



Brislington Meadows, Bristol

TECHNICAL APPENDIX F

Reptile Survey 2020

7507.20.022

March 2022

TEP
Genesis Centre
Birchwood Science Park
Warrington
WA3 7BH

Tel: 01925 844004
Email: tep@tep.uk.com
www.tep.uk.com

Offices in Warrington, Market Harborough, Gateshead, London and Cornwall

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Author	Graham Roberts MCIEEM
Checked	Dr Rachel Roberts CEnv MCIEEM
Approved	Francis Hesketh CMLI CEnv MCIEEM MICFor
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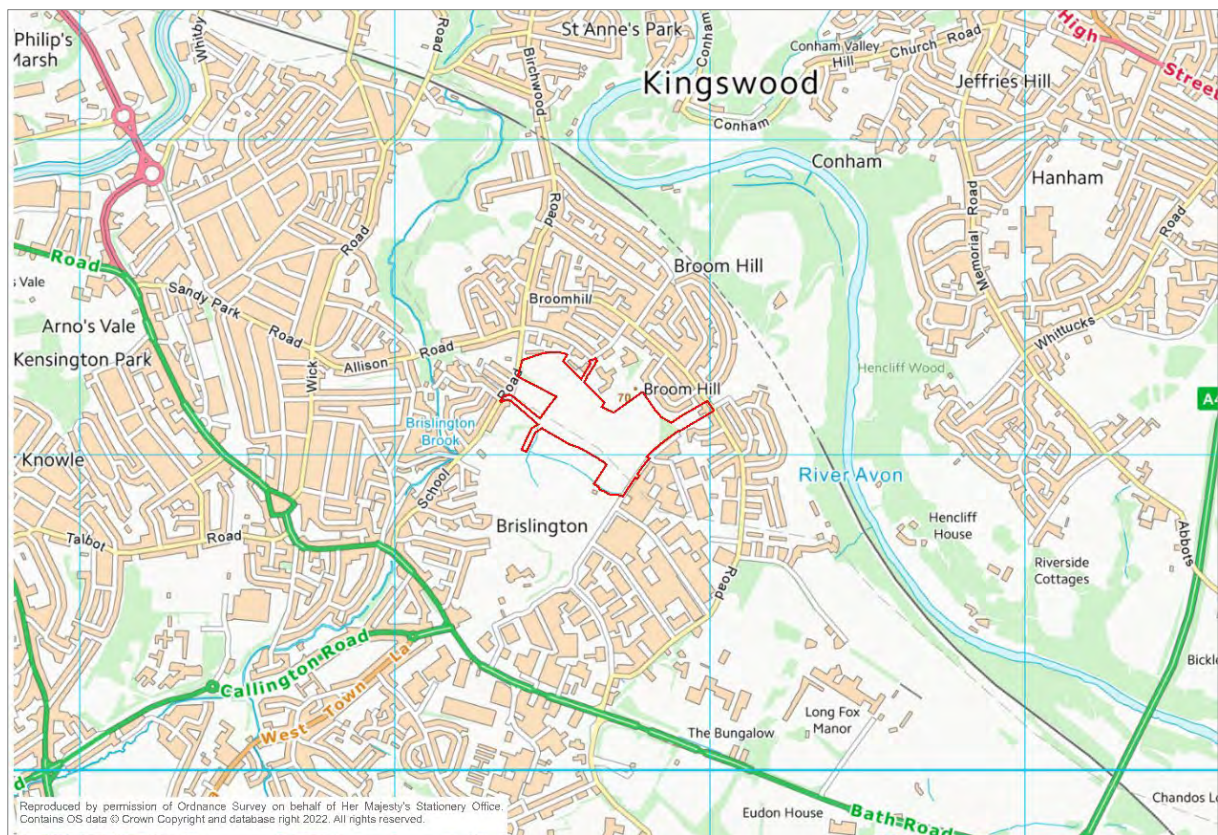
Drawings

G7507.20.011 Habitats Baseline

1.0 Introduction

- 1.1 The Environment Partnership (TEP) was commissioned in August 2020, by Campbell Reith on behalf of Homes England, to complete an Ecological Impact Assessment (EclA) for the site known as Brislington Meadows (hereafter referred to as 'the site').
- 1.2 The site is located within Brislington in the southeast of Bristol. The central grid reference for the site is ST 626 711 and the location of the site is shown in Figure 1.

