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Ecological Impact Assessment

Land at Pineapple Farm, Mulberry Road, Congresbury

M7 Planning Limited

May 2021

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EAD Ecology was commissioned by M7 Planning to undertake an Ecological Impact Assessment (EcIA) of a proposed residential development at Pineapple Farm, Mulberry Road, Congresbury. The proposed development comprises an outline application for up to 90 residential units, with all matters reserved save for access off Mulberry Road. This report documents the EcIA, which was undertaken in accordance with BS42020:2013 and Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines (2018).

The ecological baseline of the site was derived through desk study and ecological site surveys, including Extended Phase 1 habitat, hedgerow, reptile, bat, hazel dormouse and badger. The work was carried out by members of CIEEM in accordance with CIEEM's Code of Conduct and following standard methods.

Baseline

Designated sites

The site does not lie within or adjacent to any designated sites of nature conservation importance. Four European designated sites were identified within 10km of the site. The closest European site is the North Somerset and Mendip Bat Special Area of Conservation (SAC), part of which is located 830m to the north-east and is designated for qualifying features including its populations of lesser and greater horseshoe bat. The site is partially within the 'Zone A' Consultation Zone around the SAC for greater horsehoe bats. The closest nationally designated site is Kings Wood and Urchin Wood Site of Special Scientific Interest (SSSI), located approximately 830m to the north-east. This is a component of the North Somerset and Mendips Bats SAC. There are six Sites of Nature Conservation Interest (SNCIs) within 2km, the closest is the Congresbury Yeo, adjacent land and rhynes, which is approximately 125m to the north east.

Habitats

The site comprised a single field of poor semi-improved grassland, which was used for haylage and sheep grazing. The field was bordered by species-poor and species-rich hedgerows, some with trees. A pond was present within the northeast corner and a dry ditch ran parallel with the eastern boundary. The site had residential development adjacent to the southern and western boundaries and part of the northern boundary. There were agricultural fields adjacent on the remaining boundaries.

Protected / notable species

- The pond on site and further ponds / drainage channels identified off-site within 250m, provided suitable breeding habitat for amphibians, including great crested newt which is a legally protected Priority Species. The proposed development has been registered with Natural England under the District Level Licensing (DLL) Scheme for great crested newt; therefore, no further survey was undertaken.
- Grass snake and slow worm were recorded on the site, the grassland field and its margins provided suitable habitat. All reptiles are legally protected and Priority Species.
- The site provided suitable nesting and foraging habitat for common/widespread bird species, including declining species of conservation concern such as dunnock; due to the nature of the habitat, the site was considered unlikely to support significant populations. No suitable nesting habitat for a Schedule 1 bird species was recorded.
- The results of the dormouse survey were negative so the species was assumed to be absent from the site.

- No badger setts were recorded within the site boundary; the habitats within the site were suitable for foraging badger.
- The least ten species of bat were recorded foraging and/or commuting within the site during the bat activity survey. Common pipistrelle and soprano pipistrelle were the most abundant species.
- Greater horseshoe bats were recorded on site during the bat activity surveys and made up 1.25% of the static bat detector registrations. The site provided suitable foraging habitat for greater horseshoe bat. As the site has urban landuse on the western, southern and part of the northern boundary, the site was not considered to be of functional importance as part of a movement corridor for horseshoe bats or other light sensitive bat species.

Potential effects, avoidance, mitigation, compensation and enhancement

The proposed development has been informed by the results of the ecological surveys and would incorporate an integrated landscape and ecological design, including the creation of new wildlife habitats within the site. The design and mitigation strategy would include the following:

- Retention of substantial 'green corridors' along the northern and eastern boundaries of the site to maintain wide commuting routes and foraging areas for greater horseshoe bats, buffer retained hedgerows and pond, and provide opportunity for habitat creation.
- Habitat creation within Public Open Space including wildflower meadow managed specifically to maximise its foraging value to greater horseshoe bats; native hedgerow, tree and shrub planting; and, wetland/wet grassland creation as part of the drainage proposals.
- A lighting assessment of the detailed proposals would be undertaken to minimise light-spill and ensure the 'green corridors' along the northern and eastern boundaries were maintained as dark (i.e. less than 0.5 lux).
- Retained hedgerows and mature trees would be protected from disturbance during construction through the use of temporary barriers (e.g. Heras fencing). Work would be undertaken in accordance with BS5837.
- Development of the site would take place under a Natural England great crested newt Mitigation Licence secured via DLL.
- Site clearance including all removal of hedgerow and scrub would be undertaken outside of the bird nesting season; if this was not possible, clearance would be subject to a pre-start check by an ecologist to ensure that no active nests were affected.
- Mitigation including passive displacement and capture/translocation would be implemented to ensure legal compliance in relation to the reptiles within the site.
- Bat and bird habitat would be incorporated into new buildings to provide roosting / nesting habitat. The equivalent of one bat/bird box per residential unit would be provided.
- Hedgehog passes would be created within new garden fences to allow hedgehogs to move around the site post-development.
- The SuDS drainage strategy would ensure that 'greenfield' runoff would be maintained and provide pollution control measures to ensure that 'total hazard index' values for pollutants would be below thresholds set out in the CIRIA 753 SuDS Manual, i.e. that pollution risk would be reduced to a negligible level.
- A Construction and Ecological Management Plan (CEcoMP) would be produced to detail measures to ensure habitat and species protection during construction. A Landscape and Ecological Management Plan (LEMP) would be produced to detail how retained and proposed habitats will be managed in the long-term. These documents could be secured by condition.

Residual effects

Use of the Habitat Evaluation Procedure (HEP) Metric given in the North Somerset and Mendip Bats SAC Guidance on Development (version 2.1, March 2019) identified that implementation of the development

would result in a residual net loss of foraging habitat for SAC bats (the equivalent of 1.42ha of foraging habitat). Without mitigation, this loss would result in a likely significant adverse effect on the North Somerset and Mendip Bats SAC.

To mitigate this loss, off-site habitat enhancement/creation measures (off-setting) would be implemented prior to commencement of development. The measures would be implemented on a site under the control of the applicant directly by the applicant or if a suitable mechanism was available, via a financial contribution to North Somerset Council. The land would be in Zone A around the SAC and would be managed in perpetuity under a greater horseshoe bat Management Plan. The precise quantum of land required would be confirmed using the HEP metric; based on the outline proposals and assuming conversion of arable/grassland-ley to meadow (managed specifically for greater horseshoe bat) the off-set would need be 1.75 ha.

Assuming timely provision of a suitable quantum of replacement foraging habitat for the SAC bats, likely adverse effects on the North Somerset and Mendip Bats SAC could be avoided.

Assuming the implementation of the remaining avoidance, mitigation, compensation and enhancement measures, effects on habitats and the majority of protected and notable species would be neutral or positive in the medium to long-term. No significant adverse residual impacts have been identified.

Conclusion
The proposed development has potential to avoid significant ecological harm and to deliver ecological enhancement in accordance with relevant policies in the National Planning Policy Framework, and Policy CS4 (Nature conservation), in the North Somerset Core Strategy (re-adopted January 2017). Development could be undertaken in accordance with wildlife legislation relating to designated sites and protected species.

1 Introduction, background and approach

1.1 Introduction

1.1.1 EAD Ecology was commissioned by M7 Planning Limited to undertake an Ecological Impact Assessment (EcIA) of a proposed residential development at Pineapple Farm, Mulberry Road, Congresbury (approximate OS Grid Ref: ST442631; refer to Figures 1 and 2), hereafter referred to as 'the site'. This report documents the EcIA, which was undertaken in accordance with BS42020:2013 and following Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines (2018). It includes the following sections:

- Description of the existing ecological baseline;
- Identification of the potential impacts of the proposals during and post-construction;
- Identification of proposed avoidance, mitigation and compensation measures for negative impacts, and further enhancement measures;
- Summary of residual ecological effects, i.e. those occurring after mitigation;
- Consideration of cumulative effects; and
- Conclusions, including assessment of compliance with wildlife legislation and planning policy.

1.2 Legislation and planning policy

Wildlife legislation

1.2.1 The following wildlife legislation is relevant to the proposed development:

- Conservation of Habitats and Species Regulations 2017 (as amended);
- Wildlife and Countryside Act 1981 (as amended);
- Countryside and Rights of Way Act 2000;
- Natural Environment and Rural Communities Act 2006;
- Protection of Badgers Act 1992; and
- Hedgerow Regulations 1997 (as amended).

National planning policy

1.2.2 The National Planning Policy Framework (NPPF; 2019) includes the Government's policy on the protection of biodiversity through the planning system. A summary of the relevant paragraphs of the NPPF is provided in Appendix 4.

Local planning policy

1.2.3 The North Somerset Core Strategy (re-adopted January 2017) is the strategic document to guide development within North Somerset up to 2026. Within the Core Strategy, Policy CS4: Nature Conservation is relevant to the ecological assessment of the proposed development (refer to Appendix 5).

1.2.4 The North Somerset 'Sites and Policies Plan (Part 1): Development Management Policies' (adopted July 2016) contains generic development management policies against which planning applications and development proposals are assessed. Within this publication, Policies DM8 (Nature Conservation) and DM9 (Trees) are relevant to this assessment; refer to Appendix 5.

1.2.5 The Congresbury Neighbourhood Development Plan 2019 - 2036 contains Policies relating to development in the Parish of Congresbury. Policy EH4 (Landscape and Wildlife Preservation

Measures) is relevant to the ecological assessment of the proposed development (refer to Appendix 5).

1.2.6 Habitats Regulations Assessments (HRAs) have been undertaken of the re-adopted North Somerset Core Strategy; the Sites and Policies Plan (Part 1): Development Management Policies; and the Sites and Polices Plan (Part 2); Site Allocations Plan (North Somerset Council, April 2016, June 2015 and October 2016 respectively) Refer to Appendix 5 for summary of relevant sections.

1.2.7 North Somerset Council's Supplementary Planning Document (SPD) 'Biodiversity and Trees' (2005) provides additional guidance for developers, with relevance to nature conservation.

1.2.8 North Somerset Council's SPD 'North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development (adopted January 2018)' identifies areas outside of the SAC boundary that are of potential habitat value to the greater horseshoe and lesser horseshoe bats that roost within the SAC. These areas comprise three Bat Consultation Zones (A, B and C) (with Zone A being the closest to the SAC and considered the most sensitive), and a Juvenile Sustenance Zone. It is noted that this SPD consists of a guidance document produced by Somerset County Council, which was subsequently updated in 2019 (North Somerset and Mendip Bats Special Area of Conservation (SAC). Guidance on Development Version 2.1 (Somerset County Council 2019)). Therefore, whilst this updated guidance document has not been adopted by North Somerset Council as an SPD, it has been used to inform the EcIA presented in this document, as it represents the most up to date evidence base and guidance with respect to the bat populations of the North Somerset and Mendip Bats SAC. The guidance document is hereon referred to as the 'NSMB SAC guidance'.

1.3 Approach

Ecological baseline

1.3.1 The ecological baseline was determined through desk study and site survey.

Desk Study

1.3.2 Biodiversity information was requested from a study area of 2km radius around the site boundary (extended to 4km for bats) from Bristol Regional Environmental Records Centre (BRERC) in September 2019. Information requested included the location and details of the following:

- Designated sites of nature conservation importance (statutory and non-statutory; extended to 10km for European statutory designated sites and 5km for other statutory sites using the Defra MAGIC website); and
- Previous records of protected and/or notable species, including Priority Species (Species of Principal Importance for Conservation in England listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006) and Local Biodiversity Action Plan (BAP) Priority Species1.
- Information was also obtained from the following websites (August 2019):
- https://magic.defra.gov.uk/MagicMap.aspx – Information on protected sites;
- http://jncc.defra.gov.uk – information on protected sites, Priority Habitats and Species; and

[1] 'Local BAP' is used from here on to describe species or habitats included in either of the following Biodiversity Action Plans: South West BAP, Avon BAP, South Gloucestershire BAP, Bristol and North-east Somerset BAP, as identified in the BRERC data search results.

- https://www.gov.uk/government/organisations/natural-england – information on protected sites and standing advice.

