Land at Former Marchon Works, High Road, Whitehaven CA28 9NF

# **REPTILE PRESENCE / ABSENCE SURVEY AND MITIGATION STRATEGY**

April 2022

[ERAP (Consultant Ecologists) Ltd ref: 2021-138b]

[Copeland Borough Council reference: 4/21/2432/0F1]

ERAP (Consultant Ecologists) Ltd Building N2 Chorley Business and Technology Centre East Terrace Euxton Lane Euxton Chorley PR7 6TE

Tel: 01772 750502

mail@erap.co.uk www.erap.co.uk





# CONTENTS

Summ	ary	3
1.0	Introduction	5
1.1	Background and Rationale	5
1.2	Scope and Objectives of Survey and Assessment	5
2.0	Reptile Ecology and Relevant Wildlife Legislation	5
2.1	Reptile Ecology	5
2.2	Relevant Legislation	6
3.0 3.1 3.2 3.3 3.4 3.5	Methods of Survey Desktop Study and Data Search Habitat Suitability Assessment Reptile Presence / Absence Survey Population Size Class Assessment Survey and Reporting Limitations	7 7 7 9 9
4.0	Survey Results	. 10
4.1	Desktop Study and Data Search	. 10
4.2	Description of Habitats and Assessment	. 10
4.3	Reptile Presence / Absence Survey 2021	. 12
4.4	Population Size Class	. 14
5.0	Evaluation and Assessment	. 14
5.1	Brief Description of Proposals	. 14
5.2	Assessment of Impacts	. 14
6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9	MItigation Strategy and Recommendations. Overview Receptor Areas and Habitat Creation / Enhancement Protection of the Habitats Outside the Construction Zone and Reptile Capture and Translocation Design of the Landscape Planting / Public Open Space Design of the Residential Development Homeowner's Information Leaflet and Signs / Interpretation Boards Minimising the Risk of Cat Predation Long-term Management and Monitoring Programme Programme of Works	. 16 . 17 . 18 . 18 . 19 . 19 . 20 . 20 . 20
7.0	Conclusion	. 20
8.0	References	. 21
9.0	Appendix: Tables and Figures	. 22
9.1	Photographs	. 22
9.2	Figures	. 24

# List of Tables

Table 3.1: Important Habitat Characteristics for Reptiles	7
Table 3.2: Dates, Weather Conditions and Times of Reptile Surveys / Inspections of Artificial Refugia	9
Table 4.1: Phase 1 Habitats Present at the Site	. 10
Table 4.2: Habitat Assessment of the Site for Reptiles	. 11
Table 4.3: Results of Reptile Presence / Absence Survey	. 13

# List of Figures

Figure 1: Aerial Image of Site, Surrounding Habitats and Nearby Designated Sites	24
Figure 2: Phase 1 Habitat and Vegetation Map	25
Figure 3: Results of Habitat Assessment and Reptile Presence / Absence Survey 2021 and Location of Suitable	
Habitats	26
Figure 4: Overview of Reptile Mitigation Strategy	27



# **Document Control**

Survey Type:	Surveyors	Survey Date(s)
Reptile presence / absence	Marie Pickering	Between 10 <sup>th</sup> June 2021 and 29 <sup>th</sup>
surveys	Aidan Pickering	September 2021
Reporting	Personnel	Date
Author	Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM Principal Ecologist	14 <sup>th</sup> April 2022
Signature(s)		
Checked	Brian Robinson B.Sc. (Hons) MCIEEM Senior Ecologist	19 <sup>th</sup> April 2022
Revised and issued	Victoria Burrows	19 <sup>th</sup> April 2022
Report issued to	Persimmon Homes	
Version Number	1	



### SUMMARY

#### Introduction and Scope

- i. ERAP (Consultant Ecologists) Ltd advised Persimmon Homes Lancashire on the requirement to carry out a reptile presence / absence survey of land at the former Marchon Works, High Road, Whitehaven CA28 9NF (hereafter referred to as the 'site') in 2020. The recommendation was based on the assessed suitability of the habitats at the site and surrounds for reptile species and records of reptiles, namely slow-worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*), in the local area; further details are presented at **Section 4.1**.
- ii. The reptile survey was required to inform a planning application for the development of the site to housing with associated roads and public open space (Copeland Borough Council planning application reference 4/21/2432/0F1).
- iii. The scope of survey undertaken is appropriate to identify potential ecological constraints, characterise the impacts of the proposals on reptile species and their habitats, and to outline the mitigation required and opportunities for biodiversity associated with the development proposals.
- iv. This report has been prepared as a technical appendix to complement Land at the Former Marchon Works, High Road, Whitehaven, Cumbria CA28 9NF. Ecological Survey and Assessment. Ref. 2021-138 (ERAP (Consultant Ecologists) Ltd, 2022), prepared for the site and presents the results of a desktop study and data search, habitat assessment and reptile species presence / absence survey carried out between June and September 2021. The report additionally presents a mitigation strategy for the protection of reptiles and to ensure suitable reptile habitat is protected, retained and enhanced as part of the proposals.

#### **Results of Survey and Assessment**

- v. The surveys detected 2 reptile species (slow-worm and common lizard) at the site and survey area. The detection of juvenile individuals is indicative of breeding at the site.
- vi. **Figure 3** shows the broad distribution (based on where reptiles were found beneath the refugia). Reptiles were found around the margins of the arable field, at the former railway line, in the grassy banks and bunded slopes within the former Marchon Works site (particularly at the southern margin and around the edge of the octagonal shaped hard-standing) and in the off-site grassed banks at the elevated area immediately outside the southwestern corner of the site. No reptile species were detected along the eastern margin of the Marchon Works site.
- vii. No other reptile species were found. Based on the results of the surveys, and for the reasons outlined in **Section 4.2**, the presence of grass snake (*Natrix natrix*), adder (*Vipera berus*), smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*) is reasonably discounted.
- viii. In the absence of mitigation the proposed residential development is identified to have an adverse effect on reptile populations and their habitats as a result of impacts associated with habitat loss, habitat degradation (shading), habitat disturbance and the risk of killing and injury of reptile species during site remediation and construction works. The identified long-term and permanent impacts as a consequence of the proposed residential development are associated with disturbance and loss of basking time / opportunities, risk of habitat loss as a result of fire damage and also adverse effects on local reptile populations as a result of cat predation.

#### Mitigation and Recommendations

- ix. The reptile mitigation strategy to be applied at this site has been prepared in accordance with The Mitigation Hierarchy (i.e. avoid, mitigate and compensate) and comprises a combination of:
  - a. Identification of retained and protected Receptor Areas on land to the west of the construction zone (refer to Section 6.2);
  - b. Enhancement of the Receptor Areas for the receipt of reptile species; ;



- c. Exclusion of the construction zone (in phases, as needed) with reptile fencing to minimise the risk of reptiles entering the construction zone from the Receptor Areas and favourable habitats in the wider area, and the trapping and translocation of reptiles to the Receptor Areas;
- d. Additional habitat creation and enhancement as the earthworks at the public open space are completed;
- e. Removal of exclusion fencing to permit reptiles to re-colonise the enhanced areas and the habitats they have been excluded from during construction (such as the earth banks along the mineral line) once works are completed;
- f. Design of the public open space to secure the conservation of areas where disturbance by the public will be minimised;
- g. Design and implementation of features at the residential development to permit reptile species to move between garden landscapes (i.e. lifting of plot boundary fencing);
- h. Implementation of measures to engage the public, raise awareness and educate the local residents on the protection afforded to reptile species and how to avoid harm to these species and their habitats; and
- i. Secured long-term management of habitats in accordance with conservation objectives for reptiles (and use / visitor management).

