

# Reptile Receptor Site Survey and Mitigation Strategy

for

Forest Lodge Lane, Cwmafan



## Project data

|                          |                                            |
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# 1 Summary

## 1.1 Proposed Development & Previous Work

- 1.1.1 The Applicant intends to submit a planning application to Neath Port Talbot Council for the construction of four dwelling houses together with associated infrastructure on land at Forest Lodge Lane in Cwmafan.
- 1.1.2 Reptile surveys of the Site were completed in 2020 and populations of common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis* and grass snake *Natrix helvetica* were found (Koru Ecology Associates, 2020). As a result, it was recommended that an appropriate mitigation strategy be put together with regards to reptiles, further informed by a survey of any proposed receptor sites.
- 1.1.3 This report therefore includes details of the receptor site survey results together with a mitigation strategy.

## 1.2 Receptor Site Survey

- 1.2.1 Reptile surveys of two potential receptor sites were completed by Koru Ecology Associates during suitable weather conditions in 2021, and populations of common lizard, slow worm and grass snake were found. Full details of these surveys can be found within this report.

## 1.3 Mitigation Strategy

- 1.3.1 A mitigation strategy has been put together and includes assessment/selection of appropriate receptor site, together with a) details of required appropriate preparation/enhancement of receptor site, b) details of the translocation process, and c) details of appropriate management and monitoring for the receptor site.
- 1.3.2 Repeat surveys of the proposed development site and receptor site are recommended to be completed later in 2023, since a period of more than two years will have elapsed since the date of the previous surveys. If anything significant has changed during that time, this mitigation strategy should be updated appropriately to reflect that.

## 2 Introduction

### 2.1 The Proposed Development

- 2.1.1 This report has been prepared as part of a planning application to Neath Port Talbot Council for the construction of four dwelling houses, together with associated infrastructure including access drives, garages and gardens on a Proposed Development Site (PDS) at Forest Lodge Lane, Cwmafan, shown in Figure 1 below.
- 2.1.2 An Ecological Assessment of the PDS was completed in 2020 (David Clements Ecology Limited, 2020), which noted *'the present survey has indicated that the site may potentially support common reptiles. An artificial refugia survey should be carried out to determine likely presence/absence of reptiles on the site'*.
- 2.1.3 A reptile survey of the PDS was completed in 2020 and reported the presence of common lizard, slow-worm and grass snake (Koru Ecology Associates, 2020). The report also advised that appropriate mitigation would be necessary in order to avoid killing or injury of reptiles present on the site, as a result of the development.

### 2.2 Strategy for Reptiles

- 2.2.1 Table 11 within the Reptile Mitigation Guidelines (NE, 2011) sets out in-principle mitigation strategy options in order of preference. In relation to the PDS, many of the early listed options are not suitable for the site or the proposals, since the works will result in the complete and permanent loss of suitable habitat on the PDS, which is surrounded on all sides by roads and existing housing. This means that it is not possible to retain suitable habitat within the development for reptiles, as there simply isn't space. It is also not appropriate to manipulate the habitat on the PDS to encourage reptiles to move into surrounding suitable habitat, as this is very limited. In addition, three species of reptile have been identified on the PDS, including two with medium population size class assessments, meaning that the PDS meets Site of Importance for Nature Conservation (SINC) criteria.
- 2.2.2 Within the Local Development Plan, Policy EN6 (Important Biodiversity and Geodiversity Sites) states *'development proposals that would affect Regionally Important Geodiversity Sites (RIGS), Local Nature Reserves (LNRs), Sites of Importance for Nature*

*Conservation (SINCs), sites meeting SINC criteria or sites supporting Local Biodiversity Action Plan (LBAP) or S42(6) habitats or species will only be permitted where:*

- 1. They conserve and where possible enhance the natural heritage importance of the site; or*
- 2. The development could not reasonably be located elsewhere, and the benefits of the development outweigh the natural heritage importance of the site.*

