

**A66 Northern Trans-Pennine Project  
TR010062**

**3.4 Environmental Statement  
Appendix 6.7 Reptiles**

**APFP Regulations 5(2)(a)**

**Planning Act 2008**

**Infrastructure Planning (Applications: Prescribed Forms and  
Procedure) Regulations 2009**

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**3.4 ENVIRONMENTAL STATEMENT APPENDIX 6.7  
REPTILES**

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## 6.7 Reptiles

### 6.7.1 Introduction

#### Project background

- 6.7.1.1 The A66 Northern Trans-Pennine Project is a programme of works to improve the A66 between the M6 at Penrith and A1(M) at Scotch Corner.
- 6.7.1.2 Between the M6 and the A1(M) the existing A66 is approximately 80km in length. Along this length it is intermittently dualled, with approximately 30km of single carriageway, in six separate sections, making the route accident prone and unreliable.
- 6.7.1.3 The route carries high levels of freight traffic and is an important route for tourism and connectivity to local communities. The variable road standards, together with the lack of available diversionary routes when incidents occur, affects road safety, reliability, resilience and attractiveness of the route. For a full Project description see Chapter 2: The Project (Application Document 3.2).

#### Scope of the document

- 6.7.1.4 Ecological impact assessment is moving towards strategic, landscape-scale habitat provision in favour of localised/isolated mitigation and compensation where greater benefit can be demonstrated (i.e. the 'bigger, better, more joined up' approach which also underpins other initiatives such as biodiversity net gain and district level licencing). The approach taken for reptiles within this report is in line with this shift and has been agreed with Natural England (see Chapter 6: Biodiversity (Application Document 3.2)).
- 6.7.1.5 This approach has been chosen because widespread presence and large populations of reptiles are thought to be unlikely due to the lack of records, unsuitable nature of the majority of the habitats present across the range of the Project (predominately structurally poor agricultural fields) and because the Project provides the opportunity to improve habitats for this species group.
- 6.7.1.6 This report presents the results of a desk study and habitat suitability survey results, which together provide the baseline for assessment. It also sets out the proposed methodologies and timings for further reptile surveys which will be undertaken in the appropriate survey season prior to commencement of site enabling, or establishment works. These surveys are targeted at habitats identified during the habitat suitability assessment and will inform the extent and method of measures necessary to mitigate for the risk of death or injury of individual reptiles during the construction period.
- 6.7.1.7 This approach will ensure that surveys are proportionate, robust and provide up-to-date information and has been taken to minimise the collection of irrelevant/abortive information and the need for repeat

surveys to ensure the survey information is reliable during construction to inform targeted mitigation for reptiles.

- 6.7.1.8 It is intended that the information in this report will be used in conjunction with data from other surveys to identify and assess potential implications of the Project in relation to reptiles and inform any mitigation and compensation required. This baseline report can be used to accompany any future planning application and associated EIA for the Project.

## 6.7.2 Legislation and Policy Framework

### Legislation

- 6.7.2.1 The UK supports four species of "common" reptile which are found throughout a number of habitat types such as rough grassland, scrub, woodland edge and habitats associated with roadside verges. These species are: common lizard *Zootoca vivipara*, slow worm *Anguis fragilis*, grass snake *Natrix helvetica* and adder *Vipera berus*.

- 6.7.2.2 The more threatened and rarer species, sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca*, are fully protected in the UK under the combined measures of the Conservation of Habitats and Species Regulations 2017 (Habitat Regulations) and Wildlife and Countryside Act 1981 (as amended) (WCA). These species are highly restricted in the UK and the Project is beyond their known range.

#### *Wildlife and Countryside Act 1981*

- 6.7.2.3 All common reptile species receive partial legal protection in England and Wales, arising from Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (WCA) which makes it an offence to intentionally kill or injure these species.

#### *Natural Environment and Rural Communities Act 2006*

- 6.7.2.4 The UK Biodiversity Action Plan (UKBAP) covering 2011-2020 has been superseded by the *UK Post-2010 Biodiversity Framework* (Joint Nature Conservation Committee and Department for Environment, Food and Rural Affairs, 2012)<sup>1</sup>. The framework identifies 65 Priority Habitats and 1,150 Priority Species that are in need of protection. This list has been used to define habitats and species of 'Principal Importance' in England (the Section 41 list) as required by the Natural Environment and Rural Communities (NERC) Act 2006.

- 6.7.2.5 All six reptile species are listed as Species of Principal Importance (SoPI) under the NERC Act (2006). All planning decisions must be made with regard for their conservation and any priority actions (Natural England, 2014)<sup>2</sup> associated with them.

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<sup>1</sup> Joint Nature Conservation Committee and Department for Environment, Food and Rural Affairs (2012) UK Post-2010 Biodiversity Framework

<sup>2</sup> Natural England (2014) Priority Actions for S41 Species

## National level policy

### *National policy statement for national networks*

6.7.2.6 The primary policy basis for deciding whether or not to grant a Development Consent Order (DCO) is the *National Policy Statement for National Networks (NPSNN)* (Department for Transport, 2014)<sup>3</sup>, which sets out policies to guide how DCO applications will be decided and how the effects of national networks infrastructure should be considered by the relevant decision maker. The policies for biodiversity and ecological conservation include statements that:

*“Biodiversity is the variety of life in all its forms and encompasses all species of plants and animals and the complex ecosystems of which they are a part. Government policy for the natural environment is set out in the Natural Environment White Paper (NEWP). The NEWP sets out a vision of moving progressively from net biodiversity loss to net gain, by supporting healthy, well-functioning ecosystems and establishing more coherent ecological networks that are more resilient to current and future pressures...” (NPSNN paragraph 5.20)*