Figure 1: Site Location



- 1.3 Prior to TEP's appointment, WSP was instructed by Homes England in September 2019 to undertake a Preliminary Ecological Assessment (PEA) of the site. The PEA was required to inform a pre-application planning consultation (Ref 19/05220/PREAPP) with Bristol City Council in November 2019. The 2019 PEA identified suitable habitats for reptiles within the site and recommended further survey.
- 1.4 This document reports the findings of the reptile survey completed to inform the EclA. It records the methods, limitations, findings and interpretation of the survey.

Legislation

- 1.5 All species of reptile native to the UK are protected to some degree under national and/or international legislation, which provides mechanisms to protect the species, their habitats and sites occupied by the species.
- 1.6 Sand lizards and smooth snakes are protected under Schedule 2 of the Conservation Regulations 2017¹ as amended² and are referred to as 'European Protected Species' (EPS). They are also afforded protection under Section 9 of the Wildlife and Countryside Act 1981 (WCA) as amended³. These species have restricted ranges and habitat preferences. No suitable habitats are present within the site for these species.
- 1.7 The remaining species of native reptiles (adder, grass snake, slow worm and viviparous lizard) are protected under part of Section 9(1) and all of Section 9(5) of the WCA as amended⁴. Of relevance to development, these species are protected against intentional killing and injury (Section 9(1)).
- 1.8 All native reptiles are listed as species of principal importance (SPI) for the purpose of conserving biodiversity under the requirements of Section 41 of the Natural Environment and Rural Communities Act 2006⁵ (NERC). The presence of SPI is a material consideration for local planning authorities when determining planning applications.

1 The Conservation of Habitats and Species Regulations 2017. SI 2017 No. 1012. London, The Stationary Office. Available from: <https://www.legislation.gov.uk>

2 The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019. SI 2019 No. 579. London, The Stationary Office. Available from: <https://www.legislation.gov.uk>

3 Wildlife and Countryside Act 1981, c.69. London: The Stationary Office. Available from: <https://www.legislation.gov.uk>

4 The Wildlife and Countryside Act 1981 (Variation of Schedule) Order 1991. SI 1991 No. 367. London, The Stationary Office. Available from: <https://www.legislation.gov.uk>

5 Natural Environment and Rural Communities Act 2006 c.16 London, The Stationary Office. Available from: <https://www.legislation.gov.uk>

2.0 Methods

Desk Study

- 2.1 Details of the scope and results of the desk study are reported at Ecological Technical Appendix A (TEP Ref 7507.20.039). Pre-existing species records, including reptiles, were obtained from Bristol Region Environmental Records Centre within a 2km search radius from the site.

Habitat Suitability

- 2.2 The potential for reptiles to be present within the site was assessed using the desk study results and combined with field observations from the habitat survey. The assessment of habitat suitability for reptile species was based on professional experience and judgement. This was supplemented by standard guidance for species ecology and habitat suitability including:

- Froglife (1999). Reptile survey. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife advice sheet 10. Froglife, Halesworth;
- Froglife (2015) Surveying for reptiles: Tips, techniques and skills to help you survey for reptiles. Froglife, Halesworth;
- Gent, A and Gibson, S. (2003). Herpetofauna workers' Manual. Peterborough, UK. Joint Nature Conservation Committee [<http://jncc.defra.gov.uk/page-3325>]; and
- Edgar, P., Foster, J. and Baker, J. (2010) Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth.
- Amphibian and Reptile Groups of the United Kingdom (2018) Advice Note 11 Managing Habitat for Adders: Advice for Land Managers May 2018 www.arguk.org
- David Sewell, Richard A. Griffiths, Trevor J. C. Beebee, Jim
- Sewell, D., Griffiths, R. A., Beebee, T. J., Foster, J. and Wilkinson, J. W. (2013) Survey protocols for the British herpetofauna. Version 1.0. Amphibian and Reptile Conservation, University of Kent and University of Sussex (*referred to as the NARRS guidance*).

Field Survey

- 2.3 The survey adopted the following strategy:
- Review of habitat suitability assessment to inform deployment of artificial cover objects (ACO);
 - Initial visit to set out ACOs;
 - Survey visits to inspect ACOs and to perform a direct visual transect across the site (during which other suitable debris or natural cover objects were also searched, where encountered and safe to inspect); and
 - Incidental observations during other site visits.