Site Survey

1.3.3 An Extended Phase 1 Habitat survey of the site was undertaken on 4 September 2019. The survey followed guidelines published by JNCC (2010) and Institute of Environmental Assessment (1995), and identified the main habitat types on the site and the presence/potential presence of protected and notable species. The results of the survey were detailed on a Phase 1 Habitat plan, with target notes used to identify specific features of ecological interest; refer to Figure 3. A botanical species list was recorded, although no attempt was made to record every plant species on the site; refer to Appendix 12.

1.3.4 The Extended Phase 1 Habitat survey identified the potential for protected and notable species within the survey area. Further (Phase 2) surveys were subsequently undertaken to determine if such species were present. A summary of these surveys is provided in Table 1.1 below; full details of methodologies and results are contained in Appendices 7-11. All surveys were carried out following standard published methods.

Table 1.1: Summary of Phase 2 ecological surveys

Survey	Date	Details
Hedgerow	August 2020	In accordance with survey guidelines published by Defra (2007). Refer to Appendix 7.
Reptile Survey	June – August 2020	Deployment and seven checks of artificial refugia. Refer to Appendix 8.
Dormouse Survey	September – November 2019 April – August 2020	Deployment and monthly checks of nest tubes within suitable habitat. Refer to Appendix 9.
Badger Survey	October 2019	Search for signs of badger activity e.g. setts, prints and latrines. Refer to Appendix 10.
Great Crested Newt	-	Review of OS mapping /satellite imagery to identify ponds/waterbodies within 250m of the site boundary (i.e. within the potential dispersal range of great crested newts). District Level Licensing (DLL) is proposed to mitigate potential impacts on great crested newts, and therefore no physical surveys were required/undertaken.
Bat Roost Survey	September 2019	Ground level assessment of trees to assess their suitability for roosting bats, in accordance with Bat Conservation Trust (BCT) guidelines (2016). Refer to Appendix 11.
Bat Activity Survey	September – October 2019 April – August 2020	Manual activity transects and static detector surveys in accordance with BCT guidelines (2016). Refer to Appendix 11.

Survey limitations

1.3.5 No significant survey limitations have been identified.

Evaluation of ecological features

1.3.6 The importance of the ecological features identified was evaluated using criteria for habitats and species based on CIEEM guidelines (2018). Ecological importance was classified using an eight-level geographic scale from 'Sub-Parish' (low) to 'International' (high); refer to Appendix 3. Legal protection of species is considered in Section 4 (mitigation) and does not specifically form part of the valuation process.

Confirmation of 'important' ecological features

1.3.7 Features were identified that were considered 'important', in accordance with CIEEM guidelines (2018), and therefore subject to further detailed assessment. Features that were unlikely to be affected by the project, or were sufficiently widespread, unthreatened or resilient to potential project impacts, were not considered important in the context of the proposed development, and were not, therefore, subject to further assessment.

Identification of potential impacts

1.3.8 Potential impacts on the important ecological features were described for the construction and post-construction phases of the development.

1.3.9 Specifically in relation to horseshoe bats from North Somerset and Mendips Bat SAC, loss of foraging habitat was quantified in line with the metric provided in the North Somerset and Mendip Bats SAC Guidance on Development (version 2.1, March 2019), referred to as the Habitat Evaluation Procedure (HEP). For the purposes of the metric the entire site was assumed to be within Consultation Zone A (as per the metric requirements where a site includes areas within different Consultation Zones).

Avoidance, mitigation, compensation and enhancement measures

1.3.10 The proposed development (refer to Figure 2) was informed by the ecological baseline, including the presence/predicted presence of protected species. Therefore, the impact assessment was of a partially-mitigated scheme. Additional avoidance, mitigation, compensation and enhancement measures for the construction and post-construction phases of the development were identified; where appropriate, recommendations for how these measures could be secured (for example, through planning conditions/obligations or Natural England licensing) were also identified.

Residual effects

1.3.11 An assessment of the residual positive, negative or neutral ecological effects was undertaken following CIEEM (2018) guidelines. The effect timescale was given as:

- Acute, immediate and discrete.
- Short-term: 0-3 years.
- Medium-term: 3-10 years.
- Long-term: 10+ years.

1.3.12 Effects were described at a geographical scale (refer to Appendix 3); effects identified at Sub-Parish level and below were not considered 'Significant'.

1.3.13 The conclusion to the assessment confirms any significant residual effects, compliance with national planning policy (including the avoidance of 'significant harm' in accordance with Paragraph 175 of the NPPF, 2019), and compliance with relevant policies of the North Somerset Core Strategy, Sites and Policies Plan (Parts 1 and 2), and the Congresbury Neighbourhood Development Plan 2019-2036.

2 Ecological baseline

2.1 Designated sites of conservation importance

European designated sites

2.1.1 There are no European designated sites within or immediately adjacent to the site. Four European designated sites were identified within the 10km study area, including the Severn Estuary, which is designated as Special Protection Area (SPA), Special Areas of Conservation (SAC) and Ramsar site, and three further SACs; refer to Table 2.1 and Appendix 6. The closest European site is the North Somerset and Mendip Bat Special Area of Conservation (SAC), part of which is located 830m to the north-east and is designated for a variety of qualifying features including its populations of lesser and greater horseshoe bat; see below for further information.

2.1.2 The site lies 17km from the Somerset Levels and Moors Ramsar and Special Protection Area (SPA) and lies outside the surface water catchment area of this site.

North Somerset and Mendip Bats SAC

2.1.3 North Somerset and Mendip Bats SAC has been designated for the following qualifying features (refer to Appendix 6):

- Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia); Dry grasslands and scrublands on chalk or limestone
- Caves not open to the public
- Tilio-Acerion forests of slopes, screes and ravines; Mixed woodland on base-rich soils associated with rocky slopes
- Rhinolophus hipposideros; Lesser horseshoe bat
- Rhinolophus ferrumequinum; Greater horseshoe bat

2.1.4 The SAC consists of a number of component Sites of Special Scientific Interest (SSSIs), comprising Banwell Caves SSSI, Banwell Ochre Caves SSSI, Brockley Hall Stables SSSI, Compton Martin Ochre Mine SSSI, King's Wood and Urchin Wood SSSI, The Cheddar Complex SSSI and Wookey Hole SSSI (refer to Appendix 6). The closest component SSSI to the site is King's Wood and Urchin Wood SSSI; this supports maternity and hibernation roosts for greater horseshoe bats. The site lies partially within Consultation Zone A for greater horseshoe bat; it does not lie within a lesser horseshoe bat consultation zone (Somerset County Council, 2019).

2.1.5 The conservation objectives for the SAC are to 'Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species;
- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
- The populations of qualifying species; and,
- The distribution of qualifying species within the site.'

Nationally designated sites

2.1.6 There are no nationally designated sites within or immediately adjacent to the site boundary. Eleven nationally designated sites, comprising nine Sites of Special Scientific Interest (SSSI) and two Local Nature Reserves (LNR) are located within the 5km search area; refer to Table 2.1 and Appendix 6. The closest site is Kings Wood and Urchin Wood SSSI, located approximately 0.8km to the north-east of the site.

Table 2.1: Statutory designated sites within the study area

Site name	Reason for designation	Distance and direction from site
European designated sites within 10km		
Severn Estuary Ramsar Site, Special Protection Area (SPA) and Special Area of Conservation (SAC)	• Designated for the following habitats: estuaries; mudflats and sandflats not covered by seawater at low tide; Atlantic salt meadows; sandbanks which are slightly covered by seawater all the time and reefs. • Assemblage of migratory fish species, including sea lamprey, river lamprey, twaite shad, allis shad, salmon, sea trout and eel. • Supports internationally important populations of several species of waterfowl.	6.6km northwest
North Somerset and Mendip Bats SAC	• Greater horseshoe bat maternity and hibernation sites. • Lesser horseshoe bat hibernation site. • Designated for the following habitats: Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) and *Tilio-Acerion* forests of slopes, screes and ravines.	0.8km northeast
Mendip Limestone Grasslands SAC	• Designated for the following habitats: Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*); *Tilio-Acerion* forests of slopes, screes and ravines; European dry heaths and caves not open to the public. • Presence of greater horseshoe bat.	7.5km southwest
Mendip Woodlands SAC	• *Tilio-Acerion* forests of slopes, screes and ravines.	7.7km south
Nationally designated sites within 5km		
Tickenham, Nailsea and Kenn Moors SSSI	• Invertebrate assemblage • Lowland ditch systems.	3.5km northwest

Table 2.1: Statutory designated sites within the study area

Site name	Reason for designation	Distance and direction from site
King's Wood and Urchin Wood SSSI	• The site is a component of the North Somerset and Mendip Bats SAC as it is used by hibernating and breeding greater horseshoe bats. • Hazel dormouse • *Quercus robur – Pteridium aquilinum – Rubus fruticosus* woodland. • *Fraxinus excelsior – Acer campestre – Mercurialis perennis* woodland.	0.8km northeast
Biddle Street, Yatton SSSI	• Invertebrate assemblage. • Lowland ditch systems. • Nationally rare and scarce dragonfly species - *Coenagrion pulchellum*, Variable Damselfly.	1.3km northwest
Yanal Bog SSSI	• *Schoenus nigricans - Juncus subnodulosus* mire. • *Juncus subnodulosus - Cirsium palustre* fen meadow.	2.8km southwest
Brockley Hall Stables SSSI	• The site is a component of the North Somerset and Mendip Bats SAC as it is used by breeding greater horseshoe bats.	4.7km northeast
Goblin Combe SSSI	• *Festuca ovina - Carlina vulgaris* lowland calcareous grassland • *Festuca ovina - Hieracium pilosella - Thymus preaecox* grassland • Vascular plant assemblage • *Fraxinus excelsior - Acer campestre - Mercurialis perennis* woodland.	3.2km northeast
Puxton Moor SSSI	• Invertebrate assemblage • Lowland ditch systems.	2.4km east
Bourne SSSI	• Geological.	4.7km southeast
Dolebury Warren SSSI	• Lowland calcareous grassland.	3.9km southeast
Cadbury Hill LNR	• Unimproved calcareous grassland.	1.6km north
Cheddar valley railway LNR	• Dense scrub provides habitat for nesting birds and areas of rough grassland	1km west

Table 2.1: Statutory designated sites within the study area

Site name	Reason for designation	Distance and direction from site
	supporting amphibians and reptiles, including grass snakes and slow worms.	

2.1.7 The site lies within a Natural England 'SSSI Impact Risk Zone' for Biddle Street Yatton SSSI, and Kings Wood and Urchin Wood SSSI, for residential development of 100 units or more, or any residential development of 50 or more houses outside existing settlements/urban areas. Impact Risk Zones are a GIS tool developed by Natural England to make a rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Non-statutory designated sites

2.1.8 There are no non-statutory sites within the site boundary. There are six Sites of Nature Conservation Interest (SNCIs) within 2km of the site boundary; refer to Appendix 6. The closest SNCI is the Congresbury Yeo, adjacent land and rhynes, which is located approximately 125m to the north east of site, and is directly connected to the site by a rhyne.

2.2 Habitats within the site boundary

2.2.1 The site comprised a single field of poor semi-improved grassland used for haylage production and grazing by sheep. The field was bordered by species-poor and species-rich hedgerows, some with trees. A pond was present within the northeast corner of the site and a dry ditch ran parallel with the eastern boundary hedgerow. Scattered scrub and tall ruderal were present around field boundaries. Several outbuildings associated with properties along Park Road also bordered the field. Habitat descriptions are provided below; these should be read in conjunction with the Phase 1 Habitat Plan; refer to Figure 3. Plant species are referred to using their English names; Appendix 12 lists them including their scientific names; nomenclature following Stace (2010).

Ditches

2.2.2 A wet ditch, grading into a dry ditch, ran along the eastern boundary of the site (Target Note 5). These were approximately 2m wide, with little associated vegetation. Some hemlock water-dropwort and duck weed were present in places. 'Ditches and ponds' are a Somerset BAP habitat.

Hedgerows

2.2.3 Species-rich hedgerows were present along the field boundary within the eastern half of the site. Woody species present included hazel, hawthorn, ash, blackthorn, dogwood, spindle, field maple, bramble, elm, lime species, rose species and willow species. Ground flora had low species diversity; species present included hedge woundwort, lord's-and-ladies, herb Robert and cleavers.

2.2.4 Species-poor hedgerows, some with mature trees, were present along the field boundary within the western half of the site. Woody species included hornbeam, elm, blackthorn, hawthorn, bramble, elder, hazel and field maple. Ground flora had low species diversity; species present included ivy, hedge bindweed and common nettle. Species-poor hedgerows predominantly formed the garden boundaries of residential housing.