6.7.2.7 The NPSNN also advises:

*“In taking decisions, the Secretary of State should ensure that appropriate weight is attached to designated sites of international, national and local importance, protected species, habitats and other species of principal importance for the conservation of biodiversity, and to biodiversity and geological interests within the wider environment.” (NPSNN paragraph 5.26)*

6.7.2.8 Table 1: NPSNN sections of relevance to reptiles identifies the NPSNN policies relevant to reptiles.

Table 1: NPSNN sections of relevance to reptiles

Relevant NPSNN paragraph reference	Requirement of the NPSNN (paraphrase)
5.22	Outline any likely significant effects on internationally, nationally and locally designated sites of ecological or geological conservation importance on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity and that the statement considers the full range of potential impacts on ecosystems.
5.23	Demonstrate how the project has taken advantage of opportunities to conserve and enhance biodiversity conservation interests.
5.29	Ensure proposals mitigate the harmful aspects of the development and, where possible, to ensure the conservation and enhancement of the site’s biodiversity are acceptable.
5.33	Development proposals potentially provide many opportunities for building in beneficial biodiversity features. Opportunities to maximise beneficial biodiversity

<sup>3</sup> Department for Transport (2014) National Policy Statement for National Networks

Relevant NPSNN paragraph reference	Requirement of the NPSNN (paraphrase)
	features should be considered. Planning obligations can be used where appropriate in order to ensure that such beneficial features are delivered.
5.34 and 5.35	Individual wildlife species receive statutory protection under a range of legislative provisions. Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales. Undertake measures to ensure these species and habitats are protected from adverse effects. Where appropriate, requirements or planning obligations may be used in order to deliver this protection.
5.36	Include appropriate mitigation measures as an integral part of their proposed development, including identifying where and how these will be secured.
5.37	Consider what appropriate requirements should be attached to any consent and/or in any planning obligations entered into in order to ensure that mitigation measures are delivered.
5.38	Take account of what mitigation measures may have been agreed between the applicant and Natural England and/or the Marine Management Organisation (MMO), and whether Natural England and/or the MMO has granted or refused, or intends to grant or refuse, any relevant licences, including protected species mitigation licences.

### *National planning policy framework*

6.7.2.9 The *National planning policy framework (NPPF)* (Ministry of Housing, Communities & Local Government, 2021)<sup>4</sup> originally published in March 2012 and most recently updated in July 2021, sets out the government’s planning policies for England and provides a framework within which locally prepared plans can be produced. The *NPPF* is “*an important and relevant matter to be considered in decision making for NSIP*”<sup>5</sup>.

### *Regional and local level policy*

6.7.2.10 Although the *UK Biodiversity Action Plan (BAP)* has been superseded, BAPs are still widely used at county level to support Biodiversity 2020 (Department for Environment, Food and Rural Affairs, 2011)<sup>6</sup>.

6.7.2.11 Grass snake, adder, common lizard and slow worm are listed as priority species on the Durham County Council BAP (2012/13) now listed on North East England Nature Partnership website (North East England Nature Partnership, 2013)<sup>7</sup>.

6.7.2.12 The following local planning policies are relevant to this report:

<sup>4</sup> Ministry of Housing, Communities & Local Government (2021) National Planning Policy Framework

<sup>5</sup> Nationally Significant Infrastructure Projects (NSIP)

<sup>6</sup> Department for Environment, Food and Rural Affairs (2011) Biodiversity 2020: A Strategy for England’s Wildlife and Ecosystem Services.

Department for Environment, Food and Rural Affairs, London.

<sup>7</sup> North East England Nature Partnership (2013) Biodiversity Priorities

- *Eden Local Plan (2014-2032)* (Eden District Council, 2014)<sup>8</sup> Policy ENV1 and Policy ENV4
- *County Durham Plan (Adopted 2020)* (Durham County Council, 2020)<sup>9</sup> Policy 26, Policy 40, Policy 41, Policy 42 and Policy 43
- *Richmondshire Local Plan (2012-2028)* adopted 2014 (Richmondshire District Council, 2014a)<sup>10</sup> Core Policy CP12
- *Cumbria BAP* (Cumbria Biodiversity Partnership, 2001)<sup>11</sup>
- *Richmondshire BAP* (Richmondshire District Council, 2014b)<sup>12</sup>

### Other relevant policy and guidance

6.7.2.13 In addition to compliance with the *NPSNN* and *NPPF*, this report has been written in accordance with professional standards and guidance. The standards and guidance which relate to the assessment are:

- *Guidelines for Ecological Impact Assessment in the UK and Ireland* (Chartered Institute of Ecology and Environmental Management, 2018)<sup>13</sup>
- *Design Manual for Roads and Bridges (DMRB) LA 108 Biodiversity (DMRB LA 108)*, Revision 1, March 2020 (Highways England, 2020a)<sup>14</sup>
- *DMRB LD 118 Biodiversity Design (DMRB LD 118)*, Revision 0, March 2020 (Highways England, 2020b)<sup>15</sup>

## 6.7.3 Methodology

### Desk study

6.7.3.1 The aim of the desktop study was to develop an understanding of the baseline conditions relating to reptiles and highlight any constraints and opportunities for consideration. The study area for the desk study comprised the Order Limits plus a 2km buffer. Table 2: Sources of information summarises the various sources of information used for the desk study and the information that was obtained.