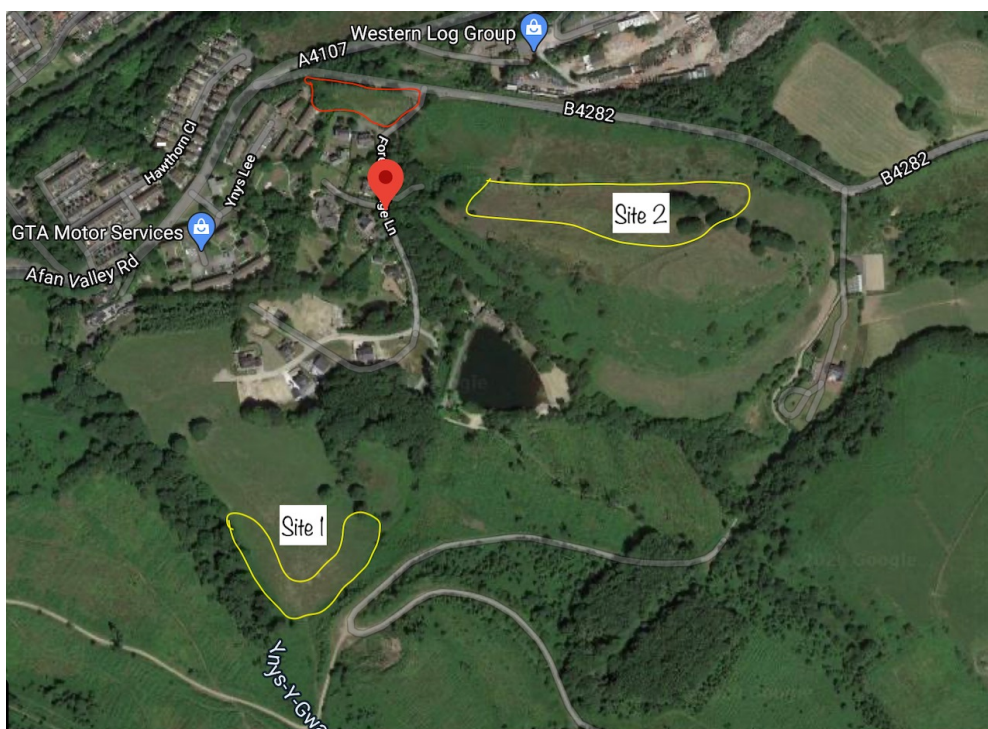
2.2.3 *Mitigation and/or compensation measures will need to be agreed where adverse effects are unavoidable'.*

2.2.4 An appropriate translocation exercise to an off-site receptor site was therefore considered to be the most appropriate option in relation to this particular development. Two nearby areas of land were highlighted by the Applicant as potential receptor sites, both of which fall within their landholding.

## 2.3 Receptor Site Surveys

2.3.1 Koru Ecology Associates was commissioned in May 2021 by J James ("the Applicant") via R Bowen ("the Agent") to complete reptile surveys on two areas of nearby land, also owned by the Applicant (Site 1 and Site 2), at least one of which may be suitable to use as a receptor site for any translocated reptiles.

Figure 1. Development site (red line), Site 1 and Site 2 (yellow lines).



- 2.3.2 Site 1 is centred on approximate National Grid Reference (NGR) SS7877291819 and Site 2 at NGR SS7843091447. The locations of both potential receptor sites are shown in Figure 1 above.

## 2.4 Study Aims

- 2.4.1 This report sets out the results of the receptor site surveys, together with a mitigation strategy, which includes details of how the reptile population on the development site will be protected, translocated and managed into the future.
- 2.4.2 If followed correctly, the strategy will ensure that the development complies with current nature conservation policy and legislation, as well as ensuring minimal impact on this species group.

## 3 Methodology

### 3.1 Study Scope

3.1.5 Koru Ecology Associates was commissioned by the Applicant to complete the following:

1. Completion of one site visit to deploy artificial refugia at Sites 1 and 2.
2. Completion of eight visits to check the artificial refugia on both sites for the presence of reptiles.
3. Production of a report detailing survey methodology and results of these surveys, together with an assessment of the two sites in order to decide which would be best used as a receptor site (if any).
4. Production of a Mitigation Strategy for reptiles in relation to the proposed development.