2.2.5 The two hedgerows within the survey area, that did not form the garden boundaries of residential housing, qualified as 'important' when assessed against ecological criteria for the Hedgerows Regulations 1997; refer to Appendix 7. Hedgerow is a Priority Habitat and hedgerows and hedgerow trees are a Somerset BAP habitat.

Poor semi-improved grassland

2.2.6 This was the main habitat recorded on site. It was species-poor and was dominated by perennial rye grass and Yorkshire fog. Other species present included cock's-foot, creeping bent grass, timothy, creeping thistle, meadow buttercup, common mouse-ear, dandelion, knotgrass, common sorrel, broadleaved dock, white clover and greater plantain. The grassland was used for haylage production and grazing by sheep.

Scattered broadleaved trees

2.2.7 Five mature willow trees were present along the wet ditch in the north-east corner of the site. Several scattered ash trees were present within gardens along the western boundary and an individual ash tree was present within the hedgerow along the northern boundary of the site.

Scattered scrub

2.2.8 Scattered bramble scrub was present along the southern field boundary in the south-east corner and along the wet ditch in the north-east corner of the site.

Standing water

2.2.9 A pond, with natural fluctuations in water depth and dominated by pondweed, was located in the north east corner of the site (Target Note 4). The pond was connected to the ditch within the site and two drainage channels travelling north east and south east outside of the site boundary. Standing water/ponds are a Priority Habitat and a Somerset BAP habitat.

Tall ruderal

2.2.10 Several areas of tall ruderal occurred in the north-west corner and along the western field boundary, dominated by common nettle, with occasional creeping thistle, broadleaved dock and common knapweed.

Wall

2.2.11 A stone wall, approximately 25m long, was present in the north-west corner of the site, with a hornbeam hedge behind.

2.3 Surrounding habitats

2.3.1 The site lies on the south eastern edge of the town of Congresbury, with suburban habitats abutting the western and southern boundaries of the site and part of the northern boundary. Agricultural fields continues beyond the site to the north and east with a matrix of fields, an associated hedgerow network, and rhynes.

2.4 Protected and notable species

Plants

Desk Study

2.4.1 The following notable plant species have been recorded within the 2km study area:

- Bluebell (WACA 1981);

- Least duckweed (Local notable invasive species)
- Tubular water-dropwort, Chamomile and spreading hedge parsley (UK BAP Species);
- Butchers broom (Annex V Species);
- 11 Local BAP Species and;
- 45 Red listed species.

2.4.2 There are several records of invasive plant species within the 2km study area including Nuttall's waterweed recorded approximately 60m north of the site. Other invasive plant species include:

- Canadian waterweed
- Giant rhubarb
- Virginia-creeper
- Water fern

2.4.3 All of these species are listed on Schedule 9 of the WCA 1981 (as amended), making it an offence to plant or otherwise cause these species to grow in the wild.

Site survey

2.4.4 No notable species were recorded during the Extended Phase 1 Habitat survey. There is the potential that Nuttall's waterweed could be present within the on-site waterbody, due to a historic record identified within the rhyne which directly connects to the site.

Invertebrates

Desk Study

2.4.5 The following invertebrate species have been recorded within the 2km study area:

- 13 UK BAP Species of moth;
- Lesser cream wave, satin beauty, orange footman and Blomer's rivulet (Local BAP Species of moth);
- Wall, rustic and small emerald (UK BAP Species of butterfly) and;
- Ornate brigadier fly, Hydaticus transversalis (a water beetle) and Salebriopsis albicilla (a pyralid moth) (Red Listed Species).

Site survey

2.4.6 Grassland, hedgerow, scrub, pond and ditches were likely to provide habitat for a range of common/widespread invertebrate species; the presence of significant populations of notable invertebrates was considered unlikely.

Amphibians

Desk Study

2.4.7 There are several records of great crested newt, smooth newt, palmate newt, common frog and common toad within the study area. The closest great crested newt record to the site boundary was located in the Congresbury Yeo, which is connected to the on-site pond via drainage channels, 206m north-east of the site. Great crested newt receives legal protection and is a Priority Species. Common toad receives partial legal protection and is a Priority Species.

Site survey

2.4.8 The hedgerows and grassland on site provided suitable terrestrial habitat for amphibian species whilst the pond onsite provided suitable breeding habitat for amphibians, including great crested

newt, which is a legally protected Priority Species. A review of OS 1:25,000 mapping and aerial photography identified a network of drainage channels leading from the Congresbury Yeo and two off-site ponds within the likely dispersal range of great crested newt from the site, which may offer suitable breeding habitat. The presence of great crested newt within the site and/or the 250m dispersal range was therefore considered likely, as was presence of common amphibians, including common toad.

Reptiles

Desk Study

2.4.9 Grass snake and slow-worm, all legally protected and Priority Species, have been recorded within the 2km study area.

Site survey

2.4.10 The grassland margins scrub, dry ditch and hedgerows within the site supported populations of slow-worm and grass snake. An 'exceptional' population of slow worm (maximum count 53) was identified. Particular concentrations of slow-worms were recorded in the grassland along the north and western boundary of the site. A 'low' population of grass snake (maximum count 5) was also recorded; refer to Appendix 8.

Birds

Desk Study

2.4.11 Notable bird species recorded within the 2km Study Area that are considered relevant to the habitats within the Site are listed in Table 2.2. All breeding birds, their nests, eggs and young are legally protected; species listed on Schedule 1 of the WCA 1981 (amended) receive additional protection; refer to Appendix 2. None of the bird records from the data search were from within the site boundary, although some of the records could potentially have been from within the boundary; the spatial accuracy of the records was too low to be certain.

Table 2.2 Notable bird records from the 2km Study Area

Species	BoCC4 status[1]	Priority Species	WCA Schedule 1	Local BAP
Barn Owl			Sch 1	LBAP
Bewick's swan	Amber	Priority	Sch 1	LBAP
Blackcap				
Black-headed gull	Amber			
Blue Tit				
Brambling			Sch 1	
Bullfinch	Amber	Priority	Sch 1	LBAP
Buzzard				
Cetti's warbler			Sch 1	LBAP
Chiffchaff				
Coal Tit				
Common gull	Amber			
Common Redpoll				
Common sandpiper	Amber			
Crossbill			Sch 1	
Cuckoo	Red	Priority		LBAP
Dunnock	Amber			LBAP

Table 2.2 Notable bird records from the 2km Study Area

Species	BoCC4 status[1]	Priority Species	WCA Schedule 1	Local BAP
Fieldfare	Red		Sch 1	
Garden Warbler				
Goldcrest				
Golden plover				LBAP
Goldfinch				
Goshawk			Sch 1	
Grasshopper Warbler	Red	Priority		LBAP
Great Spotted Woodpecker				
Great Tit				
Green sandpiper	Amber		Sch 1	
Green Woodpecker				
Greenfinch				
Grey heron				LBAP
Grey Wagtail	Red			
Herring Gull	Red	Priority		LBAP
Hobby			Sch 1	
House Martin	Amber			LBAP
House Sparrow	Red	Priority		LBAP
Jack Snipe	Amber			
Kestrel	Amber			LBAP
Kingfisher	Amber		Sch 1	LBAP
Lapwing	Red	Priority		LBAP
Lesser black-backed gull	Amber			
Lesser Redpoll	Red	Priority		LBAP
Lesser Spotted Woodpecker	Red	Priority		LBAP
Lesser Whitethroat				
Linnet	Red	Priority		LBAP
Little egret				
Little grebe	Amber			LBAP
Mallard	Amber			
Marsh Tit	Red	Priority		LBAP
Meadow Pipit	Amber			
Merlin	Red		Sch 1	
Mistle thrush	Red			LBAP
Mute swan	Amber			
Nightingale	Red			LBAP
Nuthatch				
Peregrine			Sch 1	LBAP
Pied Wagtail				
Raven				
Red kite			Sch 1	
Redshank				LBAP
Redwing	Red		Sch 1	
Reed Bunting	Amber	Priority		LBAP
Reed warbler				LBAP

Table 2.2 Notable bird records from the 2km Study Area

Species	BoCC4 status[1]	Priority Species	WCA Schedule 1	Local BAP
Robin				
Sedge Warbler				LBAP
Short-eared owl	Amber			
Siskin				
Skylark	Red	Priority		LBAP
Snipe	Amber			
Song Thrush	Red	Priority		LBAP
Sparrowhawk				
Spotted Flycatcher	Red	Priority		LBAP
Starling	Red	Priority		LBAP
Stock dove	Amber			
Stonechat				
Swallow				LBAP
Swift	Amber			LBAP
Tawny Owl	Amber			
Teal	Amber			LBAP
Tree Sparrow	Red	Priority		LBAP
Treecreeper				
Turtle Dove	Red	Priority		LBAP
Water rail				LBAP
Waxwing				
Wheatear				
Whimbrel	Red		Sch 1	
Whinchat	Red			
Whitethroat				
Willow warbler	Amber			LBAP
Woodcock	Red			
Wood warbler	Red	Priority		LBAP
Wren				
Wryneck	Red	Priority	Sch 1	

Site survey

2.4.12 The site provided suitable nesting and foraging habitat for a range of widespread bird species, potentially including declining species of conservation concern such as dunnock and song thrush. No suitable nesting habitat for any Schedule 1 species was recorded.

Hazel dormouse

Desk Study

2.4.13 There are records of hazel dormouse within King's Wood and Urchin Wood SSSI; located approximately 0.8km north east to the site. One record of hazel dormouse was recorded in 2018, 1.6km south east of the site.

Site survey

2.4.14 No hazel dormice, or evidence of hazel dormouse activity, were recorded during the survey; refer to Appendix 9. This species was, therefore, considered to be absent from the survey area.

Badger

Desk Study

2.4.15 There are numerous records of badger within the 2km study area. Badgers and their setts are legally protected.

Site survey

2.4.16 No badger setts were recorded within the site. The grassland and hedgerows provided suitable foraging and commuting habitat for badgers, and are likely to be used periodically.

Bats

Desk Study

2.4.17 There are no records of bat roosts within the site boundary. There were numerous records of bat species within the 4km study area, including the following species:

- Common pipistrelle, Daubenton's, Natterer's, whiskered, Nathusius' pipistrelle and serotine (all receive full legal protection);
- Brown long-eared, lesser horseshoe, barbastelle, Bechstein's, Leisler's and soprano pipistrelle (receive full legal protection and are Priority Species); and
- Greater horseshoe bat (receives full legal protection, a Priority Species and Local BAP species).

2.4.18 Multiple records of Daubenton's bat have been identified on land to the immediate east of the site.

2.4.19 The data search identified numerous bat roosts within the 4km study area, including roosts of greater and lesser horseshoe, noctule, serotine, brown long-eared, common pipistrelle, soprano pipistrelle, and *Myotis* species. King's Wood and Urchin Wood SSSI supports maternity and hibernation roosts for greater horseshoe bats, and is located approximately 0.8km north-east of the site; refer to Paragraph 2.1.4.

Site survey
Bat roost survey of trees

2.4.20 Seven trees on site were suitable for roosting bats. Six trees were considered to have Moderate suitability to support bats, and one tree had Low suitability; refer to Appendix 11. None of the trees would be directly affected by the proposed development, and therefore no further surveys were undertaken.

Baseline lighting assessment

2.4.21 In accordance with NSMB SAC Guidance, a baseline lighting assessment of the site was undertaken. The assessment was carried out by Illume Design (2021), and will be submitted alongside the planning application. The assessment found the majority of the site to be dark (<0.5 lux), and thus favourable for greater horseshoe bats (and other light sensitive bat species) which are considered to be broadly intolerant of light levels exceeding 0.5 lux. The assessment found that illuminance along all of the site boundaries did not exceed 0.02 lux, with the exception of the

access lane adjacent to Mulberry Road on the southern site boundary, where illuminance levels exceeding 0.5 lux extended approximately 7m into the access lane.

Bat transect surveys

2.4.22 Soprano pipistrelle was the most common bat recorded comprising 45% of all registrations, followed by common pipistrelle (30%). Other bat species included noctule (8.0%), *Myotis* species (6.0%) serotine (6.0%) and serotine/*Nyctalus* species (4.0%). Greater horseshoe, lesser horseshoe and *Nyctalus* bat species were also recorded and accounted for less than 1.0% of registrations.