Table 2: Sources of information

Source	Information Obtained
Ordnance Survey mapping and online aerial imagery	Aerial photography published on commonly used websites was studied to place habitats present within the site boundary in the wider context; identify potential ecological receptors of note for reptiles that may not be evident on the ground during

<sup>8</sup> Eden District Council (2014) *Eden Local Plan 2014 to 2032*

<sup>9</sup> Durham Council (2020) *County Durham Plan – Adopted 2020*

<sup>10</sup> Richmondshire District Council (2014a) *Richmondshire Local Plan 2012 - 2028 Core Strategy (Adopted 9 December 2014)*

<sup>11</sup> Cumbria Biodiversity Partnership (2001) *The Cumbria Biodiversity Action Plan*

<sup>12</sup> Richmondshire District Council (2014b) *Richmondshire Biodiversity Action Plan*

<sup>13</sup> Chartered Institute of Ecology and Environmental Management (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*

<sup>14</sup> Highways England (2020a) *Design Manual for Roads and Bridges LA 108 Biodiversity, Revision 1, March 2020,*

<sup>15</sup> Highways England (2020b) *Design Manual for Roads and Bridges LD 118 Biodiversity Design, Revision 0, March 2020,*



Source	Information Obtained
	<p>the field survey; identify potential barriers to animal movements (such as road networks, built development and major watercourses); and to assess changes to habitats since baseline information was recorded so that an assessment of reliability can be made.</p> <p>This approach can be useful in determining if such receptors are potentially a key part of a wider wildlife corridor or an important feature in an otherwise ecologically poor landscape. As some receptors are not always apparent on aerial photographs, relevant Ordnance Survey mapping was also studied to identify any additional features of note such as ponds, issues and/or drains, and disused railway lines.</p>
<p><i>Multi-agency Geographic Information Centre (MAGIC)</i> (Department for Environment, Food and Rural Affairs, 2022)<sup>16</sup>, Cumbria Biodiversity Data Centre (CBDC), Environmental Records Information Centre - North East (ERIC), Environmental Records Centre and North and East Yorkshire Ecological Data Centre (NEYEDC)</p>	<p>The location of any statutory and non-statutory designated sites that list reptiles within their conservation objectives or species inventory, and for historical records of reptiles. Any records older than 20 years have been omitted from the results unless specified.</p>
<p>North East Reptile and Amphibian Group (NERAG)</p>	<p>Personal communication with R. Hepburn relating to an adder record in Bowes.</p>
<p>Cumbria Amphibian and Reptile Group (CARG)</p>	<p>ARGWEB reptile records held by the group.</p>

### Screening for survey and defining the survey area

- 6.7.3.2 Analysis of aerial photographs was undertaken to identify and map the extent of areas potentially suitable to support reptiles within or adjacent to the Order Limits of the Project. Desk study data and observations made during the Phase 1 habitat survey were reviewed to refine survey areas and identify any additional areas of potentially suitable habitat.
- 6.7.3.3 Selected target areas were subsequently visited in November 2021 and assessed by appropriately experienced ecologists in order to appraise the suitability of the habitats present on the ground. The habitat assessment was based on consideration of the following characters (taken from Natural England, 2011<sup>17</sup>):
- Location in relation to species range
  - Vegetation structure
  - Insolation (sun exposure)

<sup>16</sup> Department for Environment, Food and Rural Affairs (2022) MAGIC Interactive Mapping Application

<sup>17</sup> Natural England (2011) Natural England Technical Information Note TIN102: Reptile Mitigation Guidelines. Natural England, Peterborough. (Note this guidance was published and subsequently withdrawn in September 2011)

- Aspect
- Topography
- Surface geology
- Connectivity to nearby good quality habitat
- Prey suitability/abundance
- Refuge opportunity
- Hibernation habitat potential
- Disturbance
- Egg-laying site potential (grass snake only)

6.7.3.4 For each habitat type or target area the output of the habitat assessment was categorised as follows:

- Poor – habitat which is unfavourable for reptiles based on the majority of the habitat assessment characters listed above or is limited in size and highly isolated from other areas of suitable habitat
- Good – habitat which is favourable or sub-optimal for many of the habitat assessment characters listed above or is sub-optimal for some of the characters and has good connectivity with areas of more suitable habitat
- Exceptional – habitat which is favourable for reptiles based on the majority of habitat assessment characters listed above.

6.7.3.5 Categorisation also noted which species the habitat area is considered potentially suitable for, and this was combined with the results of the desk study and professional judgement (NARRS, 2007<sup>18</sup>) to rank the perceived likelihood of presence as follows:

- Negligible – while presence cannot be absolutely discounted, habitats are very limited or of poor quality for reptiles (note that this assessment could be collectively or individually). There may be no local returns from a data search and the surrounding habitats are considered unlikely to support wider populations. The Project may also be outside or peripheral to the known natural range of reptiles.
- Low – habitats are of poor to good quality for reptiles. There are few or no returns from the data search, but presence cannot be discounted based on factors such as national distribution, the nature of surrounding habitats, habitat fragmentation or recent disturbance.
- Medium – habitats are of good quality providing opportunities for reptiles. Desk study reveals local occurrence, or the area is within the national distribution and with suitable surrounding habitat. Factors limiting the likelihood of occurrence may include small habitat area, habitat isolation, and/or disturbance.
- High – habitats are of exceptional quality for reptiles. Desk study provides evidence of local occurrence. The area is within/peripheral to a national or regional stronghold and/or has good quality surrounding habitat and good connectivity.
- Confirmed Presence – presence confirmed from survey or by recent, confirmed records.

6.7.3.6 Accordingly, an isolated area of exceptional habitat could be considered to have negligible likelihood of reptile presence and an area of poor

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<sup>18</sup> NARRS (2007) Reptile Habitat Guide. National Amphibian and Reptile Recording Scheme

habitat could have a high likelihood of reptile presence, if situated adjacent to better quality habitat with confirmed presence.