- 2.4 NARRS guidance for reptile survey advises a minimum of 30 ACOs be used while Froglife (1999 & 2015) guidance recommends between a baseline density of 10 ACOs per hectare. The site in total is 9.6ha although not all of this area represents suitable habitat. The grassland fields measure approximately 6.04ha with borders and field boundaries of dense scrub making up a further 2.68ha. A total of 75 ACOs were initially set out across fields F1-F5 and F7 in mid-August 2020. Grassland habitats within this area represent approximately 5.15ha, resulting in an average density of around 14 ACOs per hectare.
- 2.5 Interference with the ACOs was experienced during the surveys; replacement ACOs were set out each time this was discovered to maintain ACO density.
- 2.6 ACOs were micro-sited in the most appropriate habitat locations across the site. In light of the (unscheduled) grassland cut that had been undertaken immediately prior to the reptile survey commencing, ACOs were situated only in the field edges in and around the scrub edge. These locations were more discrete than centre field and were considered the most optimal micro-habitats where the scrub transitioned into the grassland. ACOs were placed slightly under the overlapping scrub edge, rather than adjacent, to maximise suitability for slow worm. ACOs were allowed approximately two weeks to 'bed-in' before commencement of surveys.
- 2.7 ACOs measured 500mm x 1000mm and comprised a mix of dark coloured roofing felt and corrugated bitumastic 'onduline'. All ACOs were uniquely numbered and mapped using GPS on deployment.
- 2.8 Seven visits were undertaken between 28th August and 5th October 2020 to inspect the ACOs and complete transect around the site during which visual observations of suitable habitats were made for reptiles. During each visit, the ACOs were checked visually from a distance (with binoculars where appropriate) to determine whether reptiles are basking on their surface. The ACOs were then carefully approached and lifted to check for reptiles sheltering beneath them.
- 2.9 All of the ACOs, in addition to certain other accessible pre-existing surface features such as remnant wooden pallets, discarded signage and individual logs, were carefully inspected for evidence of reptiles during each visit. The reptile ACOs and refuge features were replaced in the same position after each inspection.

Limitations

- 2.10 Interference with the ACOs was encountered on at least seven occasions, with a portion of these ACOs not recovered. Replacement ACOs were set out after each incident to maintain ACO density. The frequency of visits (seven in total) complied with NARRS minimum recommendation of 6 visits for estimating population counts/densities. Further visits were not considered likely to provide meaningful additional data due to the interference levels experienced. The number of visits were sufficient to confirm presence of slow worms, general distribution across the site and age classes present. A precautionous estimate was applied to the interpretation of the population density to account for the disturbance effects.

-
- 2.11 The effectiveness of the reptile survey was reduced by a grass cut that was carried out shortly before the survey mats were deployed in mid-August. The grass cut had the effect of manipulating the condition and distribution of suitable habitat as well as exposing survey mats to interference by members of the public accessing the site. These limitations were overcome by adopting a precautionary approach to interpretation of survey findings and applying a habitat suitability assessment completed in mid-July 2020 (prior to the grassland cut), which was also reviewed in the 2021 season.
- 2.12 Access arrangements relating to the private tenancy in field F6 meant frequent visits for reptile survey, which needed to be timed to take advantage of weather conditions, were not practical. This field was therefore excluded from the ACO survey. Direct observations and searches of suitable shelter objects were made during other site visits.
- 2.13 There were no other limitations to the reptile survey. Weather conditions during each visit were optimal and the survey was completed within a suitable period for the region (late August to early October).

3.0 Results

Desk Study

- 3.1 The desk study returned 28 records of slow worm *Anguis fragilis* within the 2km search radius, dated between 2008 and 2013. The closest was located along Bonville Road, with details of the record including as '3 present' and a description of 'under boarding'. The next nearest record originates from Sherwell Road, northwest of the site.

