

## **Appendix 13-4      Reptile Survey**

# East Reading Mass Rapid Transit Scheme

## Reptile Survey

On behalf of **Reading Borough Council Highways and Transport Department**



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# 1 Executive Summary

- 1.1.1 This Reptile Survey Report has been prepared in respect of a planning application for a new mass rapid transit (MRT) scheme to the east of Reading, Berkshire (referred to as the 'proposed development'). An indicative area of works (referred to as the 'East MRT Site') is included on Figure 1.
- 1.1.2 The East MRT Site currently comprises three main land parcels:
- Land to the east of the River Kennet, which is dominated by poor semi-improved grassland and tall vegetation;
  - A central area of broadleaved woodland and vegetation along the river banks; and
  - Land within the Tesco supermarket at the western extent of the East MRT Site which is dominated by hardstanding and planted shrubs.
- 1.1.3 Other habitats across the East MRT Site include dense and scattered scrub, short self-seeded vegetation and scattered trees.
- 1.1.4 An extended Phase 1 habitat survey completed by PBA in April 2016 determined that some of the habitats on the East MRT Site had the potential to support common species of reptile. As a result, a further survey for reptile species was completed in summer 2016. This revealed two species of reptile to use the East MRT Site; grass snake *Natrix natrix* and slow worm *Anguis fragilis*. Only very low numbers of grass snakes were recorded (single individuals) with numbers of slow worms indicating that a medium population of this species is likely to be present on site and in the surrounding area. Reptiles were concentrated along the margins of grassland and scrub habitats, particularly close to an adjacent railway corridor in the central part of the East MRT Site as well as in open areas to the east and west.
- 1.1.5 All species of reptile in the UK are protected from killing and injury under national legislation. Development on site therefore has the potential to impact on reptiles as a result of activities such as vegetation clearance and habitat loss. A suitable mitigation strategy will therefore be included within the ecology chapter of the Environmental Statement to safeguard individual reptiles and to avoid or reduce negative impacts. This will be informed by the details of the scheme design, which are still evolving at the time of writing.
- 1.1.6 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 This Reptile Survey Report has been prepared in respect of a planning application for a new mass rapid transit (MRT) scheme to the east of Reading, Berkshire (referred to as the 'proposed development'). An indicative area of works (referred to as the 'East MRT Site') is included on Figure 1: Site Location Plan.

### 2.2 Project Background

#### Site Location

- 2.2.1 The East MRT Site is located between Thames Valley Business Park and Napier Road, Reading, to the south of the River Thames and north of the Great Western Main Line Railway, as shown on Figure 1: Site Location Plan.
- 2.2.2 The East MRT Site comprises three main land parcels:
- Land to the east of the River Kennet, which is dominated by a matrix of poor semi-improved grassland and tall ruderal habitat;
  - A central area of broadleaved woodland and riparian vegetation (i.e. vegetation along the river banks) associated with The Coal, Kennetmouth and Kings Meadow East Local Wildlife Site (LWS; see below); and
  - Land within the Tesco supermarket ownership at the western extent of the East MRT Site which is dominated by hardstanding and introduced shrub.
- 2.2.3 Other habitats across the East MRT Site include dense and scattered scrub, ephemeral/short-perennial vegetation and scattered trees.
- 2.2.4 Within a wider landscape context, the East MRT Site is located approximately 1 km north-east of Reading town centre within the county of Berkshire. South of the East MRT Site land use is dominated by residential and commercial development associated with Reading town. North of the East MRT Site lies the settlement of Caversham along with a network of lakes and other waterbodies (including a marina and rowing lakes) adjacent to the River Thames.

#### Proposed Development

- 2.2.5 The proposed description is described as follows:

*'Construction of a segregated fast-track public transport, pedestrian and cycle bridge and viaduct, comprising concrete bridge structure with a river span of 59.5m and a land span of 316m, supported by concrete columns, steel beams and reinforced soil embankment, together with new footpath links and existing footpath alterations, replacement supermarket car parking provision, junction improvements and landscaping.'*

- 2.2.6 The proposed development comprises:

- creation of a new route for public transport only, including cycle path and footway between Napier Road and the A3290 at Thames Valley Park proposed Thames Valley Park & Ride (TVP P&R);
- the erection of a new bridge over the River Kennet;

- formation of a new T-junction with Napier Road;
- connection to the proposed TVP P&R;
- development of new and improved footpath links to Tesco and the towpath; and
- associated infrastructure and landscaping.

2.2.7 The proposed development is being promoted by Reading Borough Council (RBC), working with Wokingham Borough Council (WBC), Thames Valley Berkshire Local Enterprise Partnership (TVB LEP) and Peter Brett Associates LLP (PBA). The public-sector led project has been allocated funding by TVB LEP from the Local Growth Fund.

## Ecological Background

- 2.2.8 A Preliminary Ecological Assessment (PEA) was completed by PBA in April 2016 including an ecological desk study and Phase 1 habitat survey of the East MRT Site.
- 2.2.9 The desk study returned a single record of common lizard *Zootoca vivipara* from just over 1 km to the north-east of the East MRT Site in 2013, with a single record of adder *Vipera berus* returned from 1.3 km north of the East MRT Site in 2008. Three records of grass snake *Natrix natrix* were returned from within 2 km of the East MRT Site within the last 10 years, with the closest record being from semi-natural habitat directly connected to the habitats on site (e.g. the riparian habitat along the river margins).
- 2.2.10 The extended Phase 1 habitat survey identified the presence of habitat with the potential to support common species of reptile (such as those recorded in the local area as described above). Specifically, this included areas of semi-improved grassland, tall ruderal vegetation, scrub and woodland edge habitats. Overall, the potential for reptiles to be present was considered sub-optimal in these areas due to management (e.g. mowing/cutting of the grassland) and high levels of public activity. However, the margins of the East MRT Site (e.g. where grassland meets scrub or woodland edge) were considered to have increased potential, particularly along the boundary with the adjacent railway corridor (which in turn can provide suitable habitat for reptiles as well as dispersal corridors).