### 3.2 Surveyor Qualifications and Experience

3.2.1 Diana Clark MSc MCIEEM lead all survey work for this project, and wrote this report. Diana has worked as a consultant ecologist since 2003 and holds two degrees in related disciplines. She is also a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and Koru Ecology Associates is a CIEEM Registered Practice.

3.2.2 This report has been subject to technical review by Siân Musgrave BSc MCIEEM. Siân has worked as a consultant ecologist since 2008 and has extensive experience surveying and managing sites for reptiles, both as a consultant and previously during her time working with the National Trust.

### 3.3 Study Limitations

- 3.3.1 Every effort was made during field visits to complete comprehensive surveys and produce detailed descriptions. However, no investigation can ensure the complete characterisation and prediction of the environment 100% of the time. Natural and semi-natural habitats change over time, and thus results given in this report may become less reliable in the future. Repeat surveys are usually recommended if a significant period of time elapses between when surveys were completed and when works commence. Further details are given in Section 6 of this report.
- 3.3.2 No significant constraints were noted in relation to this project. Where minor constraints occurred, these are described within the relevant methodology and/or results sections of this report.

### 3.4 Survey Method

- 3.4.1 No single standard survey method for reptiles exists, however the most commonly referred to survey guidance is Froglife's *Advice Sheet 10: Reptile Survey – an Introduction to Planning, Conducting and Interpreting Surveys for Snake and Lizard Conservation* (Froglife, 1999). In addition, reference may be made to *Survey Protocols for the British Herpetofauna* (Sewell *et al*, March 2013), *The Herpetofauna Worker's Manual* (Gent and Gibson, 2003) and Natural England's (NE's) *Technical Information Note (TIN) 102 Reptile Mitigation Guidelines* (NE, 2011 – an England-based publication that has now been withdrawn).
- 3.4.2 In terms of the number of visits required, consultation in 2020 with Laura Palmer (Neath Port Talbot Council Ecologist) resulted in eight visits being required for the PDS, in line with *NE 2011*, and this was repeated for the two potential receptor sites.
- 3.4.3 Taking the above into account whilst applying professional judgement and experience, the following approach and methods were therefore used:
1. Eight survey visits were completed during May, June and July 2021, plus an initial visit prior to this to deploy refugia. Each visit covered both sites.
  2. All survey visits completed when temperatures were between 10 and 20°C.
  3. All survey visits completed when wind speed was between 0 and 3 (inclusive) on the Beaufort Scale.

4. All survey visits were completed during sunny weather (either full sun or with recent sunny spells so refugia were still warm) or if cloudy/light rain, when the temperature was at the higher end of the acceptable scale, and/or sunny weather had prevailed immediately prior to this.
5. Artificial refugia laid consisted of mats made from bitumen roofing felt, all of which were at least 0.5m x 0.5m in size.
6. Artificial refugia were laid out in areas of habitat on the Sites that were suitable for reptiles to bask in (i.e. not in the middle of scrub or bramble, though often close to the edge of such habitat), approximately 10m apart.
7. Vegetation around the mats was flattened down as low as possible, in order to keep shade over the mats to a minimum – particularly important when site visits were conducted early in the day when the sun was lower in the sky. This is also important later in the season, when rough grassland areas have often developed into tall vegetation.
8. A total of 120 artificial refugia were left *in situ* for several weeks following initial deployment (60 at each potential receptor site) in order to allow them to ‘bed in’. The approximate location of these refugia is given in Figures 2 and 3 below.
9. Any reptiles observed during each subsequent survey visit were recorded together with details of species and age (adult or juvenile).

Figure 2. Location of reptile refugia at Site 1.



Figure 3. Location of reptile refugia at Site 2.