Habitat Suitability

- 3.2 The habitats present within the site are illustrated at Drawing G7507.20.011. Habitats are described further in the Ecological Technical Appendices B (Target Notes), C (Hedgerow Assessment), D (Grassland Assessment) and E (Habitat Condition Assessment).
- 3.3 Reptile species common lizard, slow-worm and adder occupy a wide range of habitats and tend to possess relatively small home ranges.
- 3.4 Grass snakes may potentially travel widely across larger areas of habitat, sometimes up to 400 – 500m to find suitable feeding, breeding and basking sites. They are more commonly associated with aquatic habitats that provide open sunny basking sites associated with well vegetated areas to provide cover. Diet comprises primarily fish and amphibians⁶. Habitats at the site are not considered optimal for grass snake.
- 3.5 Although some adders can move over distances of up to 2km through the year, other animals may move no more than a few tens of metres, and can be very site faithful. Adders return to their traditional hibernation sites in late summer, and this is often where the females give birth⁷. Adders tend not to be found in intensive agriculture, high, rugged mountainous terrain or urban areas. Diet comprises small mammals, especially voles, although lizards, nestling birds and frogs are also eaten. Distribution is widespread but patchy. Favoured habitats include heathland, moorland, acid and chalk grasslands, clearings, rides and edges in deciduous or coniferous woodland, coastal dune systems and cliffs, field edges, disused quarries, disused allotments, sea walls, road and rail embankments. Adders tend not to be found in urban areas or intensive agriculture. Habitats are considered sub-optimal for adder, as the micro-habitat features with greatest suitability for this species are within areas of highest disturbance from dog walkers and other visitors to the site.
- 3.6 Viviparous lizards occupy a wide range of habitats, however this species is now absent from large areas of the countryside. Intensively farmed land, dense woodland,

6 Edgar, P., Foster, J. and Baker, J. (2010) Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth.

7 Amphibian and Reptile Groups of the United Kingdom Advice Note 11 Managing Habitat for Adders: Advice for Land Managers May 2018 www.arguk.org

heavily grazed or mown habitats and many urban areas are unsuitable. Viviparous lizards avoid structurally uniform vegetation, rather rank and closed or short and completely open. Highest densities tend to be found in damp or wet areas. Movements are usually limited to a few tens of metres and individuals often share the same basking sites and shelters. Dispersal tends to be through the movement of juveniles. Diet tends to comprise soft-bodied invertebrates⁶. Overall, habitats at the site are considered sub-optimal for viviparous lizard, but may offer some localised opportunities. Like adder though, the micro-habitat features with greatest suitability for this species are within areas of highest human (and pet) disturbance.

- 3.7 Slow worms are more tolerant of less diverse vegetation structure than other reptile species. They are found in a range of habitats and, provided sufficient warmth, cover and food is available, they can be found in urban areas, often gardens and allotments. Slow worms tend to function at lower body temperatures and therefore bask less frequently in the open; they are more generally associated with undisturbed thick vegetation. Loose soils into which they can burrow is preferred while very wet and very dry habitats tend to be avoided. Soft-bodied invertebrates, especially slugs and worms, are the favoured prey. Slow worms do not have large home ranges, generally only several hundred square metres. Communal hibernation demands some annual movement, but these are small compared with seasonal migrations of snakes⁶.
- 3.8 Overall, habitats within the site are considered suitable for slow worm. Tall grassland and scrub edges provide the most optimal habitat features. Dense scrub and potentially woodland areas (W1 and W2) would offer suitable habitat for over-wintering, although this is likely to be localised. In several places where dense scrub was accessed, ground conditions appear level, generally devoid of ground cover except for a sparse ivy layer and lacking in cover objects or suitable burrowing opportunities. Anthills noted in the grassland, particularly in fields F1 and F3, would provide suitable over-wintering opportunities. The adjacent allotments may also provide features such as compost piles that would be suitable for slow worm shelter. Gardens adjacent to the site in the north may also provide habitat opportunities for slow worms.

Field Survey

Incidental Sightings

- 3.9 During the course of the reptile tin deployment, a dead slow worm was recorded at F4. Damage evident on the corpse was indicative of mechanical damage, likely a causality from the unscheduled grass cut undertaken in mid-August 2020.
- 3.10 A juvenile common frog was found under natural debris in field F4 and a juvenile common toad was found under debris in the south of field F3 during visual transects and searches.

Reptile Survey

- 3.11 Reptile survey results are summarised in **Error! Reference source not found..** Full details of the survey findings are presented in Table 1. Slow worms were recorded on site during four visits on the 26th and 30th August and the 8th and 15th September 2020.