### Conclusion

- x. The reptile mitigation strategy outlined in **Section 6.0** demonstrates that mitigation for the protection of reptile species and their habitats prior to site remediation, during construction activities *and* in the long-term is feasible and will be secured by the proposals. The application of long-term habitat protection and management is considered to be an essential component of the mitigation strategy and the proposals aim to secure this with the aim of contributing to achieving gains for reptiles and their habitats.
- xi. It is advised that the implementation of the strategy will ensure compliance with wildlife legislation, the National Planning Policy Framework (NPPF), local planning policy, Natural England guidance and best practice.



# 1.0 INTRODUCTION

#### 1.1 Background and Rationale

- 1.1.1 ERAP (Consultant Ecologists) Ltd advised Persimmon Homes Lancashire on the requirement to carry out a reptile presence / absence survey of land at the former Marchon Works, High Road, Whitehaven CA28 9NF (hereafter referred to as the 'site') in 2020. The Ordnance Survey (OS) grid reference at the centre of the site is NX 9649 1615. An aerial image of the site and its surrounding habitats is appended at Figure 1 (source image: ESRI World Imagery) and a Phase 1 Habitat Map of the site is appended at Figure 2.
- 1.1.2 The reptile survey was required to inform the following planning application (Copeland Borough Council reference 4/21/2432/0F1):

"Hybrid application seeking full planning permission for the erection of 139 residential dwellings, new vehicular access off High Road, public open space and ancillary infrastructure, and outline planning permission for residential development units, retail and ancillary infrastructure with all matters reserved other than access."

1.1.3 The recommendation to carry out a survey was based on the suitability of the habitats at the site and surrounds for reptile species and the records of reptiles in the local area, namely slow-worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*). Further details are presented at **Section 4.1**.

#### 1.2 Scope and Objectives of Survey and Assessment

- 1.2.1 The scope and objectives of the reptile survey were to:
  - a. Present the results of a desktop study and data search for known reptile records at the site and the local area;
  - b. Assess the suitability of the site and habitats present for reptile species;
  - c. Carry out a reptile presence / absence survey;
  - d. Use these data to determine the population size (adult density) in accordance with *Evaluating local mitigation/translocation programmes: Maintaining Best Practices and lawful standards. HGBI advisory notes for Amphibians and Reptile Groups (ARGs)* (HGBI, 1998)
  - e. Identify and characterise the impacts of the development proposals on reptile species and their habitats present at the site / zone of potential influence; and
  - f. Specify the scope of mitigation and ecological enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance in relation to reptile species.

### 2.0 REPTILE ECOLOGY AND RELEVANT WILDLIFE LEGISLATION

### 2.1 Reptile Ecology

- 2.1.1 There are six species of reptile native to mainland Britain, comprising four more common and widespread species, and two rarer species with restricted distributions.
- 2.1.2 The four more common species are grass snake (*Natrix natrix*), adder (*Vipera berus*), common lizard (*Zootoca vivipara*) and slow-worm (*Anguis fragilis*). The rarer species are the sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*).
- 2.1.3 The four more common species have sporadic but widespread distribution throughout England, Wales and Scotland (grass snake are absent from Scotland however). Smooth snake and sand lizard have narrower habitat requirements and are consequently confined to suitable lowland heath sites in the south of England; sand lizard also has a limited distribution at defined locations along the coastal sand dunes of north-west England and north Wales.



- 2.1.4 Reptiles are ectothermic (cold blooded), and need to bask in the sun in order to raise their body temperature to have enough energy to move, forage and find mates. Reptiles are active during the spring, summer and autumn and hibernate during the winter. During the spring and autumn air temperatures are lower, requiring reptiles to invest time in basking to raise their body temperature. Basking involves finding a location exposed to direct sunshine, often within or close to cover, and remaining still until sufficiently warm that sufficient energy has been gained to be mobile. During the summer months, air temperatures are usually sufficiently high that the time invested in basking is much less, and may be only necessary in the early morning and towards the end of the evening.
- 2.1.5 Reptiles use a range of habitats including coarse grassland, wet and dry heath, scrub, woodland and wetland habitats. Suitable reptile habitat typically comprises a combination of different habitat types and features. These features include:
  - a. Basking sites with diversity of vegetation to provide a variety or micro-climates between which reptiles can move to regulate their body temperature;
  - b. Refuges where reptiles can shelter such as dense scrub, rocks, logs, tree roots and subterranean structures;
  - c. Foraging areas where reptiles can hunt (generally encompass a range of basking sites and refugia);
  - d. Hibernation sites such as rocks, logs and vegetation piles, rock fissures, disused mammal burrows and other subterranean structures that are free-draining structures and usually on south facing slopes; and
  - e. Egg laying and breeding sites.
- 2.1.6 All UK reptile species hibernate (typically from October until March).

### 2.2 Relevant Legislation

- 2.2.1 The four more common reptile species in the UK (common lizard, grass snake, adder and slow-worm) are listed under Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended), in respect of Section 9(5) and part of 9(1). This protection was extended by the Countryside and Rights of Way Act 2000.
- 2.2.2 The legislation makes it an offence to:
  - a. Intentionally, or recklessly, kill or injure any of the above species, and / or;
  - b. Sell, or attempt to sell, any part of the species, alive or dead.
- 2.2.3 Sand lizard and smooth snake (and their respective habitats) are fully protected under Schedule 5 (Section 9) of the *Wildlife and Countryside Act 1981* (as amended) and under *The Conservation of Habitats & Species Regulations 2017* (as amended). It is illegal to kill, injure, capture, handle or disturb them, and the places they use for breeding, resting, shelter and protection are protected from being damaged or destroyed. It is also illegal to obstruct these animals from using such areas.
- 2.2.4 All British reptiles are listed as Priority Species (under Section 41 of the *Natural Environment and Rural Communities Act 2006*) and are therefore capable of being a material consideration in relation to a planning decision.



### 3.0 METHODS OF SURVEY

#### 3.1 Desktop Study and Data Search

- 3.1.1 The following sources of information and ecological records were consulted to gain information in relation to the presence, diversity and status of reptile species at the site and local area:
  - a. Cumbria Biodiversity Data Centre;
  - b. Cumbria Biodiversity Action Plan (BAP);
  - c. *Marchon Chemical Works Site, Whitehaven. Extended Phase 1 Habitat Survey* (BSG Ecology, 2017), hereafter the '2017 ecology report'; and
  - d. Whitehaven Metallurgical Coal Project, Cumbria. Herpetological Survey Report. Technical Appendix 11.3 (BSG Ecology, 2018), hereafter the '2018 Herpetological Survey Report', which included reptile surveys as part of the scope of ecological surveys submitted to inform a planning application for the development of a new underground metallurgical coal mine on land to the south of the site (Cumbria County Council planning reference 4/17/9007)

#### 3.2 Habitat Suitability Assessment

3.2.1 The Phase 1 Habitat Survey, as reported in *Land at the Former Marchon Works, High Road, Whitehaven, Cumbria CA28 9NF. Ecological Survey and Assessment. Ref. 2021-138* (ERAP (Consultant Ecologists) Ltd, 2022), hereafter the 'Ecology Report', was referred to and the site and its surroundings were assessed in terms of their suitability for use by reptile species using the important characteristics for reptiles outlined in the draft document '*Reptile Mitigation Guidelines*' (Natural England, 2011), and *Reptile Habitat Management Handbook* (Edgar, et al., 2010). These habitat characteristics are outlined below.

#### **Table 3.1: Important Habitat Characteristics for Reptiles**

1. Location (in relation to species range)	7. Connectivity to nearby good quality habitat
2. Vegetation Structure	8. Prey abundance
3. Insolation	9. Refuge opportunity
4. Aspect	10. Hibernation habitat potential
5. Topography	11. Disturbance regime
6. Surface geology	12. Egg-laying site potential

#### 3.3 Reptile Presence / Absence Survey

#### Survey Area

3.3.1 The survey area comprised habitats identified as being suitable for use by reptiles that lie within the site, as illustrated on **Figure 3**, and surrounds up to a distance of 50 metres from the site boundary, where habitats were considered to be suitable.

