ to 'bed down' for just over two weeks before being checked for use by reptiles. Access to the Main Temporary Construction Compounds and Crossness LNR was provided at a later date and as a result an extra survey visit was undertaken to these areas to give refugia the appropriate time to bed in (55 of the 105 refugia).
- 3.2.3 The above areas of suitable habitat covered a total of approximately 5 hectares (ha); this therefore resulted in a refugia density of approximately 20/ha. The average refugia density in suitable habitat across the Survey Area therefore slightly exceeded the recommended density of 5-10 refugia/ha (Froglife, 1999). Professional judgement (based on past reptile survey experience) indicates that this refugia density enables a robust assessment of the presence/likely absence of reptiles and an approximate estimate of the population size to be made. Refugia were primarily placed in areas which catch the sun (i.e. those with a southerly aspect) as these are preferred by reptiles over those where sunlight is absent for most of the day (Edgar, Foster & Baker, 2010).
- 3.2.4 A total of 7 survey visits were then made during the period April-June 2018. During each of these survey visits, all refugia were checked for basking reptiles (either on or beneath the refugia) with any individuals found identified to species level, with details of sex and life stage also noted where possible.
- 3.2.5 Alongside the refugia checks, vegetation and existing refugia (e.g. logs, discarded boards, artificial refugia left during previous survey work and other debris) within the areas of suitable habitat were also visually searched for the presence of reptiles, with any individuals recorded as above. This helped to ensure that all areas were fully considered in the survey and helped eliminate a bias towards those reptile species more likely to use refugia; primarily slow worms.
- 3.2.6 The dates and weather conditions during each survey visit are summarised in Table 1 below.

Table 1: Dates and Weather Conditions of Reptile Survey Visits

Visit No.	Date and Time	Weather Conditions
1	11/04/18 09:30-11:00	Dry and mild (11-12°C) with overcast skies (8/8 cloud cover) and a light breeze (Beaufort Scale F2).
2	17/04/18 09:30-12:00	Dry and mild (12-14°C) with generally overcast skies (6/8 cloud cover) and hazy sunshine. A light breeze was present during the survey (Beaufort Scale F2).

Visit No.	Date and Time	Weather Conditions
3	23/04/18 10:15-11:45	Dry, mild (14-15°C) and generally overcast (7/8 cloud cover) with a light to moderate breeze (Beaufort Scale F2-F3) and hazy sunshine.
4	01/05/18 10:30-12:45	Dry and mild (12-14°C) with clear skies (1/8 cloud cover), a light/moderate breeze (Beaufort Scale F2-F3) and strong sunshine.
5	15/05/18 09:15-11:00	Dry and mild (14-16°C) with clear skies (1/8 cloud cover), a light breeze (Beaufort Scale F2) and strong sunshine.
6	21/05/18 08:30-10:20	Dry and warm (14-20°C) with clear skies at the start of the survey (1/8 cloud cover) becoming more overcast by the survey end (3/8 cloud cover). Calm conditions were present during the survey (Beaufort Scale F1) and strong sunshine.
7	11/06/18 08:30-10:30	Dry and warm (20°C) with 3/8 cloud cover, a moderate breeze (Beaufort Scale F3) and hazy/strong sunshine.
8*	14/06/18 14:45-15:30	Dry and warm (18-19°C) with partially cloudy skies at the start of the survey (2/8 cloud cover) with skies becoming more overcast by the survey end (6/8 cloud cover). A moderate breeze was present throughout the survey (Beaufort Scale F2-F3) with strong sunshine.

\* Refugia deployed during first visit adjacent to nature reserve and in fields adjacent to Norman Way

### 3.3 Survey Limitations

3.3.1 All surveys visits were carried out under suitable conditions. No significant limitations were therefore encountered in relation to weather conditions. Access to some areas was not granted during initial refugia deployment. Ho

### 3.4 Survey Area Evaluation and Population Size Class Assessment

3.4.1 The Guidelines for Biological Selection of SSSIs (JNCC, 1989), gives a scoring system for the evaluation of sites on the basis of their reptile population. It suggests that for the commoner species of reptile, the best sites (in which three or more species occur) should be considered for their potential to qualify as SSSIs.

3.4.2 The Herpetofauna Worker's Manual (JNCC, 2003) suggests that sites not meeting the SSSI selection criteria should be designated as Sites of Importance for Nature Conservation (SINCs) if they meet any of the following criteria:

- They support a large population of a single species;
- They support a moderate population of two species;
- They are at the edge of a geographical range of a species; and,
- They have a long documented history of use by reptiles.

3.4.3 In addition to the above criteria for site designation, the Key Reptile Site Register is a mechanism designed to promote the safeguard of important reptile sites. To qualify for the register, a site must meet at least one of the following criteria (Froglife, 1999):

- Supports three or more reptile species;
- Support two snake species;
- Supports an exceptional population of at least one species (see Table 2);
- Supports an assemblage of species scoring at least 4 in total (see Table 2); and,

- Does not satisfy the above criteria but is of particular regional importance due to local rarity (e.g. in the East Midlands, adders are very rare so even “low” populations should be designated as Key Sites).