Table 1: Reptile survey results

Visit Weather	Reptile Findings			Other Findings	
	Field	Species	Count	Field	Species
Visit 1 – 26th August					
Sunny, light breeze 18.5°C	F2	Slow worm juvenile	1	F6	2 voles
				F5	Shrew
Visit 2 – 30th August					
Light cloud, gentle breeze 18°C <i>12 ACOs missing, 6 replaced</i>	F1	Slow worm adult female	1	F1	Family voles
	F2	Slow worm sub-adult	1	F2	2 voles
	F4	Slow worm sub-adult	2	F4	Vole
Visit 3- 8th September					
Light cloud, gentle breeze 17°C <i>14 ACOs replaced (including 6 still missing from visit 2)</i>	F7	Slow worm juvenile	8	F2	Vole
	F4	Slow worm sub-adult	1	F4	4 voles
Visit 4 – 15th September					
Sunny, gentle breeze 21°C <i>26 ACOs replaced</i>	F4	Slow worm sub-adult	2	F2	Vole
				F5	Vole
				F3	Vole
				F4	2 voles + shrew
Visit 5 - 22nd September					
Sunny/Gentle breeze 19°C <i>22 ACOs replaced</i>	No Reptiles Recorded			F1	Vole
				F2	2 voles
				F4	2 voles
Visit 6 – 29th September					
Light cloud, gentle breeze 13°C	No reptiles recorded			F2	Vole
				F4	4 voles
Visit 7 – 6th October					
Light rain followed by sunny period 13°C period 13°C period 13°C	Nothing recorded				

- 3.12 Voles and shrews were recorded incidentally to the reptile survey during the 26th, 30th August and 8th, 15th, 29th September surveys.

4.0 Interpretation

- 4.1 Unlike for many species groups, it is not possible to convert survey counts for reptiles into an indication of relative population size. Reptile behaviour varies markedly and only a small proportion of the population is ever identified through survey. A basic evaluation of population size class and the importance of the site for reptiles can be made from the maximum number of adults recorded on a single survey visit, in accordance with Table 2 (derived from Froglife 1999).

Table 2: Population assessment guidance

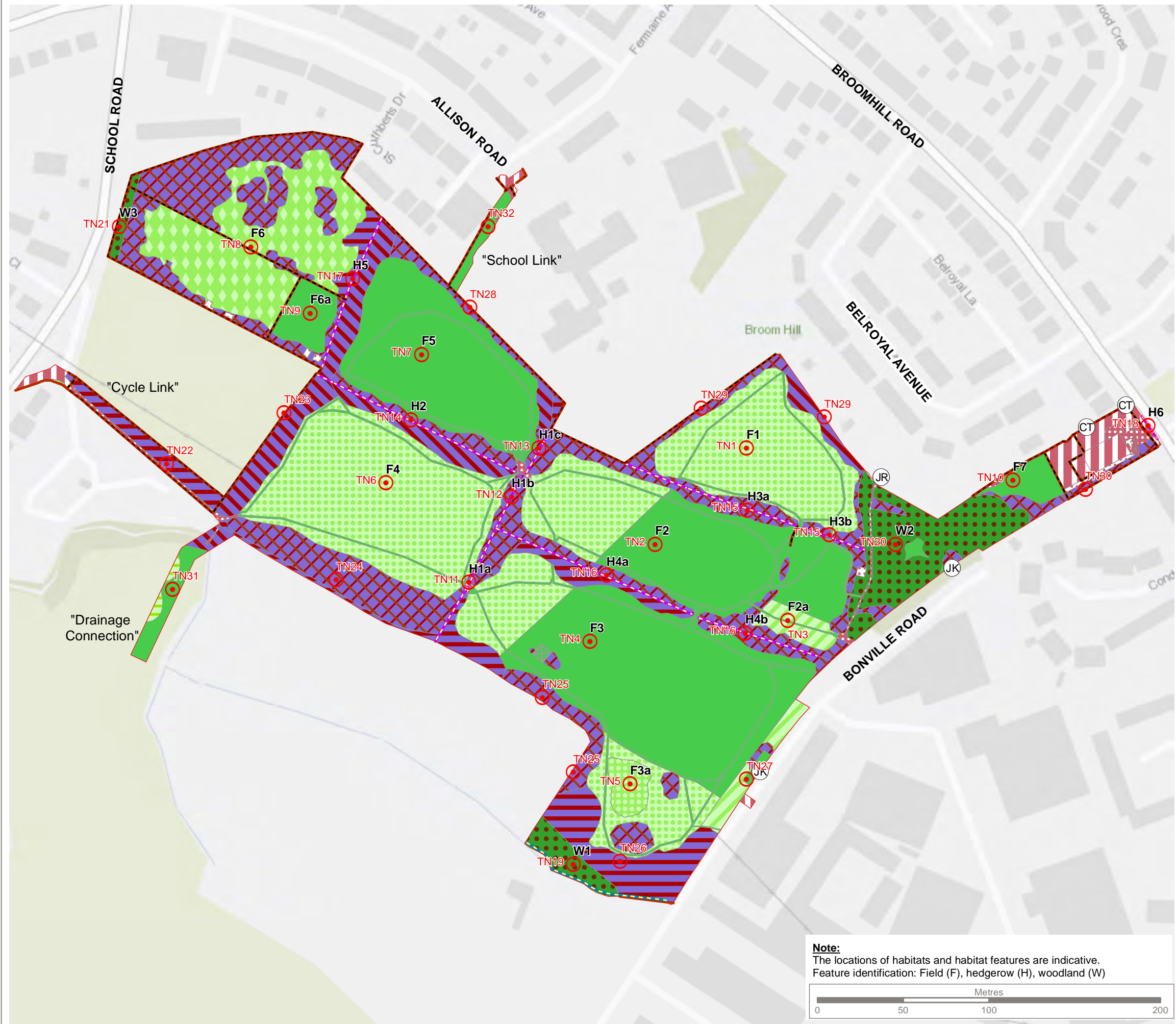
Species	Peak adult count		
	Low	Good	Exceptional
Slow worm	<5	5 – 20	>20