3.4.4 Full metadata for each reptile check are given in Table 1 below.

Table 1. Metadata for Reptile Checks.

| Visit number (surveyor) | Date (time) | Weather conditions                                          |
|-------------------------|-------------|-------------------------------------------------------------|
| Deployment              | 20/04/2021  | -                                                           |
| 1                       | 19/05/2021  | 15C, wind = 2 – 3, cloud 40%, dry.                          |
| 2                       | 26/05/2021  | 14C, wind = 2, cloud 70%, dry.                              |
| 3                       | 27/05/2021  | 18C, wind = 2, cloud = 90% (hazy), dry.                     |
| 4                       | 02/06/2021  | 19 - 20C, wind = 3, cloud = 100%, dry.                      |
| 5                       | 15/06/2021  | 17 - 18C, wind = 2, cloud = 70% (hazy, then clearing), dry. |
| 6                       | 23/06/2021  | 19C, wind = 1 – 2, cloud = 85%, sunny intervals, dry.       |
| 7                       | 24/06/2021  | 17 – 18C, wind = 1 – 2, cloud = 100%, dry but humid.        |
| 8                       | 07/07/2021  | 18 - 19C, wind = 1 – 2, cloud = 60%, dry.                   |

## 4 Results

### 4.1 Reptile surveys – Site 1

4.1.1 Populations of slow-worm, common lizard and grass snake were observed at Site 1, including juveniles/sub-adults of all species.

4.1.2 The highest number of recorded slow-worm during a single visit was 12, the highest number of recorded common lizard was 2, and the highest number of recorded grass snakes was 2.

4.1.3 Full results for each visit are set out in Table 2 below.

Table 2. Results at Site 1.

| Check | Slow worm (adult) | Slow worm (juvenile) | Grass snake     | Common lizard | Amphibians | Mammals       |
|-------|-------------------|----------------------|-----------------|---------------|------------|---------------|
| 1     | 1                 | -                    | -               | -             | -          | -             |
| 2     | -                 | -                    | -               | -             | -          | -             |
| 3     | -                 | -                    | -               | -             | -          | -             |
| 4     | 3                 | 2                    | -               | -             | -          | -             |
| 5     | 5                 | -                    | 1 (adult)       | -             | -          | 1 field mouse |
| 6     | 5                 | -                    | 1 (juvenile)    | 2             | -          | -             |
| 7     | 10                | 2                    | 1 adult, 1 juv. | -             | -          | -             |
| 8     | 9                 | 1                    | -               | -             | -          | -             |

### 4.2 Reptile Surveys – Site 2

4.2.1 Populations of slow-worm and common lizard were observed at Site 2, including juveniles/sub-adults of both species.

4.2.2 The highest number of recorded slow-worm was 8, the highest number of recorded common lizard during a single visit was 2.

4.2.3 Full results for each visit are set out in Table 3 below.

Table 3. Results at Site 2.

| Check | Slow worm<br>(adult/sub-adult) | Slow worm<br>(juvenile) | Grass snake | Common lizard<br>(adult/sub-adult) | Amphibians | Mammals |
|-------|--------------------------------|-------------------------|-------------|------------------------------------|------------|---------|
| 1     | 1                              | 1                       | -           | 1                                  | -          | -       |
| 2     | -                              | 2                       | -           | -                                  | -          | -       |
| 3     | 1                              | 2                       | -           | -                                  | -          | -       |
| 4     | 1                              | 4                       | -           | 1                                  | -          | -       |
| 5     | 3                              | 3                       | -           | 1                                  | -          | -       |
| 6     | 2                              | 1                       | -           | 2                                  | -          | -       |
| 7     | 7                              | -                       | -           | 2                                  | -          | -       |
| 8     | 8                              | -                       | -           | -                                  | -          | -       |

## 5 Assessment

### 5.1 Assessment of Reptile Population

- 5.1.1 The publication *Wildlife Sites Guidance Wales: A Guide to Develop Local Wildlife Systems in Wales* (Wales Biodiversity Partnership, 2008) states in relation to the reptile species found on the Site that *'the recording of several (i.e. two or more) individuals of a species on half or more of the survey occasions should be taken to indicate the presence of a 'good' population. Recording of several individuals on every survey occasion (or nearly every occasion) may be indicative of an exceptional population'*. It also states that *'the following should be considered for selection: a) sites supporting three or more reptile species, and b) sites supporting good populations of any reptile species'*.
- 5.1.2 This means that Site 1 meets SINC criteria as three reptile species were recorded during the surveys, and Site 2 also meets SINC criteria as two species were recorded there on more than half of the survey visits.
- 5.1.3 The Key Reptile Sites Register criteria (Froglife, 1999) indicate that Site 1 has a low population of grass snake (< 5 seen during any one visit), a low population of common lizard (< 5 seen during any one visit) and a good population of slow worm (maximum of 5 – 20 seen during any one visit). The same criteria indicate that Site 2 has a low population of common lizard and a good population of slow worm.
- 5.1.4 The Reptile Mitigation Guidelines (NE, 2011) indicate that Site 1 has a small population size class of grass snake (< 5 seen during any one visit), a medium population size class of slow worm (10 – 40 seen during any one visit) and a low population of common lizard (< 5 seen during any one visit). The same criteria indicated that Site 2 also has a medium population size class of slow worm and a low population of common lizard.