#### Survey Approach

- 3.3.2 A presence / absence survey for reptile species was carried out in accordance with standard survey methodology detailed in *Reptile survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation* (Froglife, 1999), hereafter the 'Froglife guidance' and *Herpetofauna Workers' Manual* (Gent, T. and Gibson, S. (eds), 2003).
- 3.3.3 Two methods of detection were applied between June and October 2021 inclusive:
  - a. Direct observations; and
  - b. Use of artificial refugia 'traps'.



### Personnel

3.3.4 The surveys were carried out by Marie Pickering and Aidan Pickering, who are both suitably experienced field ecologists. The ecologists are familiar with the ecology and life history of reptile species.

#### Direct Observations and Search of Debris

- 3.3.5 Visual searches for basking reptiles were carried out by visiting the site at an appropriate time of day (between 08.30 am and 11.30 am between June and September 2021 during suitable weather conditions) and quietly walking suitable areas of the site scanning 3 to 4 metres ahead for basking reptiles. Survey dates, timings and weather conditions are presented at **Table 3.2** below.
- 3.3.6 Existing debris such as fallen logs, metal signs and tarpaulin sheets within the site were carefully lifted and searched on an ad-hoc basis during the site visits.
- 3.3.7 Additional observations and searches were made during the updated Phase 1 Habitat Survey carried out by Victoria Burrows B.Sc. (Hons) M.Sc. CEnv CIEEM on 6<sup>th</sup> October 2021.

#### Artificial Refugia 'Traps'

- 3.3.8 Initially 260 artificial refugia were strategically placed throughout the 28.8 hectare survey area on 10<sup>th</sup> June 2021 to create a density of 9 traps per hectare. Following the observations of interference and disturbance of at least 24 traps on 9<sup>th</sup> July 2021 (further detail is presented at **Section 3.4**), an additional 50 traps were installed on 16<sup>th</sup> July 2021 (to account for the loss of the 24 refugia that had been interfered with) to reach a total of 310 artificial refugia to form a trapping density of approximately 11 refugia per hectare. This is considered a high trapping density; between 5 and 10 traps per hectare are recommended in the Froglife guidance.
- 3.3.9 Refugia were placed in areas which were assessed to be suitable and attractive for use by sheltering and basking reptiles, and areas which were considered to be away from disturbance from local walkers and dogs (where possible).
- 3.3.10 Refugia consisted of 0.5 metre by 0.5 metre squares of roofing felt weighed down by stones / broken bricks to prevent them blowing away.
- 3.3.11 The traps were left for 1 month to 'bed-in' and were then inspected on seven<sup>1</sup> occasions between 9<sup>th</sup> July 2021 and 29<sup>th</sup> September 2021 during favourable weather conditions(Survey dates, timings and weather conditions are presented at **Table 3.2** below). Inspections were typically carried out before 11:30 or in the evening, as recommended in the Froglife guidance.
- 3.3.12 Checking of refugia involved quietly approaching each refugia, observing from a distance to check for reptiles basking on top, before lifting each felt from the edge, away from the sun to avoid casting a shadow.

<sup>&</sup>lt;sup>1</sup> Eight occasions at the refugia placed on 10<sup>th</sup> June 2021 that had not been removed / disturbed.



Action / Survey Number	Date	Weather Conditions	Temperature	Time Period
Set up (260 traps)	10 <sup>th</sup> June 2021	Showers, overcast. Light air (Beaufort scale 1)	19ºC (max).	09:30 to 11:30
1 (noted at least 24 traps been interfered with)	9 <sup>th</sup> July 2021	Dry and sunny. Calm (Beaufort scale 0)	22ºC (max).	08:30 to 11:30
Set up (additional 50 traps)	16 <sup>th</sup> July 2021	Dry and sunny. Calm (Beaufort scale 0)	22°C (max).	08:30 to 13:30
2	4 <sup>th</sup> August 2021	Sunny and dry. Light air (Beaufort scale 1)	14ºC (max).	08:30 to 11:30
3	1 <sup>st</sup> September 2021	Sunny and dry. Light air (Beaufort scale 1)	16ºC (max).	16:00 to 19:00
4	3 <sup>rd</sup> September 2021	Overcast Light air (Beaufort scale 1)	15°C (max).	08:30 to 11:30
5	10 <sup>th</sup> September 2021	Sunny and dry. Light air (Beaufort scale 1)	16ºC (max).	16:00 to 19:00
6	12 <sup>th</sup> September 2021	Overcast with sunny spells. Light breeze (Beaufort scale 2)	15°C (max).	08:30 to 11:30
7	26 <sup>th</sup> September 2021	Overcast Light air (Beaufort scale 1)	15°C (max).	10:30 to 13:00
8	29 <sup>th</sup> September 2021	Sunny spells. Light breeze (Beaufort scale 2)	13ºC (max).	08:30 to 11:30

# Table 3.2: Dates, Weather Conditions and Times of Reptile Surveys / Inspections of Artificial Refugia

### 3.4 Population Size Class Assessment

3.4.1 In accordance with Table 2 of *Evaluating local mitigation/translocation programmes: Maintaining Best Practices and lawful standards. HGBI advisory notes for Amphibians and Reptile Groups (ARGs)* (HGBI, 1998) the population size has been determined by taking the peak count of adult individuals detected on any one survey repetition and dividing this number by the total area of suitable habitat present within the site.

### 3.5 Survey and Reporting Limitations

- 3.5.1 On the second visit to the site on 9<sup>th</sup> July 2021 (following the setting of the traps on 10<sup>th</sup> June 2021) it was noted that a number (estimated at 24) of the artificial refugia had been interfered with and moved (presumably by walkers and dog walkers using the area). To mitigate for the high frequency of disturbance of some of the refugia, 50 replacement refugia were placed in less accessible areas at the site on 16<sup>th</sup> July 2021 to give a total number of 310 artificial refugia (density of 11 per hectare). It was estimated however that around 50 traps received regular disturbance throughout the survey period and may therefore not have been suitable for use by sheltering / basking reptile species; this limitation is accounted for by the high density of artificial refugia deployed at the site.
- 3.5.2 All measurements within this report are approximate only, and have been estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAGiC Maps and Google Earth.
- 3.5.3 No other survey limitations were encountered and a thorough survey and assessment suitable for the purposes of informing the planning application (and mitigation strategy) was conducted.



# 4.0 SURVEY RESULTS

#### 4.1 Desktop Study and Data Search

- 4.1.1 Cumbria Biological Record Centre provided the following records of reptile species within a 2 kilometre radius of the site:
  - a. Slow worm (*Anguis fragilis*): 23 records dated between 1998 and 2014; the closest of which is 120 metres to the south-west of the site, and from 1998; and
  - b. Common lizard (*Zootoca vivipara*): 26 records dated between 1992 and 2014, the closest of which is 920 metres to the north of the site, and from 1999. The common lizard records are primarily from the coastal habitats associated with the St Bees Head SSSI and nature reserve.
- 4.1.2 In accordance with 2018 Herpetological Survey Report reptile presence / absence surveys (comprising placement and seven inspections of 60 x 0.5m by 0.5m squares of roofing felt carried out between April 2016 and July 2016 at land between 100 and 400 metres to the south of the southern site boundary) did not detect any reptile species.
- 4.1.3 As presented in *2018 Herpetological Survey Report* updated reptile presence / absence surveys comprising placement and seven inspections of 160 x 0.5m by 0.5m squares of roofing felt) over the Main Mine Site between 18<sup>th</sup> September 2017 and 16<sup>th</sup> October 2017 did not detect any reptile species.