- 6.7.3.7 The output from the screening exercise was a series of land parcels containing habitats of various quality and likelihood of supporting reptiles. The locations of these are illustrated on ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3).

### Field survey

- 6.7.3.8 All habitat areas scoped for survey falling within the Order Limits of the Project that were assessed as having 'good' or 'exceptional' habitat suitability and medium or above likelihood of reptile presence will be selected for further pre-construction presence or likely absence surveys. All areas that will be subject to survey are illustrated on ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3).

- 6.7.3.9 In each survey area, refugia, comprising a combination of corrugated metal or onduline and roofing felt refugia (minimum 0.5m x 0.75m in size) will be placed in suitable habitat.

- 6.7.3.10 In non-linear habitats refugia will be placed at a density of at least 100 per hectare (ha) (for very small sites this density may be increased appropriately with a justification provided). In linear habitats of less than 10m in width (for example, hedgerows and road verges) refugia will be placed at a frequency of at least one every 10m of suitable habitat. The default composition will be a 50:50 ratio of corrugated to felt refugia. Where varying from this standard a justification will be provided, based on the habitat type and target species concerned. All refugia will be numbered and their location recorded to an accuracy of less than 5m where terrain and vegetation allows. Once placed, artificial refugia will be left to settle for 14 days prior to conducting the first survey (*Natural England, 2011*).

### Presence/likely absence survey

- 6.7.3.11 Reptile surveys will be conducted in accordance with the methodology described in this section, which draws heavily upon HGBI (1998<sup>19</sup>), Froglife (1999<sup>20</sup> & 2015<sup>21</sup>) and Natural England (2011)<sup>17</sup>.

- 6.7.3.12 Each site containing refugia will be checked for reptiles on seven occasions, with binoculars used to check for reptiles on and between refugia, as well as careful checks by lifting each refugia. Each refugia check will be conducted during the following conditions:

- Time: conducted between 07:00 and 18:00
- Air temperature: 10°C – 20°C
- Wind: Still to moderate (equivalent to Beaufort 4; 13 – 17mph)

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<sup>19</sup> Herpetofauna Groups of Great Britain and Ireland (1998) Evaluating local mitigation/translocation programmes: Maintaining best practice and lawful standards. HGBI, Halesworth

<sup>20</sup> Froglife (1999) Reptile survey; an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth

<sup>21</sup> Froglife, (2015) Surveying for reptiles; tips, techniques and skills to help you survey for reptiles. Froglife, Peterborough

- Rain: No or light rain only at time of survey. Surveys between periods of heavy rain (when all other conditions are suitable) will also be acceptable.

- 6.7.3.13 During each check the surveyor will record details of all reptiles encountered during the survey, including refugia number, species, number, life stage (adult, subadult, juvenile) and when possible, sex.
- 6.7.3.14 Each survey will be conducted during the period April to September.
- 6.7.3.15 Where access allows, surveys will be programmed to maximise the number of visits conducted during April, May, June and September. However, visits during July and August are not precluded assuming they are conducted according to the weather requirements specified. Surveys will also be planned to ensure that there is at least 30 days between the first and last survey visits and that there is a minimum of two days between each visit.
- 6.7.3.16 A robust survey to determine likely absence will include at least four visits conducted during the 'optimum' survey months of April, May, June or September. As a consequence, at sites where surveys commence during July or August, if no reptiles are found during the first three visits, then the remainder of visits would be delayed and conducted during September.
- 6.7.3.17 For adder, survey visits may also be carried out during October and November when it would be anticipated that adders would be using habitats in close proximity to potential hibernation habitats. Note that where a requirement for additional spring emergence visits is identified, these will be completed by April.

#### *Estimating population size class*

- 6.7.3.18 Where presence/likely absence survey confirms presence of one or more reptile species and all survey visits have been conducted during the optimum survey months of April, May, June or September (under suitable conditions), then (unless the surveyor considers it necessary) no further visits will be required.
- 6.7.3.19 In order to provide an estimate of population size where any survey visits have been conducted during the sub-optimal months of July or August, additional visits will be required until at least seven visits (under suitable conditions) have been conducted during optimum months. Where initial survey results suggest that a site has the potential to support a "Key Reptile Site" as defined by *Froglife (1999)*, then the requirement for further visits to provide a robust assessment will be considered.
- 6.7.3.20 Population size class will be assessed using the peak adult count for each species across all visits. These figures will then be divided by the survey area in hectares to give an indication of density to compared with the criteria outlined in *Evaluating local mitigation/translocation programmes: Maintaining best practice and lawful standards* (HGBl, 1998).

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### *Survey programme*

- 6.7.3.21 The proposed survey programme aims to be proportionate and robust. The programme will minimise the collection of irrelevant or abortive information and the need for repeat surveys to ensure the survey information is reliable during construction.
- 6.7.3.22 It is proposed that all additional surveys are undertaken as pre-construction surveys during the appropriate survey season prior to site enabling works and site establishment works (due to start by 2024).