### 5.2 Choosing the Receptor Site

- 5.2.1 A number of factors were taken into account when selecting the receptor site, including the following:
1. Location in relation to the donor site.

2. Size and existing habitat type.
3. Reptile species already present, together with numbers.
4. Connectivity with surrounding habitat that is also suitable for reptiles.
5. Accessibility for a) enhancement works, b) physically completing any translocation exercise, and c) long-term management requirements.
6. Current ownership and ability to enter into legal agreements to secure the long-term viability of the site.
7. Any other aspects that may affect the choice of receptor site.

5.2.2 The above are addressed in turn for each potential receptor site in the following paragraphs.

1. **Location.** Site 1 is located approximately 400m from the PDS and Site 2 is located approximately 100m from the PDS. Both sites fall within the boundary of Neath Port Talbot Council.
2. **Size and habitat.** Site 1 forms part of a semi-improved grassland field, with encroaching bracken and bramble at the edges (see Figures 4 and 5 below). The southern edge is gently sloping downhill to the north, then the field gradually falls away more steeply. The field has historically been lightly grazed by sheep, but no stock have been grazing there since 2020 so during the survey visits stock was absent. Site 2 is located on the northern aspect of an iron age hill fort, much of which is steep and starting to be encroached with scrub. Bracken is also abundant, and in the spring bluebells form almost continuous ground cover in the more open areas (see Figures 6 and 7 below).
3. **Reptiles already present.** Site 1 was shown by the survey work to have all three species of reptile that were found on the PDS, including juveniles of both slow-worm and grass snake. These were generally found associated with mats placed on the southern edge of the site. Site 2 was shown by the survey work to have two species of reptile present that were found on the PDS, including juveniles of both.
4. **Connectivity.** Site 1 was found to be well connected to other suitable habitat, particularly to the south and the west, with large tracts of scrub, bracken and open grassland are present in these areas. Connectivity to the north was lower, essentially being the rest of the semi-improved grassland field, becoming gradually steeper in aspect. Site 2 was found to be less well connected. Whilst there is a narrow adjacent field located immediately to the north, with likely good quality habitat for reptiles being present, beyond this is the busy B4282 forming a significant

barrier to dispersal. To the west there is an area of dense woodland, beyond which is further housing development associated with Forest Lodge Lane. To the south is an open semi-improved grassland field associated with the castle, grazed by sheep at the time of the survey and therefore of lower suitability for reptiles. This field is also outside the ownership of the Applicant. A narrow area of suitable habitat is present to the west, linking Site 2 with a wider area of marshy grassland and scrub associated with Penycastell, which while likely suitable for grass snakes is more limited for common lizard and slow-worm, which have been recorded on Site 2.

5. **Accessibility.** Site 1 was found to be moderate in terms of accessibility. The bottom of the field backs on to the end of Forest Lodge Lane and there is a well-maintained farm gate which allows access to the field for vehicles such as tractors and 4 x 4s. Whilst the northern end of the field is steep, there is a clear access point between two mature oak trees which allows vehicles to ascend the slope. Site 2 was found to be poor in terms of accessibility. A poorly maintained gap from the side of Forest Lodge Lane, opposite the PDS is present, however vehicle access across the narrow intervening field would be difficult, as it is very wet and there is no well-maintained track. In addition, an existing poorly maintained track is present at the edge of Site 2 to the north, and much of Site 2 is very steep with randomly undulating terrain, making it difficult to navigate with vehicles.
6. **Ownership.** Both sites are owned by the Applicant, and as such legal agreements would be relatively straightforward to enter into, in terms of maintaining any receptor site's longer-term security.
7. **Any other issues.** It is possible that there may also be heritage implications in terms of doing habitat improvement works to Site 2, due to the proximity of the ancient castle to the Site.