#### 4.2 Description of Habitats and Assessment

- 4.2.1 The 28.8 hectare site is located to the south-east of Whitehaven on the western coast of Cumbria. The planning application is approached in two phases (refer to **Figure 4**):
  - a. Phase 1 (14.22 hectares) that comprises fields of arable farmland and improved grassland in agricultural production; and
  - b. Phase 2 (14.58 hectares) at the southern portion of the site that comprises part of the site of the former Marchon Works off High Road.
- 4.2.2 Photographs of the habitats at the site and immediately outside the site boundary, and the artificial refugia in position, are appended at **Table 9.1**.
- 4.2.3 The following habitats are present at the site (refer to the Phase 1 Habitat Survey appended at **Figure 2**):

#### Table 4.1: Phase 1 Habitats Present at the Site

Phase 1 Habitat	Area in Phase 1	Area in Phase 2	Total
	(ha)	(ha)	(Phases 1 and 2)
			(ha)
A2.1 Dense continuous scrub	0.08	0.09	0.17
B2.1 Neutral grassland - unimproved	0.34	5.41	5.75
B2.2 Neutral grassland - semi-improved	0.01	0.11	0.12
B4 Improved grassland	1.53	-	1.53
C3.1 Other tall-herb and fern - tall ruderal	0.38	-	0.38
D5 Dry heath / acid grassland	-	0.03	0.03
J1.1 Cultivated/disturbed land - arable	11.29	-	11.29
J1.3 Cultivated/disturbed land - ephemeral/short		3.97	
perennial	-		3.97
J4 Bare ground	0.59	4.97	5.56
TOTAL	14.22 ha	14.58 ha	28.8 ha

4.2.4 In addition, land to the west of the site (off-site) accommodates coastal health land comprising of dry heath (Heather) and dense acid grassland on the sea cliffs (refer to **Photo 5**) and west of the south-western boundary of Phase 2 is a stone and earth cliff with stone rubble and grassland at the base which will provide opportunities for use by sheltering and hibernating reptiles (**Photo 6**).



4.2.5 A habitat assessment of the site for reptile species has been completed with reference to the important characteristics for reptiles as outlined in the draft document '*Reptile Mitigation Guidelines*' (Natural England, 2011) and is presented at **Table 4.2**.

Characteristic	Site Description
1. Location	Records of slow-worm within 120 metres to the south-west of the site.
(in relation to	Records of common lizard within 920 metres to the north and west.
species range)	No further records of reptile species are reported for the wider area.
2. Vegetation Structure	Varied. As illustrated on <b>Figure 2</b> , the site contains a mixture of scrub and areas of managed and unmanaged grassland and tall-herb vegetation around a mosaic of hard-standing with rubble and sparse ruderal vegetation.
	The mineral line that extends through the centre of Phase 1 with a north-south alignment supports earth banks and stones with crevices (refer to <b>Photo 1</b> ) considered to provide favourable opportunities for reptile species.
3. Insolation	The site is open and shading is minimal owing to the absence of any significant areas of trees, shrub and buildings nearby.
4. Aspect	The former Marchon Works site (Phase 2) is more-or-less level. The land has a significant gradient with a western aspect at the arable fields and the dry heath / acid grassland areas along the coast.
5. Topography	The site has a varied topography with earth bunds and mounds of crushed hard-core material. The arable field in Phase 1 slopes downhill to the west to provide a western aspect. The off-site rocky escarpment immediately outside the western boundary of Phase 2 has an eastern aspect.
	Micro-climates within the site are created by the varied topography created by the earth bunds (with south facing banks) around the arable field, the bunds and stone banks / retaining walls on each side of the mineral line / railway and by the elevation bunds and mounds wihtin the Marchon Works site.
6. Surface geology	The site has a varied surface geology with areas of hardstanding, mounded rubble, gravel, and free draining, slightly acid loamy soils <sup>2</sup> .
7. Connectivity to nearby good	The site is bordered by similar and favourable habitats for use by reptile species to the south, north and west, including the dry heath vegetation at the coastline to the west.
quality habitat	Land to the east is occupied by High Road and residential housing and is assessed to be unsuitable for reptiles.
8. Prey abundance	The areas of unmanaged and unimproved / semi-improved grasslands at the site are suitable habitats for a variety of invertebrates and prey for slow-worm and common lizard including spiders, grasshoppers, crickets, bugs, flies, slugs and worms.
	There is no abundance of ponds or waterbodies suitable for colonisation by a sustainable population of common frog (the main prey item of grass snake) in the site or wider area.
9. Refuge opportunity	Mounded rubble and remnants from the buildings which formerly occupied the site occur in Phase 2 and the earth banks at the former mineral railway line and around the arable field provide suitable refuges for sheltering reptiles.
10. Hibernation habitat potential	The rubble mounds and earth banks provide suitable hibernation habitat for reptiles.
11. Disturbance regime	The site, particularly the former Marchon Works (Phase 2), is regularly walked and disturbed by walkers and dogs off their leads. The cropping regime and vegetation at the arable fields in Phase 1 will be changed at least on an annual basis and farm machinery may also attend to the crop through the growing season.
12. Egg-laying site potential <sup>1</sup>	None
<sup>1</sup> Characteristic 12 is	s relevant to grass snake and sand lizard only

Table 4.2: Habitat Assessment of the Site for Reptiles

<sup>&</sup>lt;sup>2</sup> As reported by Soilscape (England) as presented on MAGiC Map (National Soil Resources Institute, 2005).

ERAP Ltd. 2021-138b Land at Former Marchon Works, High Road, Whitehaven CA28 9NF: Reptile Presence / Absence Survey and Mitigation Strategy April 2022 11



- 4.2.6 There are no reported records of adder and grass snake in this area of Cumbria. In addition, owing to the absence of an abundance of ponds and waterbodies suitable for the support a common frog (the main prey item of grass snake) it is advised that the habitats and the site and surrounds are not suitable for grass snake.
- 4.2.7 The presence of sand lizard and smooth snake is reasonably discounted owing to the geographically restricted areas these species are known to occur in the UK.
- 4.2.8 Based on the above it is advised that the following habitats provide suitable habitat for reptile species (particularly common lizard and slow-worm):
  - a. The unimproved grasslands, dry heath and acid grassland;
  - b. The earth bunds around the arable fields in Phase 1; and
  - c. The areas of ephemeral / short perennial grassland within a mosaic of bare ground and hard-standing with crushed demolition rubble and other materials over the site, particularly at Phase 2.

### 4.3 Reptile Presence / Absence Survey 2021

### **Direct Observations**

- 4.3.1 No basking reptiles were observed during the site visits.
- 4.3.2 Refer to **Photo 8**. One female adult slow-worm was found beneath debris in the former Marchon Works site (Phase 2) on 9<sup>th</sup> July 2021.
- 4.3.3 Two common lizard were observed in the coastal heathland outside the eastern site boundary during the updated Phase 1 Habitat Survey on 6<sup>th</sup> October 2021.

### **Artificial Refugia**

4.3.4 The results of the artificial refugia surveys are presented in **Table 4.3**. The broad distribution of detected reptile species is annotated on **Figure 3**.