## 2.3 Aims of Study

- 2.3.1 Due to the records of common species of reptile in the local area and presence of habitat on site with the potential to support them, a reptile survey was completed by PBA in 2016.
- 2.3.2 The aims of this survey and subsequent reporting were to:
- Determine the presence or likely absence of reptiles from within the East MRT Site;
  - If present, gather information on the likely population status and distribution of reptiles within the East MRT Site;
  - Summarise the current legislation and policy guidance relevant to any reptile species recorded; and
  - Provide an outline identification of potential impacts on reptiles as a result of the proposed development and recommendations for appropriate mitigation, compensation or enhancement relevant to reptile species.

## 3 Methods

### 3.1 Reptile Presence/Absence Survey

- 3.1.1 The reptile presence/absence survey involved the use of artificial refugia and visual searching techniques.
- 3.1.2 A total of 60 artificial refugia (0.5 m by 0.5 m squares of roofing felt) were deployed in suitable habitat within the East MRT Site and immediate surroundings on 1<sup>st</sup> June 2016 (see Figure 2: Refugia Location Plan). These were concentrated in areas of potential reptile habitat including:
- Areas of short grassland, ephemeral vegetation and scrub to the south of the supermarket car-park in the west of the East MRT Site;
  - The margins of and grassy 'glades' within woodland to the east of the supermarket car-park toward the centre of the East MRT Site;
  - Marginal habitat on the river bank toward the centre of the East MRT Site;
  - Open grassland toward the centre of the East MRT Site (including areas of ruderal vegetation and scrub margins on the adjacent railway boundary);
  - Ruderal vegetation within scrub toward the eastern end of the East MRT Site; and
  - Areas of ruderal and short vegetation/scrub margins close to the Wokingham Waterside Centre, to the north east of the East MRT Site, and Thames Valley Park Drive roundabout at the eastern extent of the East MRT Site.
- 3.1.3 The above areas of suitable habitat covered a total of approximately 1.5 to 2 ha (within a total area of just over 5 ha); this therefore resulted in a refugia density of up to 30/ha. The average refugia density in suitable habitat across the East MRT Site therefore exceeded the recommended density of 5-10 refugia/ha (Froglife, 1999). However, 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). These were left *in-situ* to 'bed down' for approximately 3 weeks before being checked for use by reptiles.
- 3.1.4 A total of seven survey visits were then made between mid-June and September 2016. During each of these, each refugia was 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.
- 3.1.5 Alongside the refugia checks, vegetation and existing refugia (e.g. logs, discarded debris, etc.) within the areas of suitable habitat were also visually searched for the presence of reptiles, with any individuals recorded as above. This provided supplementary survey information and helped eliminate a bias towards those reptile species more likely to use refugia; primarily slow worms *Anguis fragilis*.
- 3.1.6 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         | 14/06/16      | Dry and mild (17-18°C) with partially cloudy skies (5/8-7/8 cloud cover), a moderate breeze (Beaufort Scale F3-F4) and occasional hazy/strong periods of sunshine. |
| 2         | 21/06/16      | Dry and mild (18°C) with full cloud (8/8 cloud cover), a light breeze (Beaufort Scale F2) and hazy sunshine.                                                       |
| 3         | 11/07/16      | Dry, warm (23°C) and generally overcast (6/8-7/8 cloud cover) with moderate to strong winds (Beaufort Scale F4-F5) and occasional/strong sunshine.                 |
| 4         | 15/08/16      | Dry and hot (25-23°C) with clear skies (1/8 cloud cover), a light/moderate breeze (Beaufort Scale F2-F3) and strong sunshine.                                      |
| 5         | 05/09/16      | Dry and warm (18-19°C) with overcast skies (8/8 cloud cover) and calm conditions (Beaufort Scale F1) and very intermittent sunshine.                               |
| 6         | 12/09/16      | Dry and warm (23°C) with overcast skies 8/8 cloud cover, light wind (Beaufort Scale F2) and very intermittent sunshine.                                            |
| 7         | 19/09/16      | Dry and mild (15°C) with 6/8 cloud cover, calm conditions (Beaufort Scale F1) and occasional sunshine.                                                             |

## 3.2 Site Evaluation and Population Size Class Assessment

3.2.1 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.

3.2.2 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<sup>1</sup>) 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
- They have a long documented history of use by reptiles

3.2.3 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)

<sup>1</sup> Note that SINCs are now referred to as Local Wildlife Sites (LWS) in Berkshire; a non-statutory designation reflecting their value for wildlife within the County.

- 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).