5.2.3 Taking all the above into account, it is considered that Site 1 offers the best solution for provision of a suitable receptor site. Whilst it is acknowledged it is not a perfect site, there are a number of ways in which it could be improved to make it better for reptiles. This in turn will increase the carrying capacity of the site for reptiles translocated from the PDS. In addition, due to the size of the field, there may be opportunities and scope for careful expansion of the receptor site if required for further development proposals in the future.

Figure 4. Site 1 from the northern edge, looking south.



Figure 5. Site 1 from northern edge, looking east.



Figure 6. Site 2, showing steep slope and bluebell cover in spring.

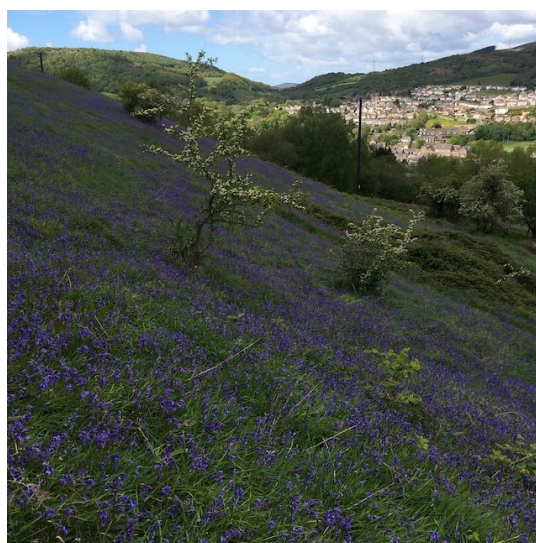


Figure 7. Site 2, showing dense bracken cover & scrub.



## 6 Mitigation Strategy

### 6.1 Preparation of the receptor site

- 6.1.1 Key requirements of preparing any receptor site include a) any preparations made must increase the existing carrying capacity of the site for reptiles, particularly if there are already reptiles recorded on it (as in this case), and b) must be carried out well in advance of the translocation exercise, so the habitat is suitable for additional reptiles on arrival.
- 6.1.2 There are a number of ways in which the existing carrying capacity of any given site can be limited for reptiles, and these include a) availability of basking sites, b) availability of hibernation/refuge sites, c) availability of food, and d) for grass snakes, the availability of egg-laying sites. In order to increase carrying capacity of a site, these factors must be improved/increased, and in many cases can be addressed by increasing the diversity of vegetation structure (thereby increasing diversity of micro-climates and micro-habitats) and through appropriate long-term management.
- 6.1.3 For this project, the proposals outlined in Table 4 and Figure 8 below are the ways in which the receptor site will be prepared. These will be put in place well in advance of the translocation taking place, ideally at least a year prior. Note also that the receptor site is approximately 1.2 ha in size, considerably larger than the donor site.
- 6.1.4 At present, it is not possible to give precise timings of these works, as it is not yet known when the development works will take place. The local planning authority may wish to condition a requirement for a more detailed timeline of the work required on the receptor site, as part of any planning consent. In addition, more details of bund structure, materials and pond layout/planting may also be requested by way of a condition.

Table 4. Receptor site preparation.