## **6.7.4 Assumptions and Limitations**

- 6.7.4.1 Where areas of suitable reptile habitat are located within the boundaries of the existing operational road estate of the A66, M6 or A1(M), health and safety and access issues prevented habitat suitability assessment survey in detail and observations were made from a distance and from aerial photography. These areas, described in the results section of this report, have also been scoped out of further presence/likely absence survey even when habitats within them were perceived to meet the threshold defined within Section 1.3, since the habitats are unsuitable for translocation methods due to the health and safety and access issues.
- 6.7.4.2 The reptile assessments and survey provide a snapshot of activity within the survey area and cannot necessarily detect all potential use by reptiles. To alleviate this limitation, habitat assessments have been undertaken over the lifetime of the Project with specific site walkovers undertaken on two separate occasions (initially during the extended Phase 1 habitat surveys and then during the specific reptile habitat suitability assessments).
- 6.7.4.3 Whilst every effort has been made to provide a description of the habitats within the Order Limits of the Project, no investigation can ensure the complete characterisation of the natural environment. Desk study data is not likely to be exhaustive and is not up to date in most cases. It is therefore possible that reptiles not identified during the data search do in fact occur within the vicinity of the Project. However, this is not considered to be a significant limitation due to the extensive desk study analysis undertaken and the field surveys proposed.
- 6.7.4.4 The habitat suitability assessment provides an assessment of the likelihood of reptile presence within the Order Limits of the Project. This is based on the suitability of the habitat, known distribution in the local area and any direct evidence within the survey area. It should not be taken as providing a full and definitive survey and is only representative of the time the assessments were carried out. Where appropriate, additional surveys have therefore been recommended to ensure the baseline is up to date during construction, to refine avoidance and restoration measures and inform method statements. A lack of evidence does not necessarily mean that the species is absent, hence the assessment within this report also records and assesses the ability of habitats to support reptiles.

## 6.7.5 Results

### Routewide

- 6.7.5.1 There are no records of reptiles within the Order Limits of the Project.
- 6.7.5.2 Four reptile species are found in Cumbria and all are thought to be under-recorded (Cumbria Biological Data Network, 2010)<sup>22</sup>:
- common lizard
  - slow worm
  - grass snake
  - adder
- 6.7.5.3 Common lizards and slow worms are likely to occur on most lowland previously developed land sites and lightly managed grassland. Adders occur at low density over much of Cumbria in natural or semi-natural habitats and grass snakes are probably confined to south Cumbria and the coastal strip (CBDN, 2010).
- 6.7.5.4 All four species are also found in north-east England, which includes County Durham and the part of North Yorkshire adjacent to the Tees Valley (Durkin, 2016)<sup>23</sup>. Reptiles are found in similar habitats to those in Cumbria, which include disused quarries and railways, heathland, rough grassland, coastal habitats, scrub and open woodland, archaeological features and, in the case of grass snakes, ponds and riverbanks. All species are relatively common where suitable habitats exist across the region except grass snakes, which are at the northernmost edge of their range in Great Britain.

### Common lizard

- 6.7.5.5 Based on the desk study information there is a patchy distribution of low numbers of common lizard across the Project. However, it should be noted that several of these records predate 2010 and are thus unlikely to be reflective of the current ecological potential of the area. The records were identified at Beacon Hill, Penrith (north of M6 Junction 40 to Kemplay Bank), associated with the A66 roadside verge (Bowes Bypass) and within Whinfell Forest (situated to the south of Penrith to Temple Sowerby). Low numbers of common lizard are potentially present intermittently across suitable habitats (see Edgar *et al.*, 2010)<sup>24</sup> for detailed species habitat requirements).

### Slow worm

- 6.7.5.6 The desk study identified only one record of slow worm, which was located within 2km of Cross Lanes to Rokeby scheme. Based on the lack of records and overall patch quality (see Edgar *et al.*, 2010 for species detailed habitat requirements), it is unlikely that habitats within

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<sup>22</sup> Cumbria Biological Data Network (2010) Reptiles All native species. Cumbria Biodiversity Evidence Base information. Version 2.1 - April 2010

<sup>23</sup> Durkin, J. (2016) Reptile Atlas of North-East England - 2016

<sup>24</sup> Edgar, P., Foster, J. and Baker, J. (2010) Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth



the Order Limits of the Project support slow worm. Nevertheless, low populations and a similar distribution compared to common lizard cannot be ruled out.

#### *Grass snake*

- 6.7.5.7 The desk study did not identify any records of grass snake within 2km of the Project, except for an incidental record on Ministry of Defence (MOD) land to the north of the Appleby to Brough scheme. The Project is outside or peripheral to their natural range (*Cumbria Biological Data Network, 2010* and *Durkin, 2016*).

#### *Adder*

- 6.7.5.8 The desk study did not identify any records of adder within 2km of the Project, although there are scattered records within the wider area. Due to a lack of extensive natural or semi-natural habitats, adder presence is unlikely within the Order Limits of the Project. Nevertheless, presence cannot be ruled out within a few small pockets of suitable vegetation situated within the Order Limits of the Project (specifically, heathland, moorland, open woodland or scrubland habitat of sufficient area to support relic populations or adequately connected to extensive areas of suitable habitat). See Edgar *et al.*, 2010 for detailed species habitat requirements.

### M6 Junction 40 to Kemplay Bank

#### *Desk study*

- 6.7.5.9 The desk study highlighted three records of common lizard, all situated to the north of this scheme and associated with the plantation woodland on Beacon Hill and the Penrith Beacon. The records included total counts between one and five individuals, with the most recent record from 2012. The closest record was situated approximately 1.7km north of the Order Limits of this scheme, but all records were separated from the scheme by the built-up areas of Penrith. No other records of reptile were identified within 2km of this scheme during the desk study.