3.2.4 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)

|               | Low population<br>Score 1 | Medium population<br>Score 2 | High population<br>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                        |

### 3.3 Survey Limitations

- 3.3.1 All surveys visits were carried out under optimal conditions (intermittent or hazy sunshine, mild to warm temperatures and low winds). No significant limitations were therefore encountered in relation to weather conditions.
- 3.3.2 The grassland area toward the centre of the East MRT Site (as well as ruderal vegetation and scrub on the margins) were discovered to have been cut/mown on visit 2 (21<sup>st</sup> June 2016). This resulted in a reduction of the vegetation in this area to a short height, rendering it largely unsuitable for reptiles at this time (i.e. until re-grown). A number of the artificial refugia in this area had also been destroyed. A series of replacement refugia were re-deployed within this area to replace some of these lost. However, as the habitat in this part of the East MRT Site was largely now unsuitable (due to cutting) these were limited to replacement refugia along the margins of the grassland. As a high density of refugia had initially been deployed (see reptile presence/absence survey methods above), this still meant the total number of refugia deployed on site exceeded the recommended minimum for a survey of this type.
- 3.3.3 Given that the planning application boundary for the proposed development had not been fixed at the time, the area included within the survey varied slightly from the current East MRT Site – see Figure 2 for extent, with a more extensive survey area considered (namely an area of ruderal and short vegetation/scrub margins close to the Wokingham Waterside Centre, to the north east of the East MRT Site). The results within this location provide contextual information and as such, are not considered to limit the findings of the survey.

### 3.4 Personnel

- 3.4.1 Stephen Foot MCIEEM, the lead surveyor on the reptile survey visits, 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 has undertaken voluntary surveys for the Surrey Amphibian and Reptile Group (SARG). Stephen holds a class licence to disturb and take smooth snakes *Coronella austriaca* and sand lizards *Lacerta agilis* (both European Protected Species) for the purposes of science and education.

## 4 Results and Interpretation

4.1.1 This section sets out the results of the reptile survey. The implications of the results are then explored with reference to current legislation and planning policy.

### 4.2 Presence/Absence Survey Results

4.2.1 Individuals of two separate reptile species; the grass snake and slow worm, were recorded within the East MRT Site and its immediate surrounds during the survey visits. Table 3 below provides an overview of the survey results with the raw survey data provided in Tables 4 to 10 in Appendix B. The location of reptile records is shown in Figure 3: Reptile Survey Results.

Table 3: Summary of Reptile Survey Results

| Visit No. | No. Grass Snakes Recorded |        |          | No. Slow Worms Recorded |        |          |
|-----------|---------------------------|--------|----------|-------------------------|--------|----------|
|           | Male                      | Female | Juvenile | Male                    | Female | Juvenile |
| 1         | 0                         | 1      | 0        | 0                       | 2      | 2        |
| 2         | 0                         | 0      | 0        | 0                       | 0      | 1        |
| 3         | 0                         | 0      | 0        | 0                       | 1      | 0        |
| 4         | 0                         | 1      | 0        | 0                       | 2      | 0        |
| 5         | 0                         | 0      | 0        | 0                       | 7      | 1        |
| 6         | 0                         | 0      | 0        | 0                       | 3      | 1        |
| 7         | 0                         | 0      | 0        | 0                       | 3      | 0        |

4.2.2 As shown above, a peak count (i.e. the highest number recorded on any one visit) of one adult grass snake was recorded (on both visit 1 and 4) with a peak count of seven adult slow worms (on visit 5).

4.2.3 Slow worms were concentrated in the eastern part of the East MRT Site; in particular, on the interface between grassland and scrub (see Figure 3). However, this species was also found (albeit with lower frequency) in the western part of the East MRT Site, again on the interface between scrub and open habitat south of the supermarket. Grass snakes were only recorded from within an open clearing (with tall ruderal vegetation) within an area of scrub toward the eastern end of the East MRT Site (see Figure 3).

### 4.3 Site Evaluation and Population Assessment

4.3.1 The survey results indicate that a moderate population of slow worms is present on site with a low population of grass snakes. The presence of juvenile slow worms also confirms the presence of a breeding population of this species.

4.3.2 Based on the survey results (and using the methods set out in Section 4 of this report) the East MRT Site does not meet the selection criteria for a SSSI, SINC (or LWS) or key reptile site as a result of the reptile species and populations present.

### 4.4 Legislation and Planning Policy Guidance

#### Legislation

4.4.1 All common reptile species in the UK are protected from killing or injury under the Wildlife and Countryside Act 1981 (as amended).

4.4.2 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 on site is therefore a material consideration in the planning process.

### Planning Policy

4.4.3 A summary of relevant local and national planning policy is provided at Appendix A. In brief, these policies in combination indicate that (in relation to biodiversity) developments and the planning system should:

- Seek to contribute to and enhance the natural and local environment by minimising impacts on biodiversity and provide net gains in biodiversity where possible;
- Retain, protect and incorporate features of biodiversity interest;
- Be designed to protect, consolidate, extend and enhance the network of wildlife links and corridors in and adjoining the Borough; and
- Promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species.