Survey Number	Date	Slow- worm (Af)	Common Lizard (Zv)	Amphibians	Notes (refer to Figure 3)
Set up	10 <sup>th</sup> June 2021	-	-	-	-
1	9 <sup>th</sup> July 2021	1 female adult	-	-	In Marchon Works (Phase 2)
Set-up	16 <sup>th</sup> July 2021	-	-	-	-
2	4 <sup>th</sup> August 2021	2 female adult 1	4 juvenile	0	1 Af on southern boundary of the arable field (Phase 1).
		male adult			2 Af and all Zv found in sheltered areas of hard- standing in Marchon Works (Phase 2).
3	1 <sup>st</sup> September	2 female	5 adult,	0	2 Af at earth bank north of arable field.
	2021	1 male	1 juvenile		1 juvenile Zv dead on the path at the mineral line.
		adult	(dead)		1 Af and 5 Zv in Marchon Works (Phase 2).
4	3 <sup>rd</sup> September	3 female adult,	3 adult	0	1 adult Af at north-western corner of the arable field.
	2021	2 male adult,			3 Af in the margin between the arable field and land to the north.
		2 juvenile			Juvenile Af and adult Af in Marchon Works.
5	10 <sup>th</sup> September	3 female adult, 1	7 adult	0	4 Af on southern boundary of the arable field (Phase 1).
	2021	juvenile			7 Zv associated with the grassed banks at the southern area of Marchon Works.
6	12 <sup>th</sup> September 2021	9 female, 1 male adult, 3 juvenile.	11 adult, 2 juvenile	0	5 Af on southern boundary of the arable field (Phase 1) and 8 within Marchon Works (Phase 2).
7	26 <sup>th</sup> September 2021	3 female adult	11 adult	0	All Af and all Zv found in sheltered areas of hard- standing in Marchon Works (Phase 2).
8	29 <sup>th</sup> September 2021	-	2 adult	0	2 Zv found in sheltered areas of hard-standing in Marchon Works (Phase 2).

- 4.3.5 The surveys detected 2 reptile species (slow-worm and common lizard). Slow-worm were detected beneath the traps on 34 occasions with a peak of 13 individuals on the 12<sup>th</sup> September 2021 (10 adults). Common lizard were detected beneath the traps on 46 occasions with a peak of 13 individuals (11 adults) on 12<sup>th</sup> September 2021. The events leading to the discovery of the dead common lizard beneath a refugia on 1<sup>st</sup> September 2021 are not known.
- 4.3.6 The detection of juvenile individuals of both species is indicative of breeding at the site.
- 4.3.7 As shown at **Figure 3**, the broad distribution (based on where reptiles were found beneath the refugia) is as follows:
  - a. Slow-worm (no common lizard) at the base and in the grassed bunds around the arable fields;
  - b. Common Lizard on the former railway corridor at the north-eastern tip of the site;
  - c. Slow-worm and common lizard at the southern end of the triangular field of improved grassland;
  - d. Common lizard in the grassland around the margins of the octagonal shaped hard-standing;
  - e. Common lizard and slow-worm in higher concentrations on the margins of the north-south track with bunded banks at the southern margin of the site; and
  - f. Both slow-worm and common lizard in the grassed banks at the off-site elevated area immediately outside the south-western corner of the site.



- 4.3.8 No reptile species were detected along the eastern margin of the Marchon Works site.
- 4.3.9 No other reptile species were found. Based on the results of the surveys and for the reasons as outlined in **Section 4.2** the presence of grass snake, adder, smooth snake and sand lizard is reasonably discounted.
- 4.3.10 No amphibian species were found beneath the refugia.

### 4.4 Population Size Class

- 4.4.1 A peak count of 10 adult slow-worm and 11 adult common lizard were detected at the approximately 10.25 hectares of favourable habitat within and immediately adjacent to the site. In accordance with Table 2 of *Evaluating local mitigation/translocation programmes: Maintaining Best Practices and lawful standards. HGBI advisory notes for Amphibians and Reptile Groups (ARGs)* (HGBI, 1998) this relates to the following population sizes for the site:
  - a. Slow-worm: low population (<50 per hectare); and
  - b. Common lizard: low population (<20 per hectare).

### 5.0 EVALUATION AND ASSESSMENT

#### 5.1 Brief Description of Proposals

- 5.1.1 It is proposed to develop the site to housing with associated roads and hard-standing. The site is split into two phases as illustrated on *Proposed Phasing Plan. Drawing CPT-257 FEA-05* (Concept Architecture, 2021), hereafter the 'Proposed Phasing Plan', and described below:
  - Phase 1 (14.22 hectares) comprises fields of arable farmland and improved grassland in agricultural production. This area will accommodate up to 139 residential dwellings and a significant area of public open space; and
  - b. Phase 2 (14.58 hectares) at the southern portion of the site that comprises part of the site of the former Marchon Works off High Road. Following remediation thus phase of the site will be developed to housing.
- 5.1.2 The Proposed Phasing Plan illustrates a total area of 12.03 hectares of public open space / undeveloped land will be created by the proposals, the majority of which is at the western area of Phase 1 and along the western margin of Phase 2.
- 5.1.3 **Section 5.2** below identity and characterises the impacts of the development proposals on the detected reptile species and their habitats.
- 5.1.4 **Section 6.0** provides a recommended mitigation strategy and the scope of ecological enhancement required in accordance with wildlife legislation, Natural England's standing advice, planning policy guidance and other relevant guidance in relation to reptile species.

### 5.2 Assessment of Impacts

#### Habitat Loss and Proposed Compensation

- 5.2.1 As demonstrated by the surveys and habitat assessment some areas of the site (i.e. the central areas of the arable fields and the large expanses of hard-standing that are located away from areas habitats for shelter) are entirely unsuitable for use by reptiles and will not contribute to the habitat loss associated with the proposals.
- 5.2.2 In the absence of mitigation the remediation and development of the site will result in the permanent loss of habitat currently suitable (and inhabited) by slow-worm and common lizard; a total of 10.25 hectares of the site has been assessed to be suitable for use by reptiles.



- 5.2.3 The proposals will not however remove all habitats within the site used by sheltering reptiles; approximately 3.71 hectares<sup>3</sup> will be retained as Receptor Areas as part of the proposed development (refer to **Figure 4**).
- 5.2.4 In addition, the proposals do not directly or adversely affect the favourable habitats outside the site (namely the coastal heathland and the rocky escarpment to the west). Similarly, following ecological guidance, the proposals accommodate the retention of the habitats identified suitable (and confirmed to be used by reptile species) at the former mineral line / railway and associated habitats as part of the proposals.
- 5.2.5 In the presence of mitigation (i.e. retention of the Receptor Areas), release of the habitats in the public open space for reptile re-colonisation and the creation of a development with gardens that are accessible to wildlife, it is advised that the area of habitat loss can be significantly reduced.
- 5.2.6 In addition, as described in **Section 6.4**, the proposals seek to enhance the habitat quality of the site for reptile species and include the conversion of arable land (sub-optimal for use by reptiles) to a mosaic of favourable habitats to enhance the carrying capacity of these areas as compensation.

#### Fragmentation / Isolation of Habitats

- 5.2.7 Based on the survey data presented in this report and the failure of the surveys carried out on the land to the south (the mine site) to detect any reptile species (despite the habitats across the whole Marchon Works site being very similar) it is considered likely that the slow-worm and common lizard present have dispersed into the northern and western portions of the site from the favourable habitats along the St. Bee's Head coastline to the north and west (rather than from the south).
- 5.2.8 The results of the BSG Ecology surveys of the mine site indicate that reptiles have not dispersed further south into the Marchon Works site; it is therefore advised that the proposed residential development is not likely to isolate any known reptile habitats in land to the south from the population at the St. Bee's Head coastline. It is recommended however, as a precaution against the proposals creating fragmentation of habitat, marginal buffers of favourable habitat for use by reptile species are created at the site boundaries.
- 5.2.9 The habitats along the St. Bee's Head coastline will be retained and be unaffected by the proposals; it is therefore considered that fragmentation of favourable habitats along the St. Bee's Head coastline as a consequence of the proposed development is reasonably discounted.