| Preparation               | Prescription                                                                                                                                                                                                                                                      | Reason                                                                                                                                                                                                                                                                                                                                                            | Season                                                                                                                                                                                  |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fence & gate installation | The receptor site will be fenced using post and wire fencing, and/or existing fence mended to ensure the site is stock-proof. A gate will be installed to ensure easy access to the receptor site for light agricultural vehicles and personnel using hand-tools. | To ensure grazing can be controlled/ excluded as necessary (thereby reducing/ omitting trampling) and allow access for any future management practices that may be needed. Fence type will also allow free movement of reptiles in and out of the receptor site.                                                                                                  | Stock to be excluded for at least 6 months prior to translocation taking place.                                                                                                         |
| Bund creation             | At least two bunds will be created within the receptor site, between approximately 1 and 1.5m in height and approximately 2m wide at the base. These will be made of loose soil, rubble and branches, and covered with turf taken from the footprint of each.     | To increase the availability of refuge sites, hibernation sites and basking areas which are south-facing. In addition, the shape of the bunds will increase the diversity of micro-climates and different growing areas for a greater variety of plant species. In turn, this will provide greater invertebrate diversity as a food source for reptiles.          | At least 6 months prior to translocation taking place, ideally between spring and autumn so any reptiles present will move away from the work area.                                     |
| Pond creation             | A small lined pond will be created and allowed to fill naturally with rain water over time. Some planting will be carried out, however it is envisaged that the majority of aquatic and marginal vegetation will be allowed to colonise naturally.                | To provide additional diverse and suitable habitat in particular for grass snakes. The creation of a pond will also increase the diversity of plant and invertebrates on the site, which in turn results in an increase in diversity of food for reptiles. In particular, a pond will attract frogs, toads and newts, all of which provide food for grass snakes. | Ideally at least a year prior to translocation taking place, ideally during the autumn months to allow natural filling by rain over the winter months, followed by spring colonisation. |

Figure 8. Receptor site preparations.



## 6.2 Site clearance

6.2.1 Once the receptor site has been adequately prepared, a trap and translocation exercise will be carried out on the PDS. Fencing the donor site is often used to prevent additional reptiles colonising the trapped area during such an exercise, however for this site it is not considered proportionate or appropriate. This is because the donor site is almost entirely surrounded by tarmac roads, including the busy B4282 to the north, Forest Lodge Lane to the south and a minor access road to the south west. The western boundary has very limited permeability, with existing established housing present beyond the site boundary. Whilst there may be some additional individuals located on the grassy B4282 verge to the north, their inclusion within the translocation is considered to be appropriate. Any reptiles present in this area are likely to be minimal in number, and as a result may not amount to a viable population in the longer term, if left behind once the PDS has been lost. As a result, it is considered that translocating these individuals as well as those picked up from the donor site itself, is appropriate.

6.2.2 The translocation exercise will therefore be completed as per the following bullets:

1. **Habitat manipulation of the donor site using a combination of mowers and brush-cutters.** The PDS will be mown by the usual method for this site, taking care to ensure the cutting blades are set at least 20cm above the ground. Areas of bramble scrub around the edges of the PDS will also be cut using hand-held brush-cutters, again to a height of no less than 20cm. A suitably competent ecologist will supervise this work, as necessary.
2. **Installation of artificial refugia.** Following completion of the grass cut, at least 80 artificial refugia (in this case bitumen felt mats) will be installed across the site. These should be *in situ* for at least 2 weeks prior to the first trapping day being completed, in order to 'bed in' to the site.
3. **Checking refugia and moving animals.** All refugia will be checked by an appropriately competent ecologist and any reptiles found will be removed from the PDS and placed in appropriate containers for immediate transportation (buckets with vegetation and/or cotton bags) to the receptor site. In order to ensure the continued welfare of any reptiles moved, no individuals will be left in a vehicle at any time, other than for moving them from the PDS to the receptor site, and none will be held captive for more than 2 hours.

4. **Effort required.** In accordance with NE 2011, a calculation has been made in relation to the minimum number of trapping days required to substantially deplete the population. Referring to Table 12 of that guidance document (see Appendix 1 of this report), this is based on a species score of 25 (since grass snakes are present), the site being 0.3 ha in size, and a population size class assessment of 0.5 (due to the presence of a medium/good population of slow worm).  $25 \times (0.3 + 0.5) = \text{minimum}$  of 20 days trapping during suitable conditions. Following 20 days of trapping, a further '5 days clear' is also required before trapping effort can be considered sufficient. Note also that where the capture exercise starts at a sub-optimal time (for example in July), additional effort may be necessary.

- 6.2.3 Note that all the above activity will be completed during times of year when reptiles are active, i.e. between early April and early October, subject to local weather conditions at the time.

## 6.3 Receptor site management

- 6.3.1 The management plan for the receptor site aims for minimal intervention and a simple approach to maintaining habitats and features in the best possible condition to support the expanded reptile population.