## 5 Potential Impacts and Outline Recommendations

### 5.1 Potential Adverse Impacts and Outline Mitigation/Compensation

- 5.1.1 Development and development-related activities on site (for example vegetation clearance or ground works) in the absence of adequate mitigation could lead to killing or injury of reptiles if present at the time. Were this to occur, it would constitute an offence under national legislation (see Section 4.4).
- 5.1.2 In addition, it is likely that installation of the proposed development will result in a loss of, or reduction in the area of, suitable habitat available to reptiles. Aside from the direct potential impacts of killing or injury, this could lead to negative impacts on the reptile population present via a reduction in the area available to them or fragmentation effects. For example, the population of reptiles in the local area could become fragmented if the proposed development results in areas of suitable habitat becoming geographically separated from one another, with the structure itself presenting a barrier to reptile movement. In combination with habitat loss, this may result in the creation of smaller, isolated populations of reptiles (particularly slow worms which are less mobile) which are no longer viable as a sustainable breeding population. At worst, this could ultimately lead to the population dying out in the immediate local area.
- 5.1.3 In order to avoid or limit negative effects on individual reptiles and the overall reptile population present, an appropriate mitigation strategy should be devised, once final development plans have been decided, and included within the ecology chapter of the Environmental Statement. This should be agreed with the Local Planning Authority (LPA) prior to commencement. In principle, there are three main ways in which negative impacts of reptiles can be avoided:
- The retention of reptiles on site through the creation, enhancement or management of suitable habitat in areas unaffected by the transport link.
  - The translocation of reptiles into suitable habitat outside but immediately adjacent to the East MRT Site (likely coupled with habitat enhancement/management).
  - The translocation of reptiles from within the East MRT Site to a suitable receptor area elsewhere (but preferably still within the local area).
- 5.1.4 Given that only very low numbers of grass snakes were recorded (i.e. maximum of one individual), the focus of mitigation would be on slow worms. Grass snakes are also highly mobile and will readily utilise riparian and wetland environments. As a result, they are likely to exploit habitats along the nearby River Thames and River Kennet, as opposed to being primarily associated with the East MRT Site. The fact that grass snakes were only recorded on two of the seven visits suggests this is the case. However, measures to avoid or reduce impacts on slow worms (e.g. habitat retention, creation or enhancement on site or within off-site receptors) should also aim to create suitable conditions for grass snakes.

### Retention or Enhancement of On-site or Adjacent Receptor Area

- 5.1.5 Both slow worms and grass snakes prefer areas with a mixture of habitats, including areas of dense cover as well as more open sites for basking. On site, areas used by reptiles included rough grassland, the margins between grassland and scrub and taller ruderal vegetation within scrub. Maintaining or establishing this 'mosaic' of habitats within either on-site or off-site receptor is therefore important prior to any translocation of reptiles. Depending on the location and character of habitat in the proposed receptor area (on or off-site), habitat management

may be required to create suitable conditions. For example, if areas selected contain dense scrub, this may need to be partially trimmed or cut back to create some open conditions and promote the growth of grasses and shorter vegetation.

- 5.1.6 Given that the majority of reptiles were recorded along the margins of the East MRT Site close to the adjacent railway land, it may be possible to encourage reptiles to disperse into this area through vegetation management. However, at present much of the habitat along the railway corridor consists of dense scrub, particularly butterfly bush *Buddleja davidii* and bramble *Rubus fruticosus*. Whilst this does create some cover, it lacks the complex mosaic of optimal habitat. Therefore, management of the vegetation along the railway corridor is likely to be required prior to encouraging reptiles to disperse. As above, this would include selective clearance and cutting back of scrub to open up some parts of the ground. Further enhancements could include the creation of log and/or brash piles to provide suitable refuges for reptiles. However, as this land falls outside the East MRT Site and (presumably) within Network Rail control, it is unclear to what extent vegetation management here would be permitted.
- 5.1.7 The presence of The Coal, Kennetmouth and Kings Meadow East LWS on site and extending to the north west of the East MRT Site similarly provides suitable although currently suboptimal habitat for reptile dispersal. Again, it may also be possible to utilise this area for reptile dispersal following prescribed vegetation management and enhancement, largely as described above.
- 5.1.8 It is recommended that these options are explored if sufficient on-site habitat cannot be maintained, as it would be preferable to retain the reptile population in the immediate area.
- 5.1.9 If an on-site or adjacent receptor area is available, it may be possible to encourage reptiles to naturally disperse into it from the East MRT Site using habitat manipulation. As the East MRT Site is narrow and linear, with reptiles being concentrated in marginal areas (particularly close to the adjacent railway corridor) animals should not have to move far and could essentially be maintained within the immediate area. However, this would be dependent on the availability of sufficient suitable habitat and the ability to maintain it long-term. Another consideration is that not all reptiles were found in the same parts of the East MRT Site. Depending on the location of the proposed receptor habitat, consideration would need to be given to the ability of reptiles to reach it.
- 5.1.10 Vegetation manipulation would involve sequential reduction of cover via careful strimming or cutting to gradually reduce the height and remove cover for reptiles. This would likely need to be done under ecological supervision, with any reptiles discovered during the process removed by hand to the area of receptor habitat. Cutting/trimming should be undertaken starting at the furthest point from the receptor habitat and moving toward it to encourage dispersal in that direction. Initial cuts should be to a height of around 10 to 15cm, with vegetation progressively removed to a very short height (i.e. ground level). Once cleared, it is imperative that the East MRT Site is maintained in unsuitable conditions to deter reptiles from recolonising ahead of development works. The removal of the top layer of soil (likely under ecological supervision) would help with this. Reptile-proof fencing may also be useful along the boundary to prevent re-colonisation, particularly if on-going vegetation management is not practicable.
- 5.1.11 As indicated above, the approach to vegetation management (to encourage natural dispersal to nearby habitat) would need to take account of current reptile distribution. For example, if reptiles are encouraged to move into suitable habitat along the railway corridor, pathways may need to be cut through scrub in some areas. The grassland in the east of the East MRT Site is separated from the railway corridor by an area of dense scrub which is likely to preclude reptile movement. Paths through this scrub would therefore need to be opened up to create suitable dispersal corridors. Similarly, if an area of receptor habitat can be created/maintained on site, or if it is possible to enhance parts of the railway corridor, a strategy would need to be devised to enable reptiles from different parts of the East MRT Site to reach it, as opposed to creating small and isolated groups of reptiles that may not constitute viable populations.