#### *Screening for survey and defining the survey area*

- 6.7.5.10 This scheme is situated on the southern curtilage of Penrith and has been heavily modified by anthropogenic activities. The M6 motorway and A66 highway corridors bisect the scheme, creating barriers to dispersal (across the highway) but also providing potential wildlife corridors along highway soft estates. These highway corridors are connected to the River Eamont corridor and its riparian habitats (situated to the south) and the semi-natural habitats associated with Wetheriggs Country Park (to the north), Skirsgill Park (to the south) and the grounds of Brougham Castle. Nevertheless, habitats of potential suitability for reptiles were limited and, within the Order Limits of the scheme, were considered to be restricted to distinct patches of the M6 motorway and A66 soft estates as follows:

- The habitats of potential suitability situated along the M6 motorway (see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3) for location) were assessed to be of good quality for reptiles with a medium likelihood of common lizard presence. The likelihood of slow worm presence was assessed as low and adder presence as negligible. Due to health and safety considerations and the unsuitability of the site for translocation methods, this parcel was scoped out of further survey.
- Sections of south facing embankment along the A66 (referenced 102-1; see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3)) comprised rank grassland, scrub and trees and were assessed to be of good quality for reptiles with a medium likelihood of common lizard presence. The likelihood of slow worm presence was assessed as low and adder presence as negligible.

## Penrith to Temple Sowerby

### *Desk study*

- 6.7.5.11 The desk study identified one record (from 2003) of common lizard at Whinfell Forest. The record is known to the 1km grid square situated to the south of this scheme. No other records of reptile were identified within 2km of this scheme.

### *Screening for survey and defining the survey area*

- 6.7.5.12 This scheme extends through a mixed agricultural landscape. Fields were typically defined by drystone walls and there were a few woodland blocks scattered around the wider landscape. Whinfell Forest (associated with Center Parcs and situated to the south of the scheme) represents a large area of woodland, sections of which were designated as Ancient Woodland and a County Wildlife Site. The A66 soft estates created a narrow corridor (typically less than 10m wide) from west to east comprising a mixture of managed grassland, rank grassland, scrub and trees, also defined by drystone wall.
- 6.7.5.13 Habitats of potential suitability for reptiles were limited and, within the Order Limits of the scheme, were considered to be restricted to distinct patches as follows (described from west to east):
- Two parcels of land associated with the Countess Pillar to the south of the A66 (referenced 03-01; see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3)). These habitats comprised rank grassland, scrub and trees and were assessed to be of good to exceptional quality for reptiles with a high likelihood of common lizard presence. The likelihood of slow worm presence was assessed as medium and adder presence as negligible.
  - Light Water is a small tributary of the River Eamont that extends from south to north and flows beneath this scheme. To the north, its banks extend through woodland. This area was assessed to be of poor quality for reptiles with a negligible to low likelihood common lizard and slow worm.



- An unnamed tributary of the River Eamont that extends from south to north and flows beneath this scheme at Whinfell Park. To the south, the tributary extends through an unmanaged area comprising a pond and wetland with patches of rank grassland, bracken, scrub and trees. The area (referenced 03-02; see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3)) was separated into sub-plots that were assessed to be of poor or good quality for reptiles, a low to medium likelihood of supporting common lizard and slow worm, and a negligible likelihood of supporting adder.
- The A66 access road to Whinfell Forest extends through an approximately 50m wide corridor of managed (to various lengths) grassland, scrub and trees on false embankment. The area (referenced 03-03; see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3)) comprised habitats of no value (specifically, the road and areas of intensively managed amenity grassland) to ranker areas of good quality for reptiles. The latter was assessed to have a medium likelihood of supporting common lizard, low likelihood of supporting slow worm and a negligible likelihood of supporting adder.
- To the east of the scheme, the northern soft estate of the A66 comprised a south facing embankment with a strip of rank grassland and trees and scrub beyond (see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3) for location). This area was assessed to be of good quality for reptiles with a medium likelihood of common lizard presence. The likelihood of slow worm presence was assessed as low and adder presence as negligible. Due to health and safety considerations this parcel was scoped out of further survey.

## Temple Sowerby to Appleby

### *Desk study*

6.7.5.14 No records of reptile were identified within 2km of this scheme.

### *Screening for survey and defining the survey area*

6.7.5.15 The scheme extends through a mixed agricultural landscape. Fields were typically defined by hedgerows, and, with the exception of Trout Beck (a tributary of the River Eden), semi-natural vegetation was scarce. Habitats of potential suitability for reptiles were limited to the following (described from west to east):

- A thin embankment situated beneath a defunct hedgerow extended along Priest Lane. The embankment was assessed to be of poor quality and negligible likelihood for reptiles.
- The historic route of a Roman Road extended through the Order Limits of the scheme (referenced 0405; see ES Figure 6.5: Reptile Habitat Survey (Application Document 3.3)) along with part of a disused railway embankment running adjacent to it. This route is now used as a bridleway, flanked by a mosaic of rank grassland and scrub and defined on both sides by a ditch (which was wet in sections),

defunct hedgerow, scattered trees and drystone wall. Habitat quality ranged from poor to exceptional and overall this corridor was assessed to have a high likelihood of supporting common lizard and slow worm and a low likelihood of supporting adder.

- The hedgerow networks extending from the southern end of the Roman Road to the existing A66 were assessed to be of poor quality and low likelihood of supporting reptiles (namely common lizard and slow worm).
- The A66 soft estate at the Appleby Bypass and B6542 junction (see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3)) was in a cutting and comprised a woodland, scrub, grassland and bare ground mosaic with localised bracken. The northern embankment created a south facing verge that connected to the Roman Road via a railway line (to the west). These habitats were assessed to be of good quality for reptiles and to have a high likelihood of supporting common lizard and slow worm and a low likelihood of supporting adder. Due to health and safety considerations and the unsuitability of the sites for translocation methods, these parcels were scoped out of further survey.

## Appleby to Brough

### *Desk study*

- 6.7.5.16 During the habitat assessment in November 2021 surveyors were informed of an incidental record of grass snake on MOD land at Warcop, approximately 600m to the north of the Order Limits of the Appleby to Brough scheme. No other records of reptile were identified within 2km of this scheme.