2.4.23 Bat activity was predominantly concentrated along the mature willow tree line in the north-east corner of the site, and among mature ash trees in the south-west corner of the site; refer to the Appendix 11. Activity in these areas was dominated by common and soprano pipistrelle. *Myotis* activity was also concentrated along the mature willow tree line.

2.4.24 A concentration of common pipistrelle activity was recorded along the access track on the southern boundary of the site, with serotine and noctule also recorded in this area. Serotine and serotine/*Nyctalus* bat activity was concentrated within the south east corner of the site and visual observations were made of multiple bats foraging along hedgerows and between fields. Noctule bat activity was greatest in the centre of the field. Bat activity in the north-west corner of the site was very low and comprised a few common and soprano pipistrelle bat registrations.

2.4.25 Two greater horseshoe bat registrations were recorded during the ten transect survey sessions; one registration was recorded along the mature willow tree line in the north-east corner of the site and the other registration was recorded along the western boundary. One lesser horseshoe bat registration was recorded among the mature ash trees in the south-west corner of the site.

Bat static detector surveys

2.4.26 At least ten bat species were recorded during the static detector survey with an overall total of 27,852 registrations. Soprano pipistrelle and common pipistrelle were the most abundant species comprising 44% and 41% of all recordings respectively, followed by Myotis species (8.0%), lesser horseshoe (3.0%), greater horseshoe (1.26%) and noctule (1.02%). Other species recorded on static detectors but accounting for less than 1% of registrations were serotine/*Nyctalus* species, serotine, unidentified pipistrelle species, long-eared bat species, Nathusius' pipistrelle, barbastelle and *Nyctalus* species.

2.4.27 The highest overall levels of bat activity were recorded at Position 1, located along the mature willow tree line in the north-east corner of the site, which recorded a BAI of 26.47. Position 2, located within species-poor hedgerow in the south-west corner of the site, recorded 20.69 bat registrations per hour on average (refer to Appendix 11). Soprano pipistrelle was the most common species recorded at Position 1, followed by common pipistrelle and *Myotis* species. Common pipistrelle was the most common species recorded at Position 2, followed by soprano pipistrelle and *Myotis* species. Monthly bat activity level varied between positions; activity levels at Position 1 were highest in April, whilst activity levels at Position 2 were more consistent throughout the season with lower bat activity levels present in July and August (refer to Appendix 11).

2.4.28 Greater horseshoe bat (GHS) activity was recorded on both static detectors in all surveyed months (April to October) except during October at Position 2. A total of 351 GHS registrations was recorded on both static detectors, with an overall BAI of 0.3. GHS activity was highest at Position 2. GHS activity was highest at both static positions in August; Position 1 recorded 38 registrations

whereas Position 2 recorded 80 registrations. Greater horseshoe activity levels were very low in October with only one registration recorded at Position 1. Refer to Table A11.6 and Graph A11.3.

2.4.29 Lesser horseshoe (LHS) bats were recorded at both static positions. Position 1 recorded higher levels of LHS activity than Position 2; a total of 549 registrations (BAI 0.93) and 204 registrations (BAI 0.35) were recorded, respectively (refer to Table A11.6 and Graph A11.3). Monthly LHS activity levels varied between positions; activity levels at Position 1 were highest in April and September, whereas the higher activity levels recorded at Position 2 were in October. No LHS were recorded in July or August at Position 2, and in June at Position 1 (refer to Table A11.6 and Graph A11.5).

2.4.30 Further analysis of the data set for GHS and LHS bats was undertaken to determine whether commuting or foraging activity had occurred, as defined by NSMB SAC guidance which states:

'Call sequences (ultrasonic registrations) *with a negative minute on either side of the (i.e. a minute in which the species was not recorded) are judged to be commuting contacts, whereas contacts in two consecutive minutes or more are judged to be foraging contacts. Foraging is defined as 6 or more such minutes over any three nights in the five nights on any one automated detector during the recording period.'*

2.4.31 The analysis consisted of a manual search of the GHS and LHS static detector data for patterns of activity which fitted the above definition of 'foraging'. This analysis identified no incidences of GHS foraging as defined above, but confirmed incidences of LHS foraging.

2.4.32 Loss of foraging habitat for greater horseshoe bats was quantified in line with the HEP metric provided in the NSMB SAC Guidance. In view of the habitats on the site (predominantly grassland used for haylage and sheep grazing) the baseline number of Habitat Units was 30.33 (refer to Appendix 13).

Otter

Desk Study

2.4.33 The data search returned numerous records of otter from within the 2km study area; predominantly along the Congresbury Yeo. The closest record is located approximately 60m north of the site. Otter is a legally protected Priority Species.

Site survey

2.4.34 No suitable habitat for an otter holt was recorded within the site; it is possible that otters make transitory use of rhynes within the vicinity of the site.

Water vole

Desk Study

2.4.35 The desk study identified three historical (pre-2000) records of water vole within 2km of the site. The closest record is located approximately 1.3km west of the site. Water vole is a legally protected Priority Species.

Site survey

2.4.36 No suitable habitat for water vole occurred within the site.

Other mammals

Desk Study

2.4.37 There are records of brown hare and hedgehog within the 2km study area; all are Priority Species. Yellow-necked mouse and pygmy shrew have also been recorded, both are local BAP species, and pygmy shrew is also listed on Schedule 6 of the WCA 1981.

Site survey

2.4.38 The above species were not recorded on site, although the site provided potentially suitable habitat.

2.5 Evaluation and confirmation of important ecological features

2.5.1 An evaluation of the ecological features within the study area is provided in Table 2.1 below. This also includes confirmation of 'important' ecological features in the context of the proposed development, i.e. those that have been included in, or excluded from, further assessment.

Table 2.3: Evaluation and confirmation of important ecological features

Ecological feature	Ecological importance	Included in detailed assessment?	Reason
Designated sites of nature conservation importance			
Severn Estuary Ramsar Site, Special Protection Area (SPA) and Special Area of Conservation (SAC).	International	Yes	Site is located within 7km of Severn Estuary, and could contribute towards recreational impacts. Valuation reflected by designation.
North Somerset and Mendip Bats SAC	International	Yes	Site located within Band A of North Somerset and Mendip Bats SAC consultation zone. Development could result in the loss of foraging and commuting habitat for horseshoe bats, potentially impacting the favourable conservation status of the species associated with the SAC. Valuation reflected by designation.
Mendip Limestone Grasslands SAC	International	Yes	Valuation reflected by designation. Potentially impacted by development.
Mendip Woodlands SAC	International	No	Valuation reflected by designation. No potential impact pathways identified.
Somerset Levels and Moors SPA/ Ramsar	International	No	Valuation reflected by designation. Site lies outside of the drainage catchment for this site.
Kings Wood and Urchin Wood SSSI	National	Yes	SSSI is component of Mendips Bats SAC. Potential impact on horseshoe bats associated with the SSSI through habitat loss. Site lies within relevant Impact Risk Zone for the SSSI. Valuation reflected by designation.
Brockley Hall Stables SSSI	National	Yes	SSSI is component of Mendips Bats SAC. Potential impact on horseshoe bats associated with the SSSI through habitat loss. Valuation reflected by designation.
Biddle Street, Yatton SSSI	National	Yes	Site lies within relevant Impact Risk Zone for the SSSI.
Yanal Bog SSSI; Goblin Combe SSSI; Puxton Moor SSSI; Dolebury Warren SSSI; Tickenham, Nailsea and Kenn Moors SSSI; Cheddar Valley Railway Walk LNR; Cadbury Hill LNR.	National	No	Valuation reflects designation. No mechanisms or pathways identified likely to affect these sites.

Table 2.3: Evaluation and confirmation of important ecological features

Ecological feature	Ecological importance	Included in detailed assessment?	Reason
Bourne SSSI	N/A	No	Designated for geological reasons
Congresbury Yeo, adjacent land and rhynes Site of Nature Conservation Interest (SNCI)	District to County	Yes	Site is hydraulically linked to the SNCI. Valuation reflects designation.
Other non-statutory sites within 2km of site	District to County	No	No potential impact pathways identified.
Habitats on the site			
Scattered broadleaved trees	Sub-Parish	Yes	Common and widespread habitat. Predominantly located within hedgerows, which are a Priority Habitat and Somerset BAP habitat. Potentially impacted by development.
Scattered scrub	Sub-Parish	Yes	Common and widespread habitat. Potentially impacted by development.
Ditches	Parish	Yes	Ditches are a Somerset BAP habitat. Potentially impacted by development.
Species-poor hedgerows	Sub-Parish	Yes	All hedgerows are a Priority Habitat and a Somerset BAP habitat. Potentially impacted by development.
Species-rich hedgerows	Parish	Yes	All hedgerows are a Priority Habitat and a Somerset BAP habitat. Potentially impacted by development
Poor semi-improved grassland	Sub-Parish	Yes	Dominant habitat on site. A common and widespread habitat of low ecological importance. Does not qualify as a Priority Habitat. Potentially impacted by development
Standing water	Parish	Yes	Standing water/ponds are a Priority Habitat and a Somerset BAP habitat. Potentially impacted by development.
Tall ruderal	Sub-Parish	Yes	Common and widespread habitat. Potentially impacted by development.
Adjacent habitats			
Agricultural habitats	Sub Parish - Parish	Yes	Arable habitats are generally of low ecological importance, but hedgerows and rhynes provide wildlife corridors.
Urban habitats / roads	Sub-Parish	No	Common, widespread habitats of limited biodiversity importance.
Protected and notable species			

Table 2.3: Evaluation and confirmation of important ecological features

Ecological feature	Ecological importance	Included in detailed assessment?	Reason
Plants	Sub-Parish	Yes	Notable plant species are unlikely to occur within the site boundary; therefore, effects are unlikely. Legislative Compliance for controlled species detailed in Section 4.
Invertebrates	Sub-Parish	No	Presence of significant populations of notable invertebrate populations considered unlikely. Common/widespread species potentially impacted by development.
Amphibians	Parish	Yes	Suitable breeding and terrestrial habitat for great crested newt (legally protected and a Priority Species), common toad (a Priority Species), and other common amphibians were present on site. Potentially impacted by development.
Reptiles	Parish	Yes	An 'exceptional' population of slow-worm, and a 'low' population of grass snake were identified on site. Both species are legally protected and 'Priority Species'. Potentially impacted by development.
Birds	Sub-Parish	Yes	Site provided suitable nesting and foraging habitat for a range of common/widespread species, including notable species. Potentially impacted by development.
Hazel dormouse	Negligible	No	Negative survey results. Species assumed absent from site.
Badger	Sub-Parish	Yes	Site provides foraging habitat for badgers. Badgers are common and widespread in the vicinity. No badger setts recorded on site
Horseshoe bats (associated with North Somerset and Mendips Bats SAC)	District	Yes	Greater and lesser horseshoe bat were recorded on site. Potentially impacted by development.
Other bat species	Parish	Yes	Bat activity recorded on site; predominantly common/widespread species. Trees with bat roost potential were also present. All bats are legally protected; some are Priority Species. Potentially impacted by development.
Otter	Sub-Parish	Yes	No suitable habitat for otter holt on site; potential habitat present in the vicinity.

Table 2.3: Evaluation and confirmation of important ecological features

Ecological feature	Ecological importance	Included in detailed assessment?	Reason
Water vole	Sub-parish	Yes	No water voles present on site, potential habitat present in the vicinity.
Hedgehog	Sub-Parish	Yes	Hedgehog (Priority Species) assumed present; suitable habitat on site. Potentially impacted by development.
Brown hare	Sub-Parish	Yes	A 'Priority' species. Suitable habitat on site. Potentially impacted by development.
Pygmy shrew and yellow necked mouse	Sub-Parish	Yes	Both local BAP species. Suitable habitat on site. Potentially impacted by development.

3 Assessment of ecological effects

3.1 The proposed development

Development description

3.1.1 The proposed development comprises an outline application for up to 90 residential units, with all matters reserved save for access off Mulberry Road. The development will include associated infrastructure and drainage, including SuDS basin and attenuation features, as well as public open space and associated landscaping.