## Translocation to an Off-site Receptor Area

- 5.1.12 If an on-site receptor cannot be retained or if enhancement of the adjacent railway corridor or LWS is not practicable, it may be necessary to translocate reptile from the East MRT Site to an off-site receptor area. This would preferably be as close as possible to the site and would need to be carefully selected prior to commencement of a translocation exercise. A suitable receptor would need to contain areas of suitable habitat, be of sufficient size to enable the translocated population to persist and either be free of reptiles, or contain a reptile population with sufficient carrying capacity (e.g. a low population in a larger site). Survey of proposed receptor areas may be required to determine this in advance, with habitat management or enhancement also potentially required to create suitable conditions. As a result, adequate planning and lead-in time should be allowed for if this approach is taken.
- 5.1.13 Assuming a receptor site is available, reptiles would then need to be captured from the East MRT Site and moved to the receptor area. This would typically involve the use of reptile-proof fencing to isolate areas, with reptiles being captured from within the fencing using a combination of artificial refugia and habitat management. In this case, as the East MRT Site contains discrete areas of suitable habitat it may be practical to create a series of individual compartments as opposed to fencing off the whole site. Again, if this approach is taken, a detailed mitigation strategy would need to be prepared. However, the usual steps would involve:
- The installation of reptile-proof fencing to isolate suitable habitat on site (such that reptile cannot re-colonise from outside) and the deployment of artificial refugia within fenced compartments (at high density; e.g. 100 refugia per hectare of suitable habitat).
  - The checking of suitable habitat and refugia from within the fenced areas over a series of days, with any reptiles found being captured and removed to the receptor site. For a medium population of slow worms, a minimum capture period of 70 days is recommended (HGBI, 1998). However, the duration of trapping could be shorter than this (with agreement from the LPA) depending on trapping results (i.e. if an extended period is reached during which no reptiles are caught). A minimum of 5 suitable days during which no reptiles are caught should be reached before trapping can cease.
  - In combination with trapping, once approximately half of the trapping days have been completed, habitat manipulation within fenced compartments can be employed to focus trapping effort. This could involve partially reducing vegetation within compartments to a short height (e.g. 10 to 15 cm) via careful strimming/cutting to facilitate capture of reptiles and focus animals in remaining areas of taller vegetation.
  - Once a sufficient trapping period has been reached the site can be 'destructively searched'. This involves first reducing vegetation to ground level under the supervision of an ecologist (with any remaining reptiles discovered captured and removed) followed by the removal of the top layer of soil; e.g. using an excavator fitted with a toothed bucket. This should also be completed under ecological supervision.

## 6 Conclusion

- 6.1.1 The reptile survey completed in 2016 revealed low numbers of grass snakes to use the East MRT Site, with numbers of slow worms indicating a medium population to be present. A mitigation strategy will therefore be required to safeguard reptiles during and post-development, within the context of relevant legislation and planning policy.
- 6.1.2 The mitigation strategy will need to be designed once full details of the proposed development have been determined. The key issue to resolve is whether reptiles can be accommodated on site or in the immediate area (e.g. the adjacent railway corridor or The Coal, Kennetmouth and Kings Meadow East LWS) and that management of these areas is suitable in the long-term to maintain suitable conditions. If not, an off-site receptor may be the only viable solution, with a translocation programme undertaken.
- 6.1.3 Although the exact approach to mitigation will need to be determined, there are no apparent reasons why an adequate solution could not be found. As such, although the presence of reptiles is an important consideration and will need to be managed appropriately, this in itself should not be an over-riding reason why the development could not proceed.

## 7 References

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Office of the Deputy Prime Minister (ODPM) (2005). Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System.