### *Screening for survey and defining the survey area*

- 6.7.5.17 The scheme extends through a pastoral landscape with the River Eden extending parallel to the south and moorland to the north. Fields were typically large and defined by hedgerows, fences and stone walls. Semi-natural habitats of suitability for reptiles were scarce within the Order Limits of this scheme and restricted to the following (described from west to east):
- An area within the Order Limits of this scheme to the north-west comprised part of a large moorland field of heathland, grassland and bracken (referenced 06-01; see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3)). This parcel was assessed to be of good to exceptional quality with a high likelihood of supporting common lizards, slow worm and adder.
  - Several blocks of coniferous plantation were situated along the northern boundary of the existing A66 (referenced 06-02; see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3)) with drystone wall and patches of rank grassland and bracken on the fringes. The majority of this habitat was assessed as poor quality and negligible likelihood to support reptiles. However, small patches within, particularly an area of dense scrub and scattered mixed trees

to the east, were collectively assessed to be of good quality. Due to connectivity with areas of semi-natural vegetation to the north, this area was assessed to have a high likelihood of supporting common lizard and a medium likelihood of supporting slow worm and adder.

- A small section of woodland edge habitat with gaps comprising bracken and gorse was situated to the east, near Moor Beck. This was assessed as good quality for reptiles but due to its small scale and location, it was assessed to have a low likelihood of supporting common lizard and slow worm and negligible likelihood of supporting adder.
- A derelict building to the south of the A66 was situated within a small area of rank vegetation. This isolated area was assessed to be of poor quality and negligible likelihood to support reptiles.

## Bowes Bypass

### *Desk study*

- 6.7.5.18 The desk study identified a solitary common lizard record from 2005. The record was situated on the A66 road verge approximately 150m east of the Order Limits of this scheme.
- 6.7.5.19 No other records of reptile were identified within 2km of this scheme. However, records situated outside the study area for this scheme highlighted the presence of adder. These records were located approximately 4km south-west of the Order Limits of this scheme, on the northern bank of the River Greta (south of Rokeby), and on moorland to the north of Bowes, approximately 2.8km north from the Order Limits of this scheme. Both records are potentially connected to the scheme by semi-natural habitat associated with the River Greta, Bowes Moor Site of Special Scientific Interest (SSSI) and North Pennine Moors Special Area of Conservation (SAC).

### *Screening for survey and defining the survey area*

- 6.7.5.20 The scheme passes along the northern curtilage of Bowes within a largely pastoral landscape. Fields were typically small and defined by drystone walls or fences. The River Greta extended to the south of the scheme and the North Pennine Moors SAC to the north-west.
- 6.7.5.21 Common lizards have historically been recorded on the A66 soft estate and a section to the east comprising drystone walls with rank grassland near to Hulands Quarry (see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3) for location) was assessed to be of good quality and highly likely to support common lizard. The likelihood of slow worm presence was assessed as low and adder as negligible. Due to health and safety considerations this parcel was scoped out of further survey.
- 6.7.5.22 All other habitats within the Order Limits of this scheme were assessed to be of negligible likelihood to support reptiles.

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## Cross Lanes to Rokeby

### *Desk study*

- 6.7.5.23 The desk study identified one record of slow worm, associated with the River Greta corridor, approximately 1.8km south of the Order Limits of the scheme.
- 6.7.5.24 No other records of reptile were identified within 2km of this scheme. However, a record of adder was identified approximately 2.1km south and was also associated with the River Greta corridor.

### *Screening for survey and defining the survey area*

- 6.7.5.25 The scheme passes through a mixed agricultural landscape of small fields defined by hedgerows and tree lines. Several blocks of plantation woodland were also scattered throughout, with wildlife corridors associated with the River Greta and River Tees situated to the south and north, respectively.
- 6.7.5.26 Tutra Beck (a small watercourse) meanders through the scheme within an approximate 20m wide corridor (that widens outside of the Order Limits of the scheme, to the east) supporting a mosaic of grassland, ruderals, scrub and scattered trees (referenced 08-01; see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document)). This area was assessed as good quality for reptiles with a medium likelihood of supporting common lizard and slow worm and negligible likelihood of supporting adder.
- 6.7.5.27 In addition, three sections of hedgerows and tree lines associated with the A66 were assessed to be of poor quality and low likelihood of supporting common lizard and slow worm. The likelihood of reptiles being present within other habitats within the Order Limits of this scheme was assessed as negligible.

## Stephen Bank to Carkin Moor

### *Desk study*

- 6.7.5.28 No records of reptile were identified within 2km of this scheme.

### *Screening for survey and defining the survey area*

- 6.7.5.29 The scheme extends through a mixed agricultural landscape of various sized fields defined by hedgerows and ditches, interspersed by woodland blocks and scattered trees. Several parcels of habitat of potential suitability for reptiles were identified within the Order Limits of this scheme as follows (described from west to east):
- A small area of patchy woodland and scrub to the west of the scheme was assessed to be of good quality for reptiles but, due to its isolation, has a low likelihood of supporting common lizard and slow worm and negligible likelihood of supporting adder.
  - Foxwell Plantation (referenced 09-02; see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3)) comprised an

area of open mixed woodland with an understory of rank grassland, brambles and bracken. It was assessed to be of good quality for reptiles with medium likelihood of supporting common lizard, low likelihood of supporting slow worm and negligible likelihood of supporting adder. The hedgerows connecting with this woodland were assessed to be of poor quality and low likelihood of supporting common lizard.