Ecological design and avoidance measures

3.1.2 The development framework (refer to Figure 2) has been informed by the results of the ecological surveys and designed to minimise potential adverse effects on ecology. In particular, the location and extent of green infrastructure within the layout has been designed to buffer sensitive ecological receptors, including bat commuting routes, from the built environment.

3.1.3 The proposed development would incorporate an integrated landscape and ecological design, including the creation of new wildlife habitats within the site. Refer to the Ecological Constraints and Opportunities Plan (Figure 4). The design would include the following features:

- Retention of substantial 'green corridors' along the northern and eastern boundaries of the site to maintain commuting routes for horseshoe bats, buffer retained hedgerows and pond, and provide the opportunity for habitat creation.
- The external lighting scheme and detailed design would ensure the 'green corridors' along the northern and eastern boundaries were maintained as dark i.e. less than 0.5 lux.
- Habitat creation including wildflower meadow managed specifically to maximise its foraging value to greater horseshoe bats; native hedgerow, tree and shrub planting; and, wetland/wet grassland creation as part of the drainage proposals.
- Provision of bird and bat boxes within the fabric of new buildings at a minimum ratio of one box per dwelling.

North Somerset and Mendips Bats SAC

3.1.4 Design features to specifically avoid or minimise impacts on greater horseshoe bats associated with North Somerset and Mendip Bats SAC will include:

- Creation of 'green corridors' within the site, running parallel to the retained northern and eastern boundary hedgerows; these would be a minimum of 20m width (northern boundary) and 30m width (eastern boundary) (refer to Figure 2). These corridors would be unlit from external lighting (i.e. <0.5 lux) to allow greater horseshoe bats to continue to utilise the site boundaries and provide connectivity to the wider landscape post-development.
- Management of retained hedgerows, tailored to maximise their function as flyways for greater horseshoe bats; this means that where possible, hedgerows would be allowed to become a minimum of 3m wide by 3m tall to provide sheltered corridors with feeding perches.
- Wildflower meadow creation within the 'green corridors'. All wildflower grassland would be managed to have a long sward to maximise the abundance of moths, thus maximising the quality of the habitat as a foraging resource. The meadow-mix would include food plants for noctuid moths known to be preferred by greater horseshoe bats e.g. large yellow underwing, heart and dart, and dark arches moths (Ransome, 1996).

3.1.5 A lighting assessment of the detailed proposals will be undertaken to ensure the delivery of the proposed 'dark corridors'; this could be secured via condition.

3.1.6 A Construction and Ecological Management Plan (CEcoMP) would be produced to detail measures to ensure habitat and species protection during construction. A Landscape and Ecological Management Plan (LEMP) would be produced to detail how retained and proposed habitats will be managed in the long-term. These documents could be secured by condition.

3.2 Unmitigated effects during construction

Designated sites of nature conservation importance

North Somerset and Mendip Bats SAC

3.2.1 The avoidance measures detailed in Paragraphs 3.1.2-3.16 would minimise construction effects on greater horseshoe bats, ensuring that corridors for the movement of bats around northern and eastern boundaries as retained. Given the lack of any suitable habitat for greater horseshoe bats to the west and south of the site, where is there is urban landuse, no significant adverse effects on horsehoe bat commuting or functional usage of the wider landscape are predicted.

3.2.2 The construction phase would result in a loss of poor semi-improved grassland (approximately 3.3ha). Whilst this is not optimal foraging habitat for greater horseshoe bats (i.e. pasture permanently grazed by cattle), it represents a foraging and commuting resource. As detailed in Paragraph 1.3.9 the change loss in greater horseshoe bat foraging habitat was quantified using the HEP metric system.

3.2.3 This method uses Habitat Suitability Indices (HSIs) assigned to each habitat type lost, along with the habitat area, and other considerations such as the SAC Consultation Zone in which the site lies, and habitat management practices, to calculate the number of Habitat Units for each habitat type lost as a result of the proposed development.

3.2.4 The HEP metric is then used to calculate the area (ha) of 'equivalent hectares provided' by the landscape strategy, by taking the area of each habitat provided and factoring these by the HSI and scores applied with respect to considerations such as 'delivery risk' and 'temporal risk' to account for the relative difficulty and time lag associated with establishing the new habitats.

3.2.5 In accordance with the NSMB SAC guidance, areas of habitat subject to light levels greater than 0.5 lux should not contribute towards the habitat creation calculations. The value for 'equivalent hectares provided' is then subtracted from the value for 'hectares required' to determine whether there is a loss or gain of horseshoe bat foraging habitat.

3.2.6 The metric indicates that the areas of greater horseshoe habitat removed for site clearance would equate to 30.33 'Habitat Units', with a resultant value for 'hectares required' of 1.85ha. Implementation of the landscape strategy would partially offset the effects of site clearance in the medium-term onwards. It is predicted that habitat creation within the 'green corridors' could provide the equivalent of 0.43ha of replacement habitat; thus, there would be an overall net loss of the equivalent of 1.42ha of foraging habitat (refer To Table 3.1 below and Appendix 13).

3.2.7 Alternative greater horseshoe foraging habitat is located in the wider countryside around Congresbury and elsewhere around the component parts of the SAC, including extensive areas of pasture; the loss of foraging habitat within the site is considered minor in terms of the overall availability of foraging habitat for the SAC bats in the wider area. However, in the absence of

mitigation this reduction in foraging habitat has potential to have an adverse effect on the greater horseshoe bats that utilise the site.

Table 3.1 Summary of HEP calculation

Habitat metric for SAC bats	
Habitat units lost (site clearance)	30.33 HU
Hectares required to offset loss	1.85 ha
Hectares provided through landscape plan	0.43 ha
Gain/deficit in hectares	-1.42 ha

3.2.8 Lighting associated with the construction phase has the potential to disrupt greater horseshoe bat commuting and foraging activity. However, construction activities would be undertaken during the day when bats are not active, and lighting requirements are likely to be confined to the winter months, when bats would be expected to be hibernating and therefore either absent or present at very low levels. Nevertheless, controls on construction lighting would be implemented to minimise potential impacts; refer to Paragraph 4.1.3.

3.2.9 No other construction phase impacts on the North Somerset and Mendip Bats SAC are anticipated.

Biddle Street, Yatton SSSI & Congresbury Yeo, adjacent land and rhynes SNCI

3.2.10 Without appropriate mitigation, there is potential for a siltation or a pollution event during construction to enter the waterbody in the north east corner of the site, with consequential impacts to Congresbury Yeo, adjacent land and rhynes SNCI, and Biddle Street, Yatton SSSI. The on-site waterbody is directly connected, via rhynes, to the Congresbury Yeo River. Appropriate mitigation is outlined in Paragraphs 4.1.4.

3.2.11 No other potential effects to any of the other identified statutory and non-statutory designated sites are predicted during the construction phase of the development.

Habitats on the site

3.2.12 Construction would result in the removal of approximately 3.3ha of poor semi-improved grassland and tall ruderal vegetation and up to approximately 75 lin. m of species-poor hedgerow at the site entrance. This habitat loss would be mitigated in the medium-term onwards through the implementation of the proposed landscape strategy; which would include habitats of value to biodiversity including wildflower meadow, native tree, shrub and hedgerow planting and wetland/wet grassland creation as part of the drainage proposals.

3.2.13 Construction could have an adverse effect on retained hedgerows and trees within and adjacent to the Site, e.g. through vehicular damage to Root Protection Zones (RPZ). However, appropriate tree protection measures would be in situ prior to development commencing to mitigate potential damage to the RPZ. There is also the potential that construction could have a negative effect on the water quality of the pond and ditches on Site as a result of contaminants within surface water run-off. Appropriate mitigation is outlined in Paragraphs 4.1.4.

Habitats adjacent to the site

3.2.14 There is the potential that construction could have a negative effect on the water quality adjacent ditches and rhynes. Best practice measures would be implemented to ensure that the pollution risk was minimised; refer to Paragraph 4.1.4.

Protected and notable species

Plants

3.2.15 No notable plant species were recorded within the site, therefore no effects on notable plant species are predicted.

Invertebrates

3.2.16 Site clearance would result in the loss of habitat for common and widespread invertebrates. This loss would be mitigated in the long-term by new habitat creation.

Amphibians

3.2.17 There would be no loss of breeding habitat for amphibians as the on-site pond would be retained and buffered. Site clearance could result in the killing and injuring of great crested newts, common toads and other common amphibians along with the removal of terrestrial habitat; refer to Paragraph 4.1.10 for mitigation measures.

3.2.18 Retention and protection of green-corridors around the site boundary would ensure that great crested newt and other amphibians could continue to move between the site and other suitable habitat (including ponds) in the vicinity.

Reptiles

3.2.19 Site clearance would lead to a reduction in suitable habitat for common reptiles. This would be mitigated in the medium-term as new habitat established on the Site.

3.2.20 Removal of grassland and tall ruderal vegetation has the potential to result in death or injury of individual slow-worms and grass snakes. Mitigation would be implemented to ensure legal compliance; refer to Paragraph 4.1.12.

Birds

3.2.21 Removal of suitable nesting habitat during construction would lead to a reduction in available nesting and foraging habitat for birds within the site in the short-term. This could also have a direct effect on nesting birds, their eggs and young if nests were present within habitat (e.g. hedgerow) to be removed; mitigation is outlined in Paragraph 4.1.13

3.2.22 Construction activity has the potential to cause localised noise and visual disturbance, which may cause displacement of nesting birds in the immediate vicinity, although some will be tolerant of disturbance or will become habituated.

Badger

3.2.23 No impacts to badger setts are predicted. The development would result in the loss of grassland that is likely used for foraging and travelling badgers, although alternative habitat is available in the vicinity. Measures are proposed to ensure the welfare of any badgers that may enter the site during the construction period, refer to Paragraphs 4.1.15-4.1.16.

Bats

3.2.24 For impacts of the development on greater horseshoe bats associated with the North Somerset and Mendip Bats SAC, refer to Paragraphs 3.2.1-3.2.7.

3.2.25 No trees with bat roost potential would be removed. Therefore, no direct impacts on a bat roost are predicted.

3.2.26 There would be a loss of foraging habitat for bats during construction as a result of site clearance. Loss of foraging habitat in the construction phase would be mitigated by new habitat creation in the medium to long-term.

3.2.27 Lighting associated with the construction phase has the potential to disrupt foraging and commuting activity for bat species that are sensitive to artificial light (e.g. *Myotis* species), as well as the potential to disturb bats roosting in retained trees. As outlined in Paragraph 3.2.8, construction activities would be undertaken during the day when bats are not active, and construction lighting is only likely to be required during the winter months, when bats would be expected to be hibernating and therefore either absent or present in very low levels. Controls on construction lighting are proposed to minimise negative effects year-round; refer to Paragraph 4.1.6.

Otter

3.2.28 No impacts to any otter holts or otter resting places are predicted. Any pollution event during construction could have an adverse effect on water quality in the on-site pond/ ditches and subsequently affect water quality within the connected rhynes, which could affect prey availability for otter; refer to Paragraph 4.1.4 for mitigation.

3.2.29 Any otters using the ditches/ rhynes adjacent to the site could be disturbed by construction noise and lighting. However, as otters are predominantly nocturnal, and given extensive 'green corridors' retained around the northern and eastern boundaries of the site such effects are considered negligible.

3.2.30 Measures are proposed to ensure otter welfare in the unlikely event any otters enter the site during the construction period; refer to Paragraph 4.1.15.

Water vole

3.2.31 No direct impacts to water voles are predicted. Measures to ensure water quality in off-site rhynes are not adversely affected are detailed in Paragraph 4.1.4.

Hedgehog

3.2.32 Removal of grassland habitats within the Site would reduce the area of foraging and resting habitat for hedgehog although there is alternative habitat in the vicinity.

Brown hare, Pygmy shrew and yellow-necked mouse

3.2.33 Removal of grassland habitat within the Site could reduce the area of foraging and travelling habitat for these species, however, there is abundant alternative habitat in the vicinity.

3.3 Post-construction effects

Designated sites of nature conservation importance

North Somerset and Mendip Bats SAC

3.3.1 The avoidance measures detailed in Paragraphs 3.1.2 - 3.16 would minimise post-construction effects on greater horseshoe bats, ensuring that corridors for the movement of bats around northern and eastern boundaries are retained. Post construction lighting including external lighting along roads and light-spill from within residential units could affect the ability of greater horseshoe to commute along the green corridors provided within the site. Proposed mitigation/compensation is summarised in Paragraph 4.2.2. Given the lack of any suitable habitat for greater horseshoe bats to the west and south of the site, where is there is urban landuse, the

retention of suitable movement corridors along the northern and eastern boundaries (as proposed) is considered suitable to ensure no likely significant adverse effects on greater horsehoe bat commuting or functional usage of the wider landscape.