- 6.3.2 The following bullets outline the proposed management plan of the receptor site:

1. **Fence and gate maintenance.** Whenever stock is placed into the field to the north of the receptor site, the fence around the receptor site will be checked to ensure it remains stock-proof.
2. **Leave the receptor site undisturbed.** The receptor site will be retained undisturbed for the first two years following the translocation, in order to allow vegetation within and around the pond to establish, as well as over the newly created bunds.
3. **Annual vegetation cutting.** Up to 50% of the vegetation within the receptor site will be cut annually in the late summer/early autumn by hand using brush cutters, and will be completed on rotation, with different areas cut each year. This will ensure that scrub encroachment is avoided, and that the structural diversity of the vegetation is maintained. Allowing each rotation two years growth before cutting will also ensure a dead grass 'thatch' develops for a time, which will provide micro-

climates for both reptiles and invertebrates, as well as habitat for small mammals such as voles, mice and shrews, which form part of a grass snake's diet.

4. **Vegetation pile creation.** All arisings created by the vegetation cut will be piled into heaps of around 3m in diameter, in order to provide additional micro habitat and in particular potential egg laying sites for grass snake. The vegetation piles will be added to annually, following each vegetation cut.
5. **Pond maintenance.** During each vegetation cut, the pond will also be checked for vegetation cover, and vegetation removed as required in order to maintain open water at around 50%. This will ensure the pond does not 'silt up' and a good variety of micro habitats can be maintained. This is likely to be required around every three or four years.
6. **Length of agreement.** This management plan will be carried out as stated, for at least ten years, or as agreed with the NPTC ecology team. This commitment can be secured by way of a Section 106 agreement or similar, to ensure it is legally binding.

## 6.4 Receptor Site monitoring

- 6.4.1 The receptor site reptile population will be monitored for the duration the management plan is in place. This will include completing standard reptile surveys during years one, three, five and ten following the translocation exercise being carried out. All survey work will be completed by an appropriately competent ecologist and the results reported to the Applicant and NPTC, as well as be used to feed in to the regular review of the management plan (see below).

## 6.5 Review of the management plan

- 6.5.1 The management plan will be reviewed following each monitoring check, to ensure that the prescriptions remain appropriate for the species the site is aiming to support. Where appropriate, management tasks should be adjusted to address any issues noted, for example if vegetation is growing faster than anticipated it may be necessary to increase the area cut each year. Where changes are made, the management plan will be formally updated and a record kept.

## 6.6 Repeat Surveys

- 6.6.1 In order to provide robust and up-to-date data for impact assessment, it is generally considered good practice to repeat surveys should a period of two years lapse between a survey being completed and the works commencing. This should be addressed even if planning permission has been granted, since reptiles are protected by legislation entirely outside the planning system.
- 6.6.2 Since the survey of the PDS was completed in 2020 and the survey of the receptor site was completed in 2021, surveys of both are recommended in 2023. Should any significant changes be noted in terms of species and/or population size class estimates, this mitigation strategy should be reviewed and updated if necessary, in order to reflect those changes.

## 7 References

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## 8 Appendix 1

Table 12 From Natural England's Technical information note regarding minimum number of capture days for a translocation.

**Natural England Technical Information Note TIN102**  
**Reptile mitigation guidelines**

**Table 12** Recommended minimum number of capture days under ideal conditions

|               | <b>Species score</b> | <b>Site size</b> | <b>Population size class/ Habitat Suitability Assessment</b> |
|---------------|----------------------|------------------|--------------------------------------------------------------|
| Slow-worm     | 15                   | <0.1ha = 0.1     | Small/ Poor = 0.2                                            |
| Common lizard | 20                   | 0.1-0.5ha = 0.3  | Medium/ Good = 0.5                                           |
| Sand lizard   | 30                   | 0.5-2ha = 0.5    | Large/ Exceptional = 0.8                                     |
| Grass snake   | 25                   | 2-10ha = 0.7     |                                                              |
| Adder         | 25                   | >10ha = 0.8      |                                                              |
| Smooth snake  | 30                   |                  |                                                              |