## Figures

Figure 1: Site Location

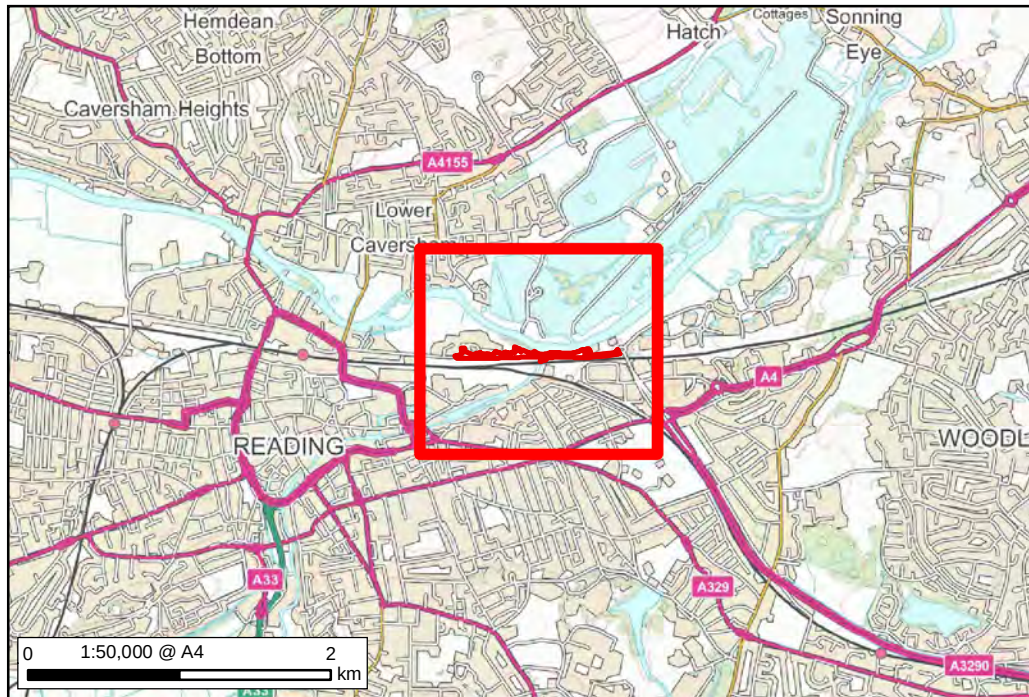


Figure 2: Refugia Location Plan

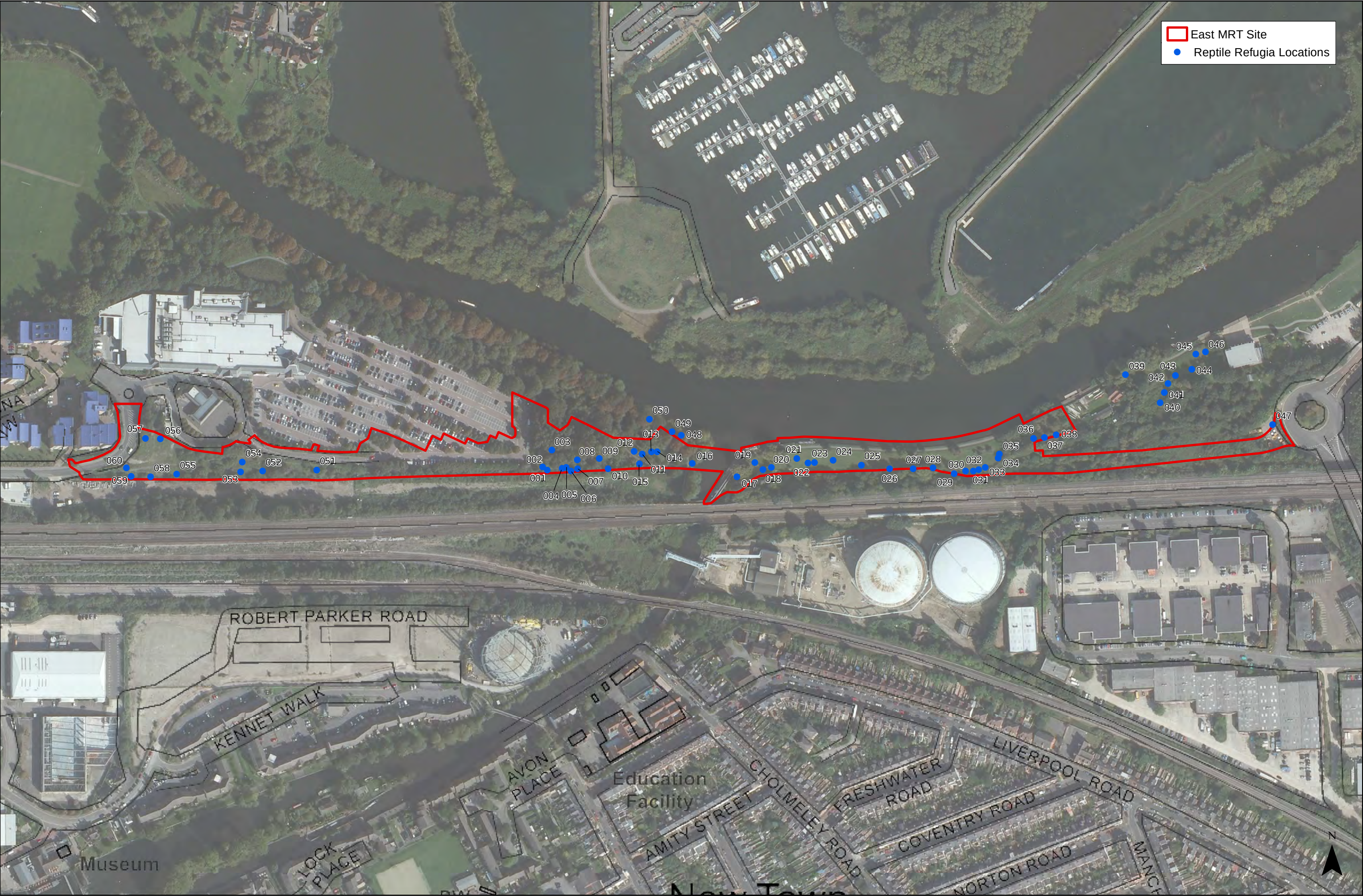
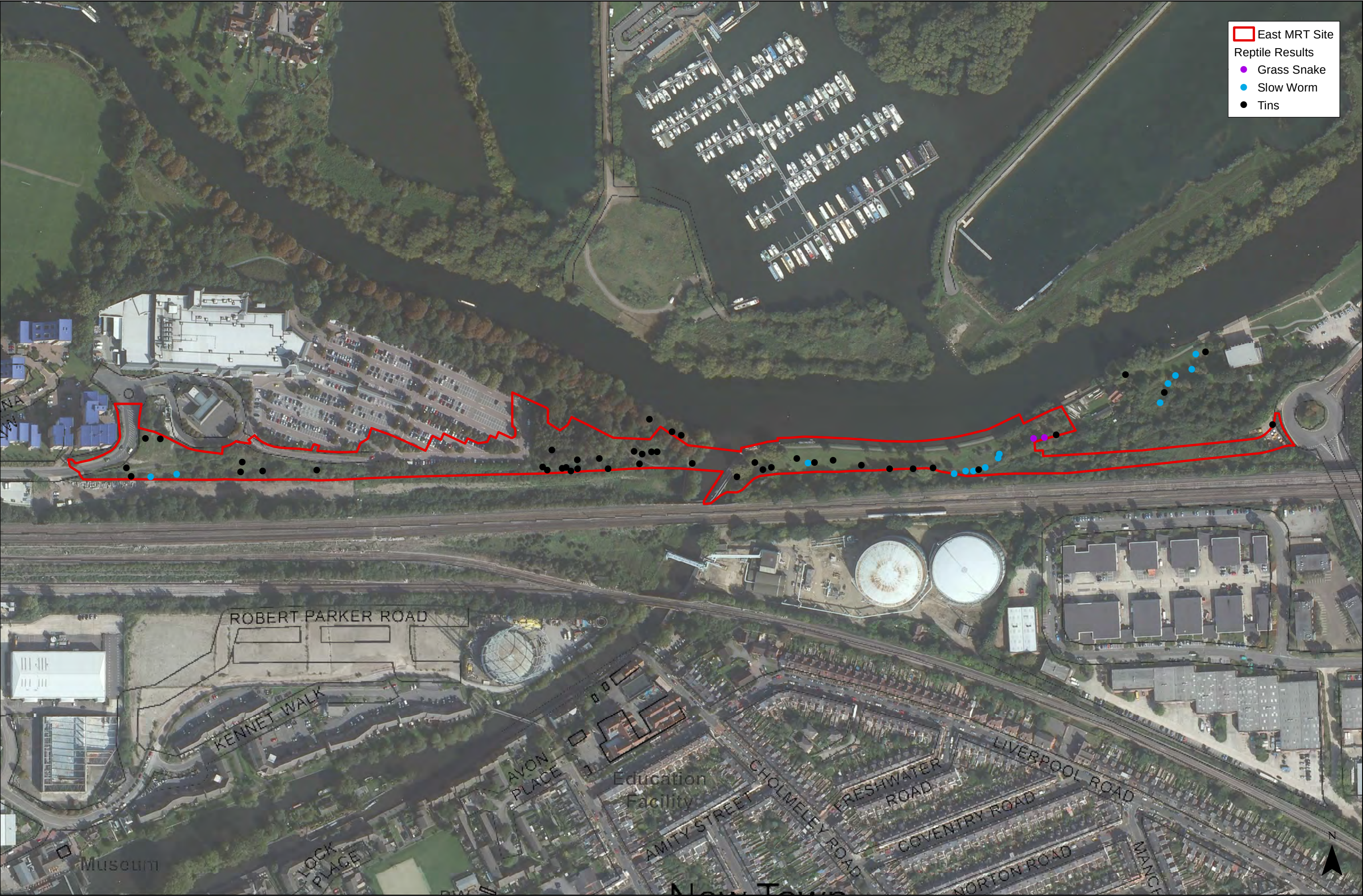