3.4.4 The criteria for scoring populations of the four common reptile species for the purpose of the Key Reptile Register are given in Table 2 below.

Table 2: Population Parameters for the Key Reptile Sites Register (Common Reptile Species)

Reptile species	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

### 3.5 Survey Personnel

3.5.1 The survey visits were undertaken by Stephen Foot and Ed Austin.

3.5.2 Stephen Foot MCIEEM has worked as a professional ecologist since 2005. He specialises in herpetofauna and has undertaken a large number of survey and mitigation projects for reptiles across the UK within a variety of habitat types. His MSc project investigated the efficacy of differing refugia materials to aid reptile detection and he undertakes voluntary surveys for the Surrey Amphibian and Reptile Group. Stephen holds a licence to disturb and take both smooth snakes *Coronella austriaca* and sand lizards *Lacerta agilis* (both European Protected Species) for the purposes of science and education.

3.5.3 Ed Austin MCIEEM has worked as a professional ecologist for over 10 years and during this time has also undertaken a large number of survey and mitigation projects for reptiles across the UK within a variety of habitat types.

### 3.6 Method and Report Qualification

3.6.1 All survey work and reporting was undertaken by experienced and qualified ecologists (see above), in accordance with the Code of Professional Conduct of the Chartered Institute of Ecology and Environmental Management (CIEEM).

3.6.2 All ecological surveys have an expected validity period owing to the tendency of the natural environment to change over time. This validity period varies from receptor to receptor and is also dependent on the degree of change in a site's management and overall landscape ecology. Where the potential for change is considered to be relevant to the Survey Area, this is highlighted in the appropriate section.

3.6.3 This report does not purport to provide detailed, specialist legal advice. Where legislation is referenced, the reader should consult the original legal text, and/or the advice of a qualified environmental lawyer.



## 4 Results and Interpretation

### 4.1 Reptile Species

- 4.1.1 Three species of reptiles were recorded during the survey; grass snakes *Natrix helvetica*, common lizards *Zootoca vivipara* and slow worms *Anguis fragilis*. Table 3 below summarises the results of the reptile survey with raw survey data provided in Appendix A. **Figure 11.6** illustrates the distribution of all three species across the Survey Area.

Table 3: Summary of Survey Results

Date of survey	Grass snakes observed			Common lizard observed			Slow worms observed			Total
	M	F	J	M	F	J	M	F	J	
Visit 1: 11/04/18	0	0	0	0	0	0	0	0	0	0
Visit 2: 17/04/18	0	0	0	1	0	0	0	4	0	5
Visit 3: 23/04/18	0	0	1	0	0	0	0	4	0	5
Visit 4: 01/05/18	0	0	1	0	0	0	0	1	0	2
Visit 5: 15/05/18	0	0	0	0	0	0	1	0	0	1
Visit 6: 21/05/18	0	0	1	0	0	0	0	2	0	3
Visit 7: 11/06/18	0	0	1	0	0	0	0	0	0	1
Visit 8: 14/06/18	0	0	0	0	0	0	0	0	0	0

Key: M = male; F = female; J = juvenile

### Grass Snakes

- 4.1.2 Grass snakes are commonly found in association with ponds and ditches where they predate amphibians. Grass snakes are a wide-ranging species known to move considerable distances within their home range (Vaughan, 2007). The occurrence of this species is unsurprising given the presence of ditches and ponds and other wetland habitat adjacent to the Survey Area (likely to support suitable prey such as amphibians and fish). No adult grass snakes were found with only juvenile animals being recorded. Juveniles are far more easily predated and tend to utilise refugia more regularly than adults in order to avoid predation. The distribution of grass snake recorded on Survey Area was concentrated within the unmanaged grassland and tall ruderal vegetation adjacent to a ditch and bridleway on the boundary of the Crossness LNR. A single grass snake was also found adjacent to a wet ditch in the south of the Survey Area within an unmanaged field adjacent to Norman Road (see **Figure 11.6**). No grass snakes were found within the REP site.

### Slow Worms

- 4.1.3 Slow worms are a semi-fossorial species meaning that they spend the majority of their time sheltering and foraging within dense vegetation, in the upper layers of soil and beneath natural refugia (rocks, logs, etc.) (Beebee, 2013). This species is the most commonly encountered lizard found within a range of habitat types including heathland, open woodland, grasslands, hedgerows, gardens and allotments (Inns, 2009). Slow worms hibernate below ground or within dense grassland tussocks between October and March (Inns, 2009).

- 4.1.4 As with grass snakes, no slow worms were identified within the REP site with this species being distributed within grass and scrub/ruderal habitats either side of the bridleway/ditch in the Crossness LNR (see **Figure 11.6**).

### **Common Lizards**

- 4.1.5 The common lizard is found in both upland and lowland habitats preferring open and generally undisturbed habitats receiving a high degree of sunlight (Inns, 2009).
- 4.1.6 No common lizards were identified within the REP site with only one common lizard found within the south of the Survey Area in a grassland paddock to the west of Norman Way (see **Figure 11.6**).