3.3.2 The implementation of the landscape strategy and the ecological design measures would partially mitigate for the loss of greater horseshoe foraging habitat as a result of the proposed development. However, in the absence of additional mitigation/compensation, as detailed in Table 3.1 above, there would be a net loss of foraging habitat as quantified using the HEP system. As such, in the absence of additional mitigation/compensation, there is potential for an adverse effect on the greater horseshoe bat population of the North Somerset and Mendip Bats SAC. Proposed mitigation/compensation is detailed in Paragraph 4.1.2.

3.3.3 There is potential for increased recreational use of the component SSSIs of the SAC, particularly Kings Wood and Urchin Wood SSSI, which is publicly accessible, and approximately 800m from the site. However, there is a wide variety of possible locations for residents to visit in the vicinity and a network of public footpaths from the site, so such effects are only likely to occur at very low levels. In addition, a check of the most recent Condition Assessment of Kings Wood and Urchin Wood SSSI, on the Natural England Website (accessed November 2020), found that while the SSSI units of the site were in unfavourable condition, recreation was not cited as a reason. Therefore, recreation is unlikely to impact the SAC and its component SSSIs.

Other European sites

3.3.4 North Somerset Council's HRAs of the Core Strategy (April, 2016), the Sites and Policies (Part 1): Development Management Policies (April, 2015) and the Sites and Policies (Part 2): Site Allocations (October 2016) considered that there could be a potential increase in recreational use of the following European Sites as a result of development in North Somerset:

- Severn Estuary SAC, SPA, and Ramsar; and
- Mendip Limestone Grasslands SAC.

3.3.5 However, they concluded that the implementation of strategic-level mitigation (visitor management and information boards) by the relevant local authorities would ensure that there was no adverse effect on the integrity of the SACs. Assuming implementation of these strategic measures, no adverse effects on the integrity of either of these European Sites as a result is predicted post-construction.

3.3.6 The Mendip Woodlands SAC is not considered in North Somerset's HRAs of the Local Plan policy documents, presumably as this site lies outside of North Somerset. However, a review of Ordnance Survey maps indicates that public access to nearest compartment of this SAC to the site (Cheddar Wood located 7.7 km south) is limited to two short stretches of public footpath and there is no open access. It is therefore considered that any increase in recreational use of this site would be minimal and there would be no Likely Significant Effect on this SAC.

Sites of Special Scientific Interest

3.3.7 Kings Wood and Urchin Wood SSSI, and Brockley Hall Stables SSSI are component sites of the North Somerset and Mendips Bats SAC. Post-construction effects on these sites have been addressed in Paragraphs 3.3.1 – 3.3.3.

3.3.8 Biddle Street Yatton SSSI is potentially vulnerable to deterioration of water quality as a result of offsite land-use. There could be potential for the proposed development to result in changes to

the water quality in the SSSI through surface water drainage; the on-site waterbody is directly connected, via rhynes, to the Congresbury Yeo River which is an intrinsic component of Biddle Street, Yatton SSSI. The development would be designed with an integral SuDS drainage strategy to ensure that there will be no significant hydrological or water quality changes to surrounding land as a result of drainage from the development site. The Flood Risk Assessment and Drainage Strategy ('the FRA') for the proposed development (QuadConsult, December 2020) confirms that the SuDS drainage strategy would:

- Ensure that 'greenfield' runoff would be maintained, i.e. that there would be no net change in the volume of water leaving the site; and
- Provide pollution control measures to ensure that 'total hazard index' values for pollutants would be below thresholds set out in the CIRIA 753 SuDS Manual, i.e. that pollution risk would be reduced to a negligible level.

3.3.9 Reference should be made to the FRA, which is being submitted as part of the planning submission, for further information. Accordingly, it can be concluded that the hydrology and water quality of Biddle Street, Yatton SSSI would be unchanged from its existing position as a result of the proposed development; impacts on the SSSI are therefore considered to be neutral and not significant.

Other statutory and non-statutory designated sites

3.3.10 For the reasons set out in paragraphs 3.3.8 and 3.3.9 no potential impacts to water quality in the Congresbury Yeo, adjacent land and rhynes SNCI are predicted.

Habitats on the site

3.3.11 Landscape proposals are summarised in Section 3.1. Predicted net habitat changes in habitats are described in Table 3.2.

Table 3.2: Outline biodiversity budget

Habitat*	Importance	Habitat loss	Habitat Gain	Balance
On-site				
Poor semi-improved grassland and tall ruderal	Sub-Parish	3.3ha	0 ha	-3.3ha
Hedgerow	Sub-Parish	75 lin m	150 lin m	+75 lin m
Wildflower grassland	Parish	0.8ha	c. 0.8 ha	0.8ha
Native tree/shrub planting	Sub-Parish	0.13ha	0.13 ha	+0.13ha
SuDS attenuation	Sub-Parish	0.13ha	0.14 ha	+0.13ha
Amenity grassland	Sub-Parish	0.33ha	0.33 ha	0.33ha

*It is assumed that habitat creation in POS (refer to Figure 2) would comprise approximately 25% amenity grassland; 60% meadow managed for horseshoe bats, 10% native, tree, shrub and hedgerow planting and 5% hard surfaces/play space.

Habitats adjacent to the site

3.3.12 The proposed SuDS scheme would ensure that the ditch network around the site would not be significantly affected by the proposed development as a result of changes in water quality or hydrology; refer to Paragraph 3.3.8.

3.3.13 The habitats adjacent to the site are considered unlikely to be significantly affected by any localised increase in disturbance, noise and lighting during the post-construction phase.

Protected and notable species

Plants

3.3.14 No significant effects on protected and notable plant species are predicted. New habitats and residential gardens within the site, including wetland, wildflower meadow, hedgerow and native trees and shrub planting would increase botanical diversity on the site.

Invertebrates

3.3.15 The proposed on-site habitats would provide suitable habitat for a range of invertebrates, including notable species. The wildflower grassland would be managed to maximise moth abundance to enhance the foraging resource for horseshoe bats; such management would also benefit other invertebrate species.

Amphibians

3.3.16 New habitat creation including wildflower meadow and native trees, hedgerow and shrubs would provide terrestrial habitat for amphibians, including great crested newts.

Reptiles

3.3.17 The habitat creation measures, including wildflower meadow, hedgerows, scrub and SuDS basin would provide suitable foraging habitat for common reptiles, such as grass snake and slow-worm. The proposed reptile hibernacula would provide suitable habitat for hibernating reptiles.

Birds

3.3.18 Habitat creation proposals, including native hedgerows, shrubs and trees and residential gardens would provide foraging and nesting habitat for birds including notable species such as song thrush and dunnock.

3.3.19 It would be expected that a proportion of households within the new development will own cats and, therefore, local bird populations may be negatively affected by increased predation. However, it would also be expected that a proportion of households within the development area would also provide supplementary feeding for birds, which is likely to help winter survival rates within the local population of some species, and has been shown to improve breeding success in the following spring (Robb *et al*., 2008).

3.3.20 Overall, there is likely to be a change of species composition from an ‘agricultural’ species assemblage to a more ‘urban’ species assemblage.

Badger

3.3.21 The introduction of roads and vehicles within the site could result in increased badger mortality from collisions with vehicles. However, as the new roads would be restricted to low speeds, the risk of collisions is unlikely to increase significantly. New habitats within the site would be suitable

for foraging and travelling badgers and would offset the effect of habitat removal during construction and maintain movement corridors.

Bats (excluding horseshoe bats associated with SAC)

3.3.22 The implementation of the landscape strategy and the ecological design measures for post-construction lighting would ensure that foraging habitat and commuting routes for bats are retained within the site in the long-term.

Otter

3.3.23 The presence of new roads within the site is unlikely to result in a significant increase in the risk of otter mortality, for the same reasons provided for badger (refer to Paragraph 3.3.21). Measures to avoid adverse effects on water quality are detailed in Paragraph 3.3.8. No significant effects on otter are predicted.

Water vole

3.3.24 This species was not recorded within the site and the off-site rhynes are buffered from the development by agricultural land and hedgerows; measures to avoid adverse effects on water quality are detailed in Paragraph 3.3.8. No effects on this species are considered likely.

Hedgehog

3.3.25 Habitat creation and residential gardens would provide suitable habitat for hedgehogs. Hedgehogs are likely to use gardens and open space within the site for foraging and shelter, although residential garden boundaries may inhibit movement; mitigation is outlined in Paragraph 4.1.20. The presence of new roads and increased traffic volume within the site could result in an increase in hedgehog mortality, as detailed in Paragraph 3.3.21, traffic speeds would be low, so additional mortality is unlikely to be significant.

Brown hare

3.3.26 It is unlikely that brown hare would utilise the site following development.

Pygmy shrew and yellow-necked mouse

3.3.27 The proposed habitat creation measures, would enhance the suitability and strengthen the connectivity of retained habitat for pygmy shrew and yellow-necked mouse. This would mitigate potential impacts associated with lighting and domestic pets.

4 Avoidance, mitigation, compensation and enhancement

4.1 Avoidance, mitigation, compensation and enhancement during construction

4.1.1 The protection measures during construction, including measures to mitigate construction lighting, would be detailed in a Construction Ecological Management Plan (CEcoMP) for the development, which could be secured via condition and appended to the Construction Environmental Management Plan (CEMP).

Designated sites of nature conservation importance

North Somerset and Mendip Bats SAC

4.1.2 To mitigate the residual loss of greater horseshoe foraging habitat, off-site habitat enhancement/creation measures ('off-setting') on a site under the control of the applicant would be implemented directly by the applicant or if a suitable mechanism was available, via a financial contribution to North Somerset Council. The off-set site would be within the greater horseshoe bat Consultation Zone A and would be managed in perpetuity under a greater horseshoe bat Management Plan. The Management Plan would be approved by North Somerset Council and secured through S.106 agreement. The off-set would be secured prior to commencement of development. Based on the outline development proposals and assuming conversion of arable/grassland-ley to meadow (managed specifically for greater horseshoe bat) the off-set site would need be approximately 1.75ha (refer to Appendix 14 for HEP calculation). The quantum of land conversion required for the off-set would be confirmed using the HEP metric.

4.1.3 The CEcoMP would set out specification for contractors' compound locations and management of construction lighting; this would ensure green corridors along the northern and eastern boundaries remained suitable as commuting routes for greater horseshoe bats during the construction phase.

Biddle Street, Yatton SSSI & Congresbury Yeo, adjacent land and rhynes SNCI

4.1.4 Construction would be implemented following best practice to ensure that there would be no risk to water quality within the above designated sites. This would include adherence to Defra pollution prevention guidance (https://www.gov.uk/guidance/pollution-prevention-for-businesses). Where appropriate, method statements would be produced for high-risk activities, such as refuelling and use of concrete. Pollution prevention measures would be specified in a Construction Environmental Management Plan (CEMP).

Other statutory and non-statutory designated sites

4.1.5 No measures are required to protect other statutory and non-statutory designated sites during construction.

Habitats within and adjacent to the site

4.1.6 Construction work would be undertaken in accordance with BS 5837:2012 'trees in relation to design, demolition and construction'. Retained hedgerows and trees would be protected from potential damage during construction through the use of temporary barriers (e.g., Heras fencing). All contractors' compounds would be located away from hedgerows to minimise potential lighting and disturbance effects. No lighting would be left on during the night during the construction period. Any security lighting would be low-level and motion activated on short-timers.

4.1.7 Best practice measures would be implemented during construction to protect the pond and ditches/rhynes within and adjacent to the Site (refer to Paragraph 4.1.4).

Protected and notable species

Plants

4.1.8 No mitigation is considered necessary with respect to notable plant species.

Invertebrates

4.1.9 Refer to habitat protection and pollution prevention measures outlined in Paragraphs 4.1.4 and 4.1.6.

Amphibians

4.1.10 The onsite pond would be retained and buffered during construction. The proposed development has been registered with Natural England under the District Level Licensing Scheme for great crested newts (Natural England reference DLL-ENQ-SGNS-00008). Prior to the commencement of development, the required Mitigation Licence would be obtained from Natural England, and the agreed 'conservation payment' provided to deliver off-site habitat creation for this species. The development would proceed in accordance with the Mitigation Licence; no specific on-site mitigation is likely to be required during construction.