Figure 3: Reptile Results Plan



East MRT Site

Reptile Results

Grass Snake

Slow Worm

Tins

## Appendix A Legislation and Planning Policy

### A.1 Relevant Legislation

- A.1.1 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.
- A.1.2 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.

### A.2 National Planning Policy

- A.2.1 The National Planning Policy Framework (NPPF) came into effect 27th March 2012 and states that 'the planning system should seek to contribute to and enhance the natural and local environment by minimising impacts on biodiversity and; provide net gains in biodiversity where possible and contribute to the Government's commitment to halt the overall decline in biodiversity'.
- A.2.2 The NPPF (paragraph 117) indicates that local authorities should take measures to 'promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species' linking to national and local targets through local planning policies.
- A.2.3 The Government Circular 06/2005 remains valid with Paragraph 99 providing further guidance stating 'it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision'.
- A.2.4 The NPPF (paragraph 117) advises LPAs to "promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species" linking to national and local targets through local planning policies. Priority species are those species shown on the England Biodiversity List published by the Secretary of State in accordance with Section 41 of the NERC Act 2006 (see above). This includes all wild UK reptile species. Planning authorities have a duty under Section 40 of the NERC Act to have regard to priority species (and habitats) in exercising their functions including development control and planning.

### A.3 Local Planning Policy

- A.3.1 The Reading Borough Local Development Framework Core Strategy adopted January 2008 (with alteration adopted 27<sup>th</sup> January 2015) sets out the Council's adopted planning strategy for the Borough.

A.3.2 Policy CS36: Biodiversity and Geology, indicates the approach to safeguarding biodiversity (and geological) interest through the local planning system. This states that:

- 'Development should retain, protect and incorporate features of biodiversity or geological interest (including protected species and their habitats) found within the application site into their schemes. On sites with recognised biodiversity or geological value, development will not be permitted where there would be a direct or indirect adverse impact on the site, unless it can be clearly demonstrated that: -
  - o *The need for development clearly outweighs the need to protect the value of the site; and*
  - o *Appropriate compensation, impact minimisation, mitigation and compensation are provided.*
- Local Nature Reserves and Wildlife Heritage Sites will be safeguarded and where possible, enhanced. Permission will not be granted for any development that would adversely affect a designated nature reserve or Wildlife Heritage Site.
- Any development that would sever or threaten the integrity of an established wildlife link, as indicated on an adopted proposals map, will not be permitted. Where applicable, developments should be designed to protect, consolidate, extend and enhance the network of wildlife links and corridors in and adjoining the Borough, working with neighbouring authorities where appropriate.'