### Habitat Degradation: Shading

- 5.2.10 Favourable habitats within the site for reptile species that will be retained by the proposed development comprise the banks and wall along the former mineral line and the earth bunds bordering the arable field. In addition, the favourable off-site habitats comprising the dry heath and acid grassland vegetation at the coastline and the rocky and grass escarpment at the western boundary of Phase 2 will be retained.
- 5.2.11 In the absence of mitigation the quality of these habitats may be affected by shading as result of the presence of the residential properties. It is recommended that the proposals near these habitats, which occur through the centre of Phase 1 and at the western margin of the site, accommodate an undeveloped buffer to minimise the risk of shading by buildings.

### Killing / Injury and Disturbance

#### **During Remediation and Construction**

5.2.12 In the absence of mitigation the earthworks and operations associated with the remediation and preparation of the site for development will cause the killing, injury and disturbance of reptiles. This is likely to have a significant effect on the abundance of slow-worm and common lizard in the local area; the effect on the population is likely to be greater in the winter months as reptiles will be in torpor and will not have to opportunity to warm-up and escape.

<sup>&</sup>lt;sup>3</sup> Area to be confirmed as the landscape and mitigation strategy is finalised.

ERAP Ltd. 2021-138b Land at Former Marchon Works, High Road, Whitehaven CA28 9NF: Reptile Presence / Absence Survey and Mitigation Strategy April 2022 15



5.2.13 Measures to ensure reptiles are protected during the remediation and construction phases of the proposed development are presented at **Section 6.0**.

### During Operation as a Residential Site / Recreation Pressures

- 5.2.14 During the operation of the site as a residential development there is an increased risk of disturbance of reptiles and this may be to the point that their survivability is affected. For example, regular disturbance of basking sites by walkers / dogs will cause reptiles to seek cover more frequently and this will impact their ability to seek food and to return to basking.
- 5.2.15 An intensified use of the area for recreational purposes may also increase the risk of harmful activities such as use of barbecues and dropping of litter and may lead to a risk of fire, habitat damage and injury / death of reptile species (and other wildlife).
- 5.2.16 In the absence of mitigation these impacts may have a significant effect on the local reptile population.
- 5.2.17 Measures to ensure that risks such as those identified above are controlled are presented at **Section 6.6** below.

#### **Cat Predation**

5.2.18 *Predation of Wildlife by Domestic Cats (Felis catus) in Great Britain* (Woods, M., Mcdonald, R. A. and Harris, S., 2003) reports that:

"The total number of animals brought home by about 9 million cats living in Great Britain during the five month period April-August 1997 was estimated to be in the order of 92.4 million (95% CI 85.1-100.2). This estimate can be broken down to 57.4 (52.1-63.1) million mammals, 27.1 (25.1-29.2) million birds, 4.8 (4.1-5.6) million reptiles and amphibians and 2.8 (2.3-3.4) million other items."

5.2.19 The Reptile Habitat Management Handbook identifies that "cats can be a serious concern especially for reptile populations on small patches of habitat, surrounded by houses". At this site, as the landscape scale and habitats available / access to reptile species is large and extensive, the concern is considered to be less serious; it remains an identified impact of the development proposals and mitigation, as described in Section 6.7, is necessary.

### 6.0 MITIGATION STRATEGY AND RECOMMENDATIONS

### 6.1 Overview

- 6.1.1 The mitigation strategy to be applied at this site has been prepared in accordance with The Mitigation Hierarchy (i.e. avoid, mitigate and compensate) will comprise a combination of:
  - a. Identification of retained and protected Receptor Areas on land to the west of the construction zone. The Receptor Areas will be chosen in accordance with the requirements outlined in Natural England's standing advice<sup>4</sup> (further detail is presented at **Section 6.2**);
  - b. Enhancement of the Receptor Areas for the receipt of reptile species;
  - c. Installation of fencing to minimise the risk of reptiles entering the construction zone from the favourable habitats in the wider area, and the trapping and translocation of reptiles to the Receptor Areas;
  - Protection of the favourable habitats outside the site boundary (with connectivity to the Receptor Areas) from damage during the construction period and for continued use by reptile species by the installation of temporary demarcation fencing;
  - e. Additional habitat creation and enhancement as the earthworks at the public open space are completed;
  - f. Removal of exclusion fencing to permit reptiles to re-colonise enhanced areas and the habitats they have been excluded from during construction (such as the earth banks along the mineral line);

<sup>&</sup>lt;sup>4</sup> Available at https://www.gov.uk/guidance/reptiles-advice-for-making-planning-decisions

ERAP Ltd. 2021-138b Land at Former Marchon Works, High Road, Whitehaven CA28 9NF: Reptile Presence / Absence Survey and Mitigation Strategy April 2022 16



- g. Design of the public open space to secure the conservation of areas where disturbance by the public will be minimised;
- h. Design of and implementation of features at the residential development to permit reptile species to move between garden landscapes (i.e. lifting of plot boundary fencing);
- i. Implementation of measures to engage the public, raise awareness and educate the local residents on the protection afforded to reptile species and how to avoid harm to these species and their habitats; and
- j. Secured long-term management of habitats in accordance with conservation objectives for reptiles (and use / visitor management).
- 6.1.2 **Figure 4** has been prepared to present an overview on an annotated Proposed Phasing Plan.

# 6.2 Receptor Areas and Habitat Creation / Enhancement

### **Identification of Receptor Areas**

- 6.2.1 Prior to the commencement of works Receptor Areas along the western margin of the site (both Phases 1 and 2) will be chosen and separated from the construction zone with temporary reptile fencing (one-way, as needed). The Receptor Areas will be chosen in order that they are in accordance with Natural England's standing advice, namely:
  - a. Location: Are adjacent to the development site / construction zone;
  - b. *Size:* Are not of an equal size to the habitat that will be lost initially but have connectivity to a vast area of continuous favourable habitat along the St. Bee's Head coastline and will be enhanced (see below) and expanded as the areas of public open space are completed;
  - c. *Habitat Function:* Have high connectivity to a range of favourable habitats for use by reptile species (and will be enhanced to provide, for example, additional opportunities for hibernation). Provide a similar level of insolation (exposure to the sun) as present at the site owing to their western aspect;
  - d. Habitat Enhancement: At this site the Receptor Areas are currently accessible to reptile species and it therefore cannot be demonstrated that they do not currently support the same species (as recommended by Natural England). However, a significant portion of the Receptor Areas will comprise the enhancement of the central areas of the arable field which is regarded to currently be of sub-optimal suitability for use by reptile species. The carrying capacity of this Receptor Area will therefore be enhanced for reptiles;
  - e. Safe from Future Development: It is confirmed with the client that the Receptor Areas will be managed n the long-term as part of the proposed development to ensure they remain favourable for reptile species. In addition, based on the topography of the land and the presence of the sea cliffs to the west it is considered that the Receptor Areas will be secured in the long-term for reptile species; and
  - f. *Managed in the Long-term:* The long-term protection and management of the habitats will be secured by the development proposals.

### Enhancement of Receptor Areas

- 6.2.2 The habitats in the Receptor Areas will be enhanced for reptiles by accommodation of the following as advised in the *Reptile Habitat Management Handbook* (Edgar, et al., 2010).
  - a. Creation of small scale topographical variations such as the creation of gullies and bunds to create microhabitat features (particularly in areas of currently suboptimal habitats such as the arable land to minimise the risk of harm to reptiles currently occupying the area);
  - b. Planting of Gorse (*Ulex europaeus*) and other native prickly shrubs to provide opportunities for shelter and protected areas away from cat access;
  - c. Encourage growth of Bramble (*Rubus fruticosus* agg.) scrub in appropriate areas;
  - d. Creation of a mosaic of open habitat and scrub;
  - e. Maintenance of linkages to the favourable coastal heathland and grassland habitats in the land to the west; and



f. Creation of dead wood habitat piles in sunny positions and adjacent to suitable habitats for basking (so that reptiles can easily move between the two habitats). Habitat piles to be built to a specification that comprises a compact centre and more loose outer layers, as can be achieved by use of brash with varied stem thickness and length.