- 4.2 Slow worm was the only reptile to be recorded during the surveys.
- 4.3 A peak of one adult was recorded. This is likely to be an under-estimate, taking into consideration the level of interference encountered during the survey.
- 4.4 Adults, sub-adults and juveniles were recorded, suggesting a resident population. Habitats suitable for foraging, day time shelter and over-wintering were present within the site and immediate environs to the north, west and south.
- 4.5 Slow worms were identified in fields F1, F4 and F7. It is presumed from this distribution and the extent of similar suitable habitats that slow worms are present in F1 to F7 inclusive.
- 4.6 Adopting a precautionous interpretation of the survey results, the site is considered to support a 'good' population of slow worm.



Drawings

G7507.20.011 Habitats Baseline



KEY

- Site boundary
- Target Note (TN)
- Schedule 9 Non-native Invasive Plants**
 - Cotoneaster (*C. horizontalis*)
 - Japanese knotweed (*Fallopia japonica*)
 - Japanese rose (*Rosa rugosa*)
- Habitat Survey (UKHab)**
 - h2a - Hedgerow (priority habitat)
 - r2b - Other rivers and streams
 - u1e(68) - Urban linear feature - wall
 - u1e(69) - Urban linear feature - fence
 - g3 - neutral grassland
 - g3c - Other neutral grassland
 - g3c5 - Arrhenatherum neutral
 - g3c6 - Lolium-Cynosurus neutral grassland
 - g3c8 - Holcus-Juncus neutral grassland
 - g4 - Modified grassland
 - h3a6 - Other blackthorn scrub
 - h3d - Bramble scrub
 - h3h - Mixed scrub
 - u1b - Developed land, sealed surface
 - u1b5 - Buildings
 - u1c - Artificial unvegetated unsealed
 - w1g - Other woodland, broadleaved

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Rev	Description	Drawn	Approved	Date



THE ENVIRONMENT PARTNERSHIP

Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

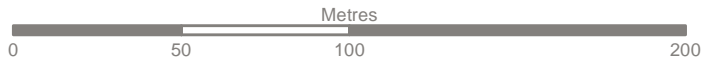
Project
Brislington Meadows

Title
Habitats Baseline

Drawing Number
G7507.20.011

Drawn	Checked	Approved	Scale	Date
RR	CB	VG	1:2,250 @ A3	22/02/2022

Note:
The locations of habitats and habitat features are indicative.
Feature identification: Field (F), hedgerow (H), woodland (W)





HEAD OFFICE

Genesis Centre,
Birchwood Science Park,
Warrington
WA3 7BH

Tel: 01925 844004
E-mail: tep@tep.uk.com

MARKET
HARBOROUGH

The Reynard Suite,
Bowden Business Village,
Market Harborough,
Leicestershire,
LE16 7SA

Tel: 01858 383120
E-mail: mh@tep.uk.com

GATESHEAD

Office 26, Gateshead
International Business
Centre,
Mulgrave Terrace,
Gateshead
NE8 1AN

Tel: 0191 605 3340
E-mail: gateshead@tep.uk.com

LONDON

8 Trinity Street,
London
SE1 1DB

Tel: 020 3096 6050
E-mail: london@tep.uk.com

CORNWALL

4 Park Noweth,
Churchtown,
Cury,
Helston
Cornwall
TR12 7BW

Tel: 01326 240081
E-mail: cornwall@tep.uk.com