## **4.2 Survey Area Evaluation and Population Assessment**

- 4.2.1 No adult grass snakes were noted during any of the survey visits. The survey data shows that the peak adult count of common lizards was one animal on Visit 1 with the peak adult count of slow worms encountered being four animals on Visits 2 and 3.
- 4.2.2 The above survey data therefore equates to low populations of all three species (in accordance with the key reptile sites register described in Section 2.3). Given that only low populations of reptile were present, the Survey Area does not meet the criteria for designation as a SSSI (on the basis of its reptile populations). However, the Survey Area does qualify as a Key Reptile Site supporting an assemblage of three reptile species (see Table 2).

## **4.3 Legislation and Planning Policy Guidance**

### **Legislation**

- 4.3.1 All common reptile species in the UK are protected from killing or injury under the Wildlife and Countryside Act 1981 (as amended).
- 4.3.2 In addition, all native reptiles in the UK are listed as species of principal importance to the conservation of biodiversity in England. This list was drawn up in response to the requirements of section 41 of the Natural Environment and Rural Communities (NERC) Act 2006; it is often referred to as the 'S41 list'. The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under the related Section 40 of the NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions. The presence of a S41 species within the Survey Area is therefore a material consideration in the planning process.

## 5 Conclusion

- 5.1.1 The 2018 suite of reptile surveys identified the presence of three species of reptile (grass snakes, slow worms and common lizards) within the Survey Area. The survey results indicate that low population of all three species are present with the majority of reptiles concentrated in suitable habitat alongside the bridleway adjacent to the Crossness Nature Reserve.
- 5.1.2 No reptiles were found within the REP site itself; however, reptiles were noted along the Electrical Connection Route option within Crossness LNR, and within rough grassland paddocks adjacent to Norman Road to the south of the REP site.

## References

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- PBA (2018) *Riverside Preliminary Ecological Appraisal*
- Terence 'O Rourke (2014) *Riverside Resource Recovery Facility, Bexley – Section 36c Variation Application Proposed Operational Efficiency Improvements – Phase 1 Habitat Survey Report*

## Appendix A Raw Survey Data

Visit 1 11/04/18

Species	Sex (M/F)	Life Stage	Count	Refugia No. / Grid Ref.	Time
No reptiles recorded					

Visit 2 17/04/18

Species	Sex (M/F)	Life Stage	Count	Refugia No. / Grid Ref.	Time
Zv	Unknown	Adult	1	76	10:05
Af	F	Adult	2	54	10:40
Af	F	Adult	1	53	10:41
Af	F	Adult	1	51	10:43

Visit 3 23/04/18

Species	Sex (M/F)	Life Stage	Count	Refugia No. / Grid Ref.	Time
Af	F	Adult	1	54	11:30
Af	F	Adult	2	53	11:31
Nh	Unknown	Juvenile	1	53	11:31
Af	F	Sub-adult	1	51	11:33

Visit 4 01/05/18

Species	Sex (M/F)	Life Stage	Count	Refugia No. / Grid Ref.	Time
Nh	Unknown	Juvenile	1	53	12:01
Af	F	Adult	1	53	12:02

Visit 5 15/05/18

Species	Sex (M/F)	Life Stage	Count	Refugia No. / Grid Ref.	Time
Af	M	Adult	1	102	10:20

Visit 6 21/05/18

Species	Sex (M/F)	Life Stage	Count	Refugia No. / Grid Ref.	Time
Af	F	Adult	2	53	09:11
Nh	Unknown	Juvenile	1	102	09:23

Visit 7 11/06/18

Species	Sex (M/F)	Life Stage	Count	Refugia No. / Grid Ref.	Time
Nh	Unknown	Juvenile	1	78	12:12

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Visit 8 14/06/18

Species	Sex (M/F)	Life Stage	Count	Refugia No. / Grid Ref.	Time
No reptiles recorded					

## Appendix B Relevant Legislation

B.1.1 This section briefly summarises the relevant national and local planning policies and legislation pertaining to habitats and species mentioned within this report. Please note that the following text does not constitute legal advice.

### B.2 The Wildlife and Countryside Act, 1981 (as amended)

B.2.1 The common, widespread species of reptile (slow worm, grass snake, adder and common lizard) are protected through Sections 9(1) and 9(5) of the Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000, making it an offence to:

- Intentionally or recklessly kill or injure any reptile;
- Sell, offer for sale, possess or transport for the purchase of sale or publish advertisements to buy or sell any reptile.

### B.3 The Natural Environment and Rural Communities (NERC) Act, 2006

B.3.1 Reptiles across the UK have undergone significant declines in recent years and all species of reptile within the UK are now included on the list of species of principal importance prepared in response to Section 41 of the Natural Environment and Rural Communities (NERC) Act, 2006. This legislation placed a duty on the Secretary of State to publish, review and revise lists of living organisms in England that are of principal importance for the purpose of conserving biodiversity. The NERC Act also required the Secretary of State to take, and promote the taking of, steps to further the conservation of the listed organism.