- Mainsgill Plantation (referenced 09-03; see ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3)) comprised a copse of mixed plantation with a wet ditch and grassy scrub mosaic understory, and good connectivity to other, larger woodland mosaic habitats to the east and north. The habitat was assessed to be of good quality for reptiles and high likelihood of supporting common lizard. The likelihood of slow worm presence was assessed as low and adder as negligible. The hedgerows connecting with this woodland were assessed to be of poor quality and low likelihood of supporting common lizard.
- Two ponds were situated within a small, isolated area of unmanaged semi-improved grassland to the west of Warrener Lane. The habitats surrounding the ponds were assessed to be of good quality for reptiles but due to poor connectivity and isolation the likelihood of reptile presence was assessed as low for common lizard and slow worm, and negligible for adder.

## A1(M) Junction 53 Scotch Corner

### *Desk study*

6.7.5.30 No records of reptile were identified within 2km of this scheme.

### *Screening for survey and defining the survey area*

6.7.5.31 This scheme comprises the A1 motorway junction of the A66 and has been heavily modified. All habitats within the Order Limits of this scheme were assessed to be of negligible likelihood to support reptiles due to their small size, isolation and poor connectivity to other suitable habitats.

## 6.7.6 Future Baseline

6.7.6.1 The ecological baseline conditions described above represent those which currently exist in the absence of the scheme and at the time of writing. As stated in section 3 of CIEEM's *Guidelines for Ecological Impact Assessment in the UK and Ireland*, potential changes in baseline conditions also need to be identified in order to assess impacts.

6.7.6.2 Based on the above information and current land use, the future baseline in the absence of the scheme is unlikely to change significantly. Subtle changes are expected due to climate change, such as some movements of certain species and local population changes, however, the overall habitats and species composition in the study area are expected to be broadly similar to that of the existing baseline. Therefore,



the future baseline would remain the same as set out in the existing baseline.

### 6.7.7 Discussion

6.7.7.1 The habitats within the Project are largely unsuitable for reptiles as they comprise intensive agriculture that is structurally deficient and lacking resting places (Edgar *et al.*, 2010). Nevertheless, intermittent pockets of suitable habitat were sporadically distributed across the local area, largely associated with linear features (such as roadside verges, stone walls, hedgerows, ditches and streams) and a few areas of rank semi-natural habitat, for example rough grassland and scrub.

6.7.7.2 Coupled with a lack of records, large populations and widespread presence of reptiles is unlikely. Nevertheless, the presence of common lizard, slow worm and, to a lesser extent, adder cannot be ruled out. Reptiles are therefore assumed to be present in all suitable habitat.

6.7.7.3 It is proposed that pre-construction presence/likely absence surveys are undertaken in the appropriate survey season prior to site enabling works and site establishment works (due to start by 2024). The proposed survey programme aims to be proportionate and robust and is focussed on identifying required mitigation to avoid harm or injury to individual reptiles that may be present. The programme will minimise the collection of irrelevant and abortive information and the need for surveys to be updated to ensure the survey information is reliable during construction.

6.7.7.4 The locations for further surveys required are shown on ES Figure 6.5: Reptile Habitat Suitability Survey (Application Document 3.3) along with all habitats that have been identified as suitable for reptiles. These collectively make up the area where mitigation measures for reptiles will be undertaken (these are described within Chapter 6: Biodiversity (Application Document 3.2).

#### *Presence/likely absence survey*

6.7.7.5 Across the Project, 14 land parcels have been assessed as having 'good' or 'exceptional' habitat suitability and 'medium' or better likelihood of reptile presence. Four of these were situated along the soft estate of the M6 or A66 and were scoped out of further surveys due to health and safety concerns and also the lack of suitability of these sites as potential reptile mitigation areas. The remaining land parcels will be subject to pre-construction presence/likely absence survey (and population size class estimates where presence is established) in order to inform detailed implementation of mitigation. These are summarised in Table 3: Land parcels to be subject to presence/likely absence survey, along with the approximate area of the land parcel that was assessed to be suitable for survey.

Table 3: Land parcels to be subject to presence/likely absence survey

Scheme	Land parcel description
M6 Junction 40 to Kemplay Bank	Parcel 102-1 (0.81ha) - sections of south facing embankment along the A66. Approximately 50% of area suitable for reptile survey.

Scheme	Land parcel description
Penrith to Temple Sowerby	Parcel 03-01 (1.1ha) - two parcels of land associated with the Countess Pillar to the south of the A66. Approximately 50% of area suitable for reptile survey. Parcel 03-02 (1.23ha) - unmanaged area containing pond to south of A66. Approximately 50% of area suitable for reptile survey. Parcel 03-03 (2.81ha) - A66 access road to Whinfell Forest. Approximately 50% of area suitable for reptile survey.
Temple Sowerby to Appleby	Parcel 405 (4ha) - narrow linear area along historic route of Roman Road. Approximately 30% of area suitable for reptile survey.
Appleby to Brough	Parcel 06-01 (1.73ha) - moorland field of heathland, grassland and bracken. Approximately 75% of area suitable for reptile survey. Parcel 06-02 (5.33ha) - several blocks of coniferous plantation along the northern boundary of the A66. Approximately 25% of area suitable for reptile survey.
Bowes Bypass	None.
Cross Lanes to Rokeby	Parcel 08-01 (0.72ha) - Tutra Beck corridor. Approximately 50% of area suitable for reptile survey.
Stephen Bank to Carkin Moor	Parcel 09-02 (1.38ha) - Foxwell Plantation. Approximately 40% of area suitable for reptile survey. Parcel 09-03 (2.24ha) - Mainsgill Plantation. Approximately 25% of area suitable for reptile survey.
A1(M) Junction 53 Scotch Corner	None.

## 6.7.8 References

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