4.1.11 Mitigation for common amphibians during site clearance would be undertaken as part of reptile mitigation; refer to Paragraph 4.1.12.

Reptiles

4.1.12 To ensure that no reptiles are killed or injured during construction, suitable mitigation measures would be implemented as set out in the CEcoMP. This would involve a combination of passive displacement using habitat manipulation, combined with reptile exclusion and translocation, where required. The latter would involve installation of a reptile exclusion fence around the relevant section of the site and capture and translocation of individual reptiles from within it, using artificial refugia. The translocation would be undertaken during suitable weather conditions at any time between April and mid-October. Any amphibians captured during the exercise would also be translocated. A suitable receptor site for the translocation of reptiles and amphibians will be identified, and enhancement measures (such as installation of log piles/ reptile hibernacula) implemented where necessary. Full details would be included in the CEcoMP.

Birds

4.1.13 Clearance of suitable nesting habitat (i.e. hedgerow and scrub) would be undertaken outside of the main bird-breeding season (i.e. between October and February) or subject to pre-clearance check by a suitably qualified ecologist to ensure that no nesting birds would be affected. If nesting birds were found, work would be delayed until all chicks had fledged.

4.1.14 Integral bird nesting boxes would be incorporated into new buildings within the site; precise details would be detailed within the CEcoMP.

Badger

4.1.15 Measures to ensure protection of badgers would be included in the CEcoMP. These would include the following: excavations and piping (>200mm in diameter) would be fenced/capped overnight to deter badgers from entering; excavations that cannot be covered would have a means of escape for any animals that may fall in (e.g. sloping sides/ramps a maximum of 1:2 gradients). Fuel, oil

and chemicals will be stored in secure sites within the construction compound, and no fires would be lit.

4.1.16 In the unlikely event that setts were identified that would be impacted by the proposed works, a Natural England Development Licence would be obtained.

Bats (excluding horseshoe bats associated with SAC)

4.1.17 All contractors' compounds would be located away from hedgerows to minimise potential lighting and disturbance effects. No lighting would be left on during the night during the construction period. Any security lighting would be positioned at low-height and motion activated on short-timers.

4.1.18 To provide additional roosting opportunities, integral bat boxes would be installed within some new buildings within the site; locations and specifications would be detailed in the CEcoMP.

Otter

4.1.19 Any contractors' compounds would be located away from the pond and ditches to minimise potential lighting and disturbance impacts and any construction lighting within the site would be turned off prior to sunset. Any security lighting would be positioned at low-level and motion activated on short-timers. In the unlikely event an otter entered the construction area, the badger welfare measures (paragraph 4.1.15) would minimise the risk to otters.

Hedgehog

4.1.20 A hedgehog pass would be created within each boundary fence to enable movement around the site post-development. Each gap would have a minimum dimension of 13cm x 13cm and would be cut out of a gravel board on the bottom of the fence, or a similar sized gap left at the end of a board. Locations would be detailed in the CEcoMP and construction drawings.

Other mammals

4.1.21 It is anticipated that brown hare, pygmy shrew and yellow-necked mice would disperse from the construction site during the development due to noise and physical disturbance.

4.2 Avoidance, mitigation, compensation and enhancement post-construction

Designated sites of nature conservation importance

North Somerset and Mendip Bats SAC

4.2.1 The habitat creation and management within the site, including measures specifically for greater horsehoe bats, would be detailed in the LEMP. For details of off-site measures (off-setting) to mitigate the residual loss of greater horsehoe bat foraging habitat, refer to Paragraph 4.1.2.

4.2.2 The external lighting strategy for the development would ensure that the green corridors along the northern and eastern site boundaries were retained as 'dark' i.e. less than 0.5 lux (refer to 3.1.3). General measures to mitigate the effects of post-development lighting are detailed in Paragraph 4.2.8.

Biddle Street, Yatton SSSI & Congresbury Yeo, adjacent land and rhynes SNCI

4.2.3 The provision of SuDS drainage strategy within the development would ensure that no water quality effects on these designated sites would occur (refer to Paragraph 3.3.8). Therefore, no specific additional mitigation measures would be required.

Habitats on the site

4.2.4 Retained and new habitats within the public realm would be managed through the implementation of a LEMP) which would be secured via condition.

Protected and notable species

Invertebrates

4.2.5 Habitats would be managed in accordance with the LEMP, which would include habitat management measures for the benefit of invertebrates.

Amphibians and reptiles

4.2.6 Habitats would be managed in accordance with the LEMP, which would include habitat management measures for the benefit of reptiles and amphibians.

Birds

4.2.7 The LEMP would include measures to avoid impacts on nesting birds as a result of any landscape management works. This would include restrictions on the timing of any pruning or trimming to avoid the bird nesting season. Bird boxes on new buildings would not require any maintenance.

Bats (excluding horseshoe bats associated with SAC)

4.2.8 The lighting design for the development would ensure that lighting impacts to bats were minimised. The detailed design of public-realm lighting would ensure that the green corridors along the northern and eastern boundaries remained unlit. Lighting would be designed to direct light to discrete areas appropriate for the task and prevent spill on to adjacent habitats. Lighting along roads and footpaths would be kept to the minimum required for security and public health and safety. The lighting design would consider the following characteristics.

- Lights with no UV content; e.g. warm white LED.
- Variable lighting regimes (motion sensors or part night lighting).
- Directional downlights - illuminating below the horizontal plane.
- Reducing the height of light units (whilst ensuring light does not spill above the vertical plane).
- Use of fore/rear shields to restrict light direction.
- Avoidance of upward light (e.g. ground mounted floodlights up-lighting trees, buildings and vegetation).

4.2.9 A suitable lighting strategy would be secured via condition.

4.2.10 Habitats would be managed in accordance with the LEMP, which would include habitat management measures for the benefit of bats. Bat boxes on new buildings would not require any maintenance.

4.3 Ecological monitoring

4.3.1 Protocols for post development monitoring would be included in the LEMP.

4.4 Mechanisms for mitigation delivery

4.4.1 Preparation and implementation of the CEcoMP, LEMP and lighting strategy could be secured via a planning condition.

4.4.2 Long-term delivery of the off-site habitat creation for greater horseshoe bats could be delivered through implementation of a management plan for the off-set area, to be approved by North Somerset Council and secured through S.106 Agreement.

5 Residual effects

5.1 Summary of residual effects

5.1.1 Table 5.1 below provides a summary of the ecological assessment and identifies the residual ecological effects arising from the proposed development. No significant adverse residual impacts have been identified.

5.2 Cumulative effects

5.2.1 Assuming timely provision of replacement foraging habitat for SAC bats (refer to Paragraph 4.1.2), there would be no predicted residual loss of foraging habitat to contribute to a cumulative effect on the North Somerset and Mendip Bat SAC.

5.2.2 There is likely to be an adverse cumulative effect on badgers within the site, this effect would be at the Sub-Parish level. i.e. not significant. As there would be no significant negative residual effects on any other protected/notable species, and a neutral or long-term positive effect on habitats, no further cumulative effects would occur.

5.3 Conclusion

5.3.1 Assuming timely provision of replacement foraging habitat for SAC bats to mitigate the residual loss of foraging habitat, adverse effects on the North Somerset and Mendip Bats SAC could be avoided. Assuming the implementation of the remaining avoidance, mitigation, compensation and enhancement measures, effects on habitats and the majority of protected and notable species would be neutral or positive in the medium to long-term. No significant adverse residual impacts have been identified.

5.3.2 The proposed development has potential to avoid significant ecological harm and to deliver ecological enhancement in accordance with relevant policies in the National Planning Policy Framework, and Policy CS4 (Nature conservation), in the North Somerset Core Strategy (re-adopted January 2017). Development could be undertaken in accordance with wildlife legislation relating to designated sites and protected species.

Table 5.1: Summary of ecological assessment

Ecological feature	Potential unmitigated impact	Avoidance, mitigation, compensation and enhancement	Residual effect
Designated sites of nature conservation importance			
Severn Estuary Ramsar Site, SPA and SAC.	Potential recreational impacts.	Strategic measures to be implemented by Local Authorities.	No effect on site integrity. Neutral, not significant.
North Somerset and Mendip Bats SAC	Loss, damage or fragmentation of flyways and foraging habitats. Recreational damage.	Retention of wide 'green corridors' that would remain dark along the northern and eastern boundaries. Protection of retained habitats during construction. Habitat creation and enhancement delivered through implementation of a LEMP and CEcoMP. Control of lighting during and post-construction. Off-site habitat enhancement/ creation measures ('off-setting') on a site under the control of the applicant implemented directly by the applicant or if a suitable mechanism was available, via a financial contribution to North Somerset Council. Quantum of land required confirmed using HEP metric. Land secured pre commencement.	If suitable 'offset' is secured, no effect on site integrity predicted. Neutral, not significant.
Mendip Limestone Grasslands SAC	Potential recreational impacts.	Strategic measures to be implemented by Local Authorities.	No likely significant effect. Neutral, not significant.

Table 5.1: Summary of ecological assessment

Ecological feature	Potential unmitigated impact	Avoidance, mitigation, compensation and enhancement	Residual effect
Biddle Street, Yatton SSSI and Congresbury Yeo, adjacent land and rhynes SNCI	Pollution and silt runoff during construction. Surface water runoff from the development post-construction could affect the water quality of the designated sites.	All works would be undertaken in accordance with Defra guidance regarding the prevention of pollution. SuDS drainage scheme to be implemented.	Neutral, not significant.
Habitats			
Habitat within footprint of development including poor semi-improved grassland, tall ruderal vegetation and 75m of species-poor hedgerow.	Removal through site clearance.	Habitat loss would be mitigated in the medium-term through new habitat creation including wildflower meadow (0.8ha), native trees, scrub and minimum of 150m of species-rich hedgerow. Management of habitats in accordance with LEMP.	Negative, short-term effect at Sub Parish level; not significant. Positive effect at Sub-Parish level in medium-term onwards.
Retained hedgerows and trees	Accidental damage or disturbance of retained hedgerows and trees during post-construction.	Construction undertaken in accordance with BS 5837:2012. All retained hedges buffered from boundaries of residential plots. Proposed hedgerow planting in line with Landscape Strategy provide minimum 75m net gain for hedgerows.	Negative, short-term effect at Sub Parish level; not significant. Positive effect at Sub-Parish level in medium-term onwards.
Standing water and ditches	Pond and ditches could be affected by silt run-off or a pollution event during construction.	All works would be undertaken in accordance with Defra guidance regarding the prevention of pollution. SuDS drainage scheme to be implemented.	Neutral; not significant.
Protected and notable species			
Invasive species	No effects on notable plants predicted.		Neutral.

Table 5.1: Summary of ecological assessment

Ecological feature	Potential unmitigated impact	Avoidance, mitigation, compensation and enhancement	Residual effect
Amphibians	Terrestrial habitat loss and risk of killing/ injury of amphibians, including great crested newts during site clearance.	Great Crested Newt District Licencing. Habitat manipulation under ecological supervision undertaken during site clearance of suitable habitat (undertaken as part of reptile mitigation). Any amphibians found are moved to suitable habitat outside of the development area. Habitat creation and enhancement delivered through implementation of a LEMP and CEcoMP would benefit amphibians.	Adverse, medium-term effect at Sub-Parish Level; not significant. Neutral effect in long-term.
Reptiles	Habitat loss and risk of killing/injury of reptiles during construction.	Killing/injuring of reptiles avoided through passive displacement using habitat manipulation and reptile capture and translocation, where required. Loss of habitat mitigated by habitat creation and management (under LEMP) to include; new hedgerow planting, wildflower meadow and hibernacula.	Adverse, medium-term effect at Sub-Parish level; not significant. Neutral effect in long-term onwards.
Birds	Damage/ loss of suitable nesting and foraging habitat. Killing/injury of individual birds and their eggs.	Habitat cleared outside of main bird nesting season, or subject to pre-clearance check by suitably qualified ecologist. Nesting habitat loss would be mitigated through habitat creation and the provision of bird boxes,	Negative; short-term effect at Sub-Parish level; not significant. Neutral effect in medium-term onwards.