## Appendix B Raw Survey Data

Table 4: Visit 1

| Species | Sex (M/F) | Life Stage | Refugia No. | Time  | Cloud (/8) | Rain (Y/N) | Wind (still, light or strong) | Sun (strong, hazy, occ., none) | Amb. Temperature °C |
|---------|-----------|------------|-------------|-------|------------|------------|-------------------------------|--------------------------------|---------------------|
| Af      | F         | Adult      | 31          | 16:46 | 5/8        | N          | F3-F4                         | Occasional/strong              | 18                  |
| Nn      | F         | Adult      | 37          | 16:50 | 5/8        | N          | F3-F4                         | Occasional/strong              | 18                  |
| Af      | -         | Juvenile   | 42          | 16:58 | 7/8        | N          | F3-F4                         | Occasional/strong              | 17                  |
| Af      | -         | Juvenile   | 42          | 16:58 | 7/8        | N          | F3-F4                         | Occasional/strong              | 17                  |
| Af      | M         | Adult      | 44          | 17:02 | 7/8        | N          | F3-F4                         | Occasional/strong              | 17                  |
| Af      | F         | Adult      | 45          | 17:04 | 7/8        | N          | F3-F4                         | Occasional/strong              | 17                  |

Table 5: Visit 2

| Species | Sex (M/F) | Life Stage | Refugia No. | Time  | Cloud (/8) | Rain (Y/N) | Wind (still, light or strong) | Sun (strong, hazy, occ., none) | Amb. Temperature °C |
|---------|-----------|------------|-------------|-------|------------|------------|-------------------------------|--------------------------------|---------------------|
| Af      | N/A       | Juvenile   | 34          | 13:35 | 8/8        | N          | Light                         | Hazy                           | 18                  |

Table 6: Visit 3

| Species | Sex (M/F) | Life Stage | Refugia No. | Time  | Cloud (/8) | Rain (Y/N) | Wind (still, light or strong) | Sun (strong, hazy, occ., none) | Amb. Temperature °C |
|---------|-----------|------------|-------------|-------|------------|------------|-------------------------------|--------------------------------|---------------------|
| Af      | F         | Adult      | 58          | 15:10 | 6/8        | N          | F4-F5                         | Occasional / strong            | 23                  |

Table 7: Visit 4

| Species | Sex (M/F) | Life Stage | Refugia No. | Time  | Cloud (/8) | Rain (Y/N) | Wind (still, light or strong) | Sun (strong, hazy, occ., none) | Amb. Temperature °C |
|---------|-----------|------------|-------------|-------|------------|------------|-------------------------------|--------------------------------|---------------------|
| Af      | F         | Adult      | 33          | 16:25 | 1/8        | N          | F2                            | Strong                         | 25                  |
| Nn      | F         | Adult      | 36          | 16:35 | 1/8        | N          | F2                            | Strong                         | 25                  |
| Af      | F         | Adult      | 43          | 16:50 | 1/8        | N          | F2                            | Strong                         | 24                  |

Table 8: Visit 5

| Species | Sex (M/F) | Life Stage | Refugia No. | Time  | Cloud (/8) | Rain (Y/N) | Wind (still, light or strong) | Sun (strong, hazy, occ., none) | Amb. Temperature °C |
|---------|-----------|------------|-------------|-------|------------|------------|-------------------------------|--------------------------------|---------------------|
| Af      | F         | Adult      | 22          | 11:20 | 8/8        | N          | F1                            | Occasional                     | 18                  |
| Af      | F         | Adult      | 22          | 11:20 | 8/8        | N          | F1                            | Occasional                     | 18                  |
| Af      | F         | Adult      | 30          | 11:30 | 8/8        | N          | F1                            | Occasional                     | 18                  |
| Af      | F         | Adult      | 33          | 11:33 | 8/8        | N          | F1                            | Occasional                     | 18                  |
| Af      | F         | Adult      | 40          | 11:45 | 8/8        | N          | F1                            | Occasional                     | 18                  |
| Af      | N/A       | Juvenile   | 40          | 11:45 | 8/8        | N          | F1                            | Occasional                     | 18                  |
| Af      | F         | Adult      | 44          | 11:52 | 8/8        | N          | F1                            | Occasional                     | 18                  |
| Af      | F         | Adult      | 58          | 12:10 | 8/8        | N          | F1                            | Occasional                     | 18                  |

Table 9: Visit 6

| Species | Sex (M/F) | Life Stage | Refugia No. | Time  | Cloud (/8) | Rain (Y/N) | Wind (still, light or strong) | Sun (strong, hazy, occ., none) | Amb. Temperature °C |
|---------|-----------|------------|-------------|-------|------------|------------|-------------------------------|--------------------------------|---------------------|
| Af      | F         | Adult      | 55          | 15:00 | 8/8        | N          | F2                            | None                           | 23                  |
| Af      | F         | Adult      | 29          | 15:32 | 8/8        | N          | F2                            | None                           | 23                  |
| Af      | N/A       | Juvenile   | 35          | 15:35 | 8/8        | N          | F2                            | None                           | 23                  |
| Af      | F         | Adult      | 43          | 15:50 | 8/8        | N          | F2                            | None                           | 23                  |

Table 10: Visit 7

| Species | Sex (M/F) | Life Stage | Refugia No. | Time  | Cloud (/8) | Rain (Y/N) | Wind (still, light or strong) | Sun (strong, hazy, occ., none) | Amb. Temperature °C |
|---------|-----------|------------|-------------|-------|------------|------------|-------------------------------|--------------------------------|---------------------|
| Af      | F         | Adult      | 33          | 10:36 | 6/8        | N          | F1                            | Occasional                     | 15                  |
| Af      | F         | Adult      | 40          | 10:44 | 7/8        | N          | F1                            | Occasional                     | 15                  |
| Af      | F         | Adult      | 42          | 10:45 | 7/8        | N          | F1                            | Occasional                     | 15                  |