### 6.3 Protection of the Habitats Outside the Construction Zone and Reptile Capture and Translocation

### Protection of Habitats Outside the Construction Zone

6.3.1 Protection of the favourable habitats outside the site boundary (with connectivity to the Receptor Areas) from damage during the construction period and for continued use by reptile species will be achieved by the installation of temporary demarcation fencing and by the relevant pollution prevention actions and other best practice to be outlined in the Construction Environment Management Plan (CEMP), or similar.

# Capture and Translocation

- 6.3.2 Following the separation of the Receptor Areas from the construction zones and the habitat enhancement and establishment period the construction zone / suitable habitats within the construction zone will be bordered with temporary reptile exclusion fencing. Drift fencing may also be used to compartmentalise the area. Reptiles will be trapped / captured with the use of artificial refugia at a density of at least 50 traps per hectare. It may not be necessary to meet this density across the whole site however and, based on the knowledge obtained during the presence / absence survey and the habitat conditions at the site, trap placement will target favourable areas to maximise capture and translocation efficiency.
- 6.3.3 The most effective time for capturing reptiles is between late April and June and then again between late August and September. The trapping period will comprise the daily inspections of the refugia for a minimum period of 60 days (as recommended on Table 2 of *Evaluating local mitigation/translocation programmes: Maintaining Best Practices and lawful standards. HGBI advisory notes for Amphibians and Reptile Groups (ARGs)* (HGBI, 1998)) and may need to extend for a longer period dependent on the weather conditions and capture rates.
- 6.3.4 The inspections and translocations will only be carried out by competent ecologists with experience of handling reptiles.
- 6.3.5 All captured reptiles will be recorded and translocated in a lidded bucket or handling bag and released immediately in suitable habitats at the Receptor Areas.
- 6.3.6 Towards the end of the trapping period / as numbers of capture reptiles decrease, actions will be carried out to decrease the suitability of the habitats within the construction zone and actively encourage reptiles to use the artificial refugia. The works are likely to comprise progressive strimming of Bramble, grassland and tall-herb vegetation to reduce the cover available.
- 6.3.7 The compartments will be declared clear of reptiles when no reptiles have been captured for 5 consecutive days during favourable conditions.
- 6.3.8 After the compartments have been declared clear it may be necessary to carry out the careful and supervised dismantling of specific features at the site such as mounds of rubble piles and the capture and translocation of any amphibians.

### 6.4 Design of the Landscape Planting / Public Open Space

### **Habitat Creation**

- 6.4.1 As the remainder of the public open space is completed it will be 'released' back for colonisation by reptiles by re-positioning and re-alignment of the temporary exclusion fencing.
- 6.4.2 To maximise the habitat quality and opportunities for sheltering, feeding, basking, hibernating and breeding reptile species. The landscape planting and habitat creation within the public open space will accommodate a range / mosaic of habitats as described in **Section 6.2**.



#### Path Routes

- 6.4.3 As identified in Chapter 12 of the *Reptile Habitat Management Handbook* (Edgar, et al., 2010) on sites heavily used by people, the routing of walkers and dogs can prevent / minimise damage to sensitive habitats and species. At this site is proposed that the careful siting of access infrastructure (tracks, paths, boardwalks, car parks, picnic areas, fencing etc.) will act to concentrate access to selected areas while minimising impacts on more sensitive / favourable habitat for reptile species.
- 6.4.4 Similarly, the appropriate maintenance of paths, presence of signs / way markers and guidance in relation to keeping dogs on leads, will aim to discourage use of the areas of habitat for use by reptile species and focus the source of disturbance on less favourable habitats that are effectively 'sacrificed' for this purpose.

#### 6.5 Design of the Residential Development

- 6.5.1 The proposals at Phase 1 will accommodate the retention of the earth banks and the stone walls at the former mineral line. These habitat features with suitability for reptile species will be 'released' back for re-colonisation by reptile species.
- 6.5.2 To ensure the risk of habitat degradation as a result of shading, care has been taken to ensure that the proposals near the off-site favourable habitats and the areas of habitat creation accommodate an undeveloped buffer to minimise the risk of shading by taller buildings.
- 6.5.3 To encourage dispersal of reptiles the developed areas of the site will be accessible to wildlife such as reptile species and other wildlife such as hedgehog (a Priority Species) by the installation of lifted gates and plot boundary fences and / or the accommodation of gaps to permit the passage of wildlife beneath (refer to **Insert** 1, below).



**Insert 1:** Wildlife access gaps

### 6.6 Homeowner's Information Leaflet and Signs / Interpretation Boards

- 6.6.1 The areas of public open space will accommodate signs / interpretation boards detailing:
  - a. The presence of slow-worm and common lizard;
  - b. The protection afforded to these reptile species under wildlife legislation and their conservation status;
  - c. An overview of the habitats preferred by these species and their ecology;
  - d. Good practice to minimise adverse effects (i.e. how to avoid risk of fire) and disturbance of reptiles and their habitats; and
  - e. Where to find more information in relation to reptiles and what to do if an injured reptile is found (including a reptile brought in by a cat).
- 6.6.2 The information listed above will also be accommodated in a Homeowner's Information Leaflet to the provided at the point of sale.



#### 6.7 Minimising the Risk of Cat Predation

6.7.1 It is recognised that there is no way to control or police how long local residents permit their cats out of the house, in addition, as identified in the *Reptile Habitat Management Handbook* (Edgar, et al., 2010) it is recognised "that there is little hope of restricting cats' behaviour". The Handbook advises that "a more productive approach is to ensure the site has plenty of refuge habitat which could render reptiles safer, such as bramble and gorse" and these measures are accommodated by this Strategy, as described above and annotated on **Figure 4**.

#### 6.8 Long-term Management and Monitoring Programme

- 6.8.1 A Long-term Habitat Management Plan will be prepared for the areas of public open space. The Plan will include a monitoring programme for reptile presence / absence and habitat condition which will aim to provide a trigger in the event that remedial actions are required.
- 6.8.2 The Plan will be in accordance with the guidelines as outlined in the *Reptile Habitat Management Handbook* (Edgar, et al., 2010) and will also aim to contribute to other conservation objectives (for example biodiversity net gain and enhancement for invertebrates and nesting birds).

#### 6.9 Programme of Works

6.9.1 A programme of works will be prepared on receipt of planning permission. The programme of works will take account of the fact that reptile species can only be trapped and translocated when they are active and that the most effective time for capturing reptiles is between late April and June and then again between late August and September.

#### 7.0 CONCLUSION

- 7.1 Slow-worm and common lizard have been detected at the Marchon Works site (Phases 1 and 2). The presence of these protected reptile species is a material consideration in relation to the development proposals.
- 7.2 The comprehensive reptile mitigation strategy outlined in **Section 6.0** demonstrates that mitigation for the protection of reptile species and their habitats both prior to site remediation and construction activities *and* in the long-term is feasible and will be secured by the proposals.
- 7.3 The application of long-term habitat protection and management is considered to be an essential component of the mitigation strategy and the proposals aim to secure this with the aim of contributing to achieving gains for reptiles and their habitats.
- 7.4 It is advised that the implementation of the strategy will ensure compliance with wildlife legislation, the National Planning Policy Framework (NPPF), local planning policy, Natural England guidance and best practice.



#### 8.0 **REFERENCES**

Bainbridge, I. et al., 2013. *Guidelines for the Selection of Biological SSSIs.* Peterborough: Joint Nature Conservancy Council.

BSG Ecology, 2017. *Marchon Chemical Works Site, Whitehaven. Extended Phase 1 Habitat Survey,* Newcastle upon Tyne: BSG Ecology.