Table 5.1: Summary of ecological assessment

Ecological feature	Potential unmitigated impact	Avoidance, mitigation, compensation and enhancement	Residual effect
	Disturbance during construction and operation. Damage to/ destruction of nests.	incorporated into the fabric of buildings. New habitats including wildflower meadow and native hedgerows and scrub would provide foraging and/ or nesting habitat suitable for a range of birds.	
Badger	Potential harm to badgers through construction activities. Minor loss of suitable foraging habitat.	Measures to protect badger welfare included in the CEcoMP. New habitats would be suitable for badgers but likely to be residual loss of foraging habitats.	Negative, long-term effect at Sub Parish level; not significant.
Bats (excluding SAC bats)	Loss or degradation of foraging habitat.	Protection of retained habitats during construction. Habitat creation and enhancement delivered through implementation of a LEMP and CEcoMP. Control of lighting during and post-construction. Provision of bat boxes within new buildings and on trees.	Negative, short to medium-term effect at Sub-Parish level, not significant. Neutral effect in the medium to long-term.
	Potential disruption to light-sensitive bat species, including lesser horseshoe bats during construction.	All contractors' compounds located at a minimum of 10m away from retained hedgerows and trees. Restrictions on construction lighting between March and October.	Negative, short term effect at Sub-Parish level, not significant. Neutral effect in the medium to long-term.
	Loss, damage or fragmentation of flyways	Retention of wide green corridors along the northern and eastern boundaries of the site.	Neutral; not significant.

Table 5.1: Summary of ecological assessment

Ecological feature	Potential unmitigated impact	Avoidance, mitigation, compensation and enhancement	Residual effect
		Lighting design for public realm to minimise impacts on bats and maintain dark corridors along northern and eastern boundaries.	
Otter	Potential harm to otters through construction activities and water pollution. Potential disturbance post-development.	During construction, no lighting left on overnight, and any security lighting would be low-height and motion activated on short-timers. The lighting design of the development would ensure that lighting effects on otters were minimised. Implementation of pollution control measures.	Neutral; not significant.
Water vole	Potential indirect impacts during construction.	Implementation of pollution control measures.	Neutral; not significant.
Hedgehog	Loss of foraging and resting habitats; potential killing and injury of individuals.	Landscape establishment and management would provide suitable habitat post development. Provision of gaps in residential boundary fences would maintain habitat connectivity for hedgehogs.	Negative, short-term effect at Sub Parish level; not significant. Neutral effect in medium-term onwards.
Other mammals (Brown hare, pygmy shrew and yellow-necked mouse)	If present, site clearance could result in loss of suitable habitat for these species.	Limited extent of habitat affected; other suitable habitat in the vicinity. Landscape establishment and management would provide suitable habitat post development.	Negligible

6 References

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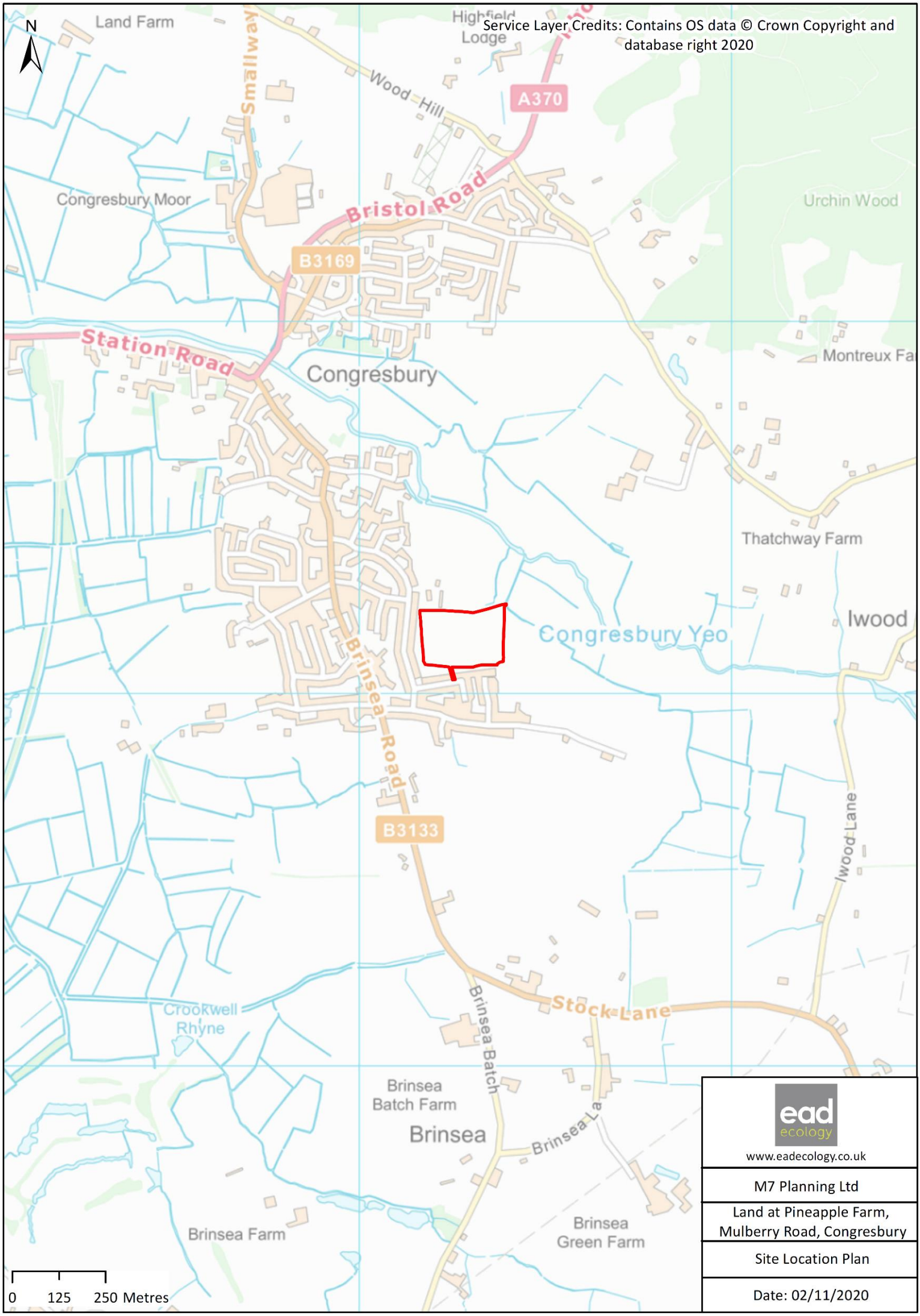
Figure 1: Site location plan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Service Layer Credits: Contains OS data © Crown Copyright and database right 2020
Land Farm
Highfield Lodge
Wood Hill
A370
Smallway
Congresbury Moor
Bristol Road
B3169
Urchin Wood
Station Road
Congresbury
Montreux Fa
Thatchway Farm
Congresbury Yeo
Iwood
Brinsea Road
B3133
Iwood Lane
Crookwell Rhyne
Brinsea Batch
Stock Lane
Brinsea Batch Farm
Brinsea
Brinsea La
Brinsea Farm
Brinsea Green Farm
0 125 250 Metres
www.eadecology.co.uk
M7 Planning Ltd
Land at Pineapple Farm, Mulberry Road, Congresbury
Site Location Plan
Date: 02/11/2020

Figure 2: Framework plan

MR50001
Pineapple Farm, Mulberry Road, Congresbury

Framework Plan_25.02.2021

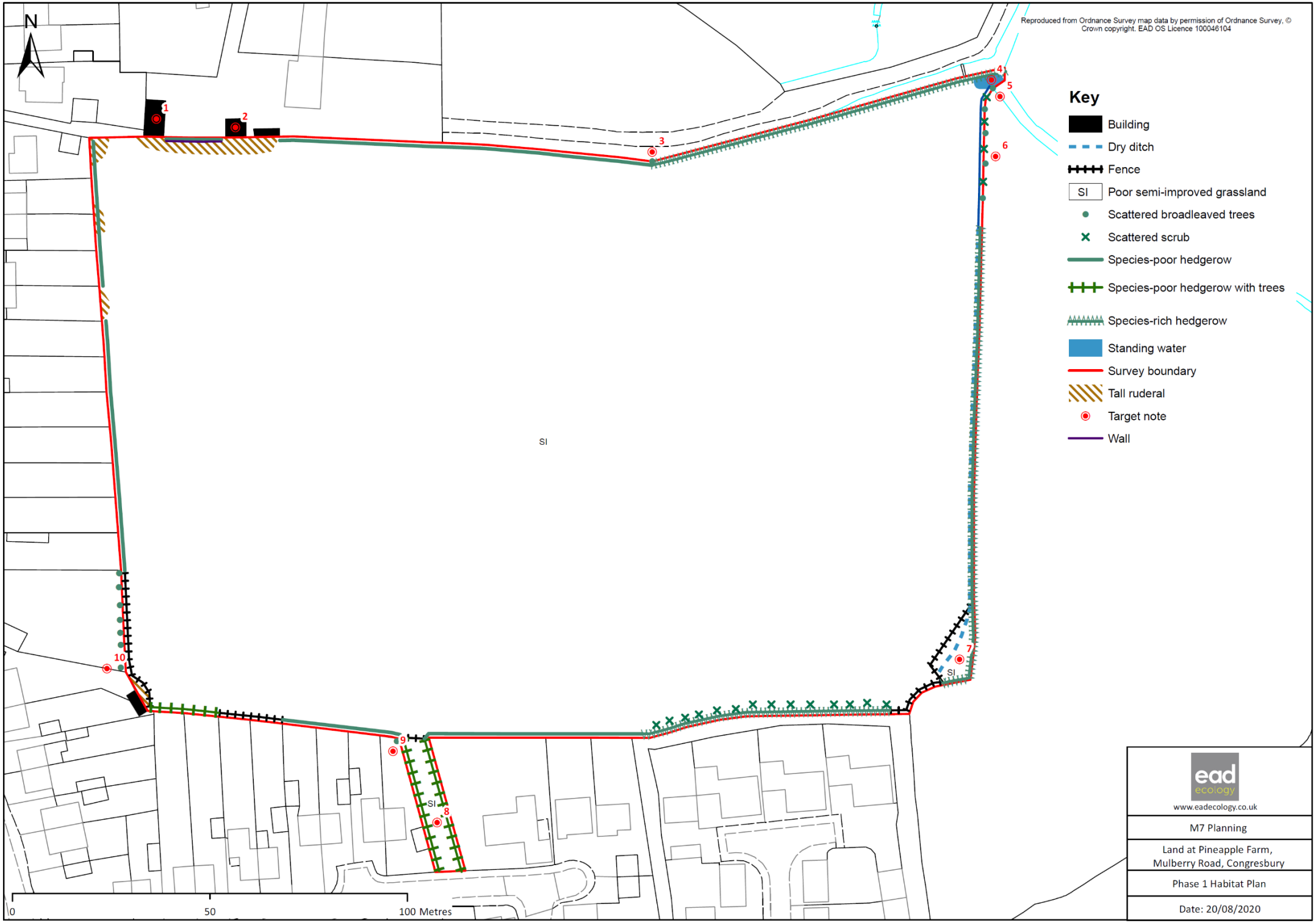
Proposed Attenuation Basin

Informal Footpath Link

Indicative Road Layout

M7 Design
A Division of M7 Planning Limited

Figure 3: Phase 1 Habitat plan, target notes and photographs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Reproduced from Ordnance Survey map data by permission of Ordnance Survey, © Crown copyright. EAD OS Licence 100046104
Key
Building
Dry ditch
Fence
SI
Poor semi-improved grassland
Scattered broadleaved trees
Scattered scrub
Species-poor hedgerow
Species-poor hedgerow with trees
Species-rich hedgerow
Standing water
Survey boundary
Tall ruderal
Target note
Wall
SI
1
2
3
4
5
6
7
8
9
10
0
50
100 Metres
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Land at Pineapple Farm, Mulberry Road, Congresbury
Phase 1 Habitat Plan
Date: 20/08/2020

Target note	Description
1	Single storey building with small gaps beneath barge boards. Low/ negligible bat roost potential (BRP). 
2	Building with gaps beneath tiles. Low BRP
3	Mature ash with knot hole on south west side of trunk. Moderate BRP. 