BSG Ecology, 2018. Whitehaven Metallurgical Coal Project, Cumbria. Herpetological Survey Report. Technical Appendix 11.3, Newcastle: BSG Ecology.

CIEEM, 2016. *Guidelines for Accessing and Using Biodiversity Data*, Winchester: Chartered Institute of Ecology and Environmental Management (CIEEM).

CIEEM, 2016. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition. Winchester: Chartered Institute of Ecology and Environmental Management.

Concept Architecture, 2021. Proposed Phasing Plan. Drawing CPT-257 FEA-05, Gateshead: Concept Architecture.

Edgar, P., Foster, P & Baker, J., 2010. *Reptile Habitat Management Handbook.* Bournemouth: Amphibian and Reptile Conservation.

ERAP (Consultant Ecologists) Ltd, 2022. Land at the Former Marchon Works, High Road, Whitehaven, Cumbria CA28 9NF. Ecological Survey and Assessment., Chorley: ERAP (Consultant Ecologists) Ltd.

Froglife, 1999. Reptile survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10., Halesworth: Froglife.

Gent, T. and Gibson, S. (eds), 2003. Herpetofauna Workers' Manual, Peterborough: JNCC.

Great Britain, 1981. Wildlife and Countryside Act. London: H.M.S.O.

Great Britain, 2017. The Conservation of Habitats and Species Regulations. London: H.M.S.O.

JNCC, 1995. The UK Biodiversity Steeting Group Report, Volume 2, Action Plans. London: H.M.S.O.

JNCC, 2010. Handbook for Phase 1 Habitat Survey: A technique for Environmental Audit. Peterborough: NCC.

Ministry of Housing, Communities & Local Government, 2005. *Circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within The Planning System*, London: Office of the Deputy Prime Minister.

Ministry of Housing, Communities and Local Government, 2021. National Planning Policy Framework. London: H.M.S.O.

National Soil Resources Institute, 2005. Soilscape (England), Cranfield: National Soil Resources Institute.

Natural England, 2011. The Reptile Mitigation Guidelines. Peterborough: Natural England.

Ratcliffe, D. A., 1977. A Nature Conservation Review. Cambridge: Cambridge University Press.



# 9.0 APPENDIX: TABLES AND FIGURES

# 9.1 Photographs



**Photo 1:** Stone wall along former mineral line and earth bank behind; suitable for common lizard



**Photo 2:** Arable field in Phase 1; disturbed habitat and suboptimal for reptiles, and grass covered earth banks at the margins of the field which are assessed to be suitable.



Photo 3: Mosaic of habitats in the former Marchon Works



Photo 4: Mosaic of habitats in the former Marchon Works







# 9.2 Figures

Figure 1: Aerial Image of Site, Surrounding Habitats and Nearby Designated Sites





	Key to Map Symbols
A DE	Marine Conservation Zone (MCZ)
	Special Protection Area (SPA)
	County Wildlife Sites
	Site of Invertebrate Significance
	Site of Special Scientific Interest (SSSI)
A CAL	
A REAL	
ALL PARTS	
13 35 14	
and s	
TAN	Source Image: ESPI World Imageny
A Car	Figure 1:
	Aerial Image of Site, Surrounding Habitats and Nearby Designated Sites
	Project Name: Former Marchon Works, High Road, Whitehaven,
	CA28 9NF
and the second second	NX 9649 1615 ERAP Ltd. 2021-138
HAN.	Version & Date: v1 (CH) 27/01/2022
	Scale: 1:15,000 at A3
12 .	0 250 500 750 m
1 the	Z1/Current Jobs/2021/2021-138 Marchon Works, Whitehaven/7. Maps/ERAP Map template 1.ggs
1 01	
A VIL	
1	Consultant .
	ECOLOGISTS Building N2, Chorley Business and Technology Centre
fr. J. Cr	East Terrace, Euxton Lane, Euxton, Chorley, PR7 6TE Tel: 01772 750 502 Email: mail@erap.co.uk Website: www.erap.co.uk





# Figure 2: Phase 1 Habitat and Vegetation Map





Figure 3: Results of Habitat Assessment and Reptile Presence / Absence Survey 2021 and Location of Suitable Habitats

	Detected		
Key to Map Symbols	Project Name: Former Marchon Works, High Road, Whitehaven, CA28 9NF		
	Central Grid Ref:	Reference No.	
Site boundary	NX 9649 1615	ERAP Ltd. 2021-138	
▲ Common lizard	v1 (CH) 19/04/2022		
Slow-worm	Scale: 1:3,500 at A3	100 125 150 175 m	
Reptile trap locations			
Suitable reptile babitat	Z:\Current Jobs\2021\2021-138 Marchon W	/orks, Whitehaven\7. Maps\ERAP Map template 1.qgs	
	C O N S E C O N S E C O I Building N2, Chorley Busi East Terrace, Euxton Lane Tel: 01772 750 502 Email: mail@	S U I † a n † o g i s † s ness and Technology Centre e, Euxton, Chorley, PR7 CTE Verap.co.uk Website: www.erap.co.uk	

Note: all trap locations are approximate only

ERAP Ltd. 2021-138b

### Figure 4: Overview of Reptile Mitigation Strategy

#### Habitat Creation and Enhancement and Long-term Management

Additional habitat creation and enhancement as the earthworks at the public open space are completed followed by removal of exclusion fencing to permit reptiles to re-colonise these enhanced areas and the habitats they have been excluded from during construction (such as the earth banks along the mineral line) Habitat creation to comprise:

- Creation of small scale topographical variations such as the creation of gullies and bunds to create microhabitat features. (particularly in areas of currently suboptimal habitats such as the arable land to minimise the risk of harm to reptiles currently occupying the area)
- Planting of Gorse (Ulex europaeus) and other native prickly shrubs to provide opportunities for shelter and protected areas away from cat access
- Encourage growth of Bramble (Rubus fruticosus agg.) scrub in appropriate areas;
- Creation of a mosaic of open habitat and scrub
- Maintenance of linkages to the favourable coastal heathland and grassland habitats in the land to the west; and
- Creation of dead wood habitat piles in sunny positions and adjacent to suitable habitats for basking (to that reptiles can easily move between the two habitats. Habitat piles to be built to a specification that comprises a compact centre and more loose outer layers, as can be achieved by use of brash with varied stem thickness and length.

All habitats to be managed in accordance with conservation objectives for reptile species in the long-term.

#### Borders / Margins of Favourable Habitat

The residential site will accommodated margins / borders of favourable habitat to enhance habitat connectivity and to also minimise any risk of isolation / fragmentation impacts between the south and the north.

#### Retention and Protection of Off-site Favourable Habitats for Reptiles

Off-site vegetation and favourable habitats at the coastal heathland to the west and rocky escarpment to the south-west to be protected from damage during construction period by the installation of fencing and application of actions as described in a Construction Environment Management Plan (CEMP).

#### Long-term Habitat Management and Reptile Presence / Absence and Habitat Condition Monitoring Programme A Long-term Habitat Management Plan will be prepared for the areas of public open space. The Plan will include a reptile presence / absence and habitat condition monitoring programme which will aim to provide a trigger in the event that remedial actions are required

The Plan will be in accordance with the guidelines as outlined in the Reptile Habitat Management Handbook (Edgar, et al., 2010) and will also aim to contribute to other conservation objectives (for example biodiversity net gain and enhancement for invertebrates and nesting birds).

#### **Design of Public Open Space and Footpath Location**

Design of the public open space to secure the conservation of areas where disturbance by the public will be minimised

#### **Creation and Enhancement of Habitat Connectivity**

Habitat connectivity around the site boundary, particularly at boundaries that were previously undefined will be created and enhanced by appropriate landscape planting (i.e. Gorse shrubs) on banks to provide shelter for reptiles and protection from cat predation and disturbance.





#### ERAP Ltd. 2021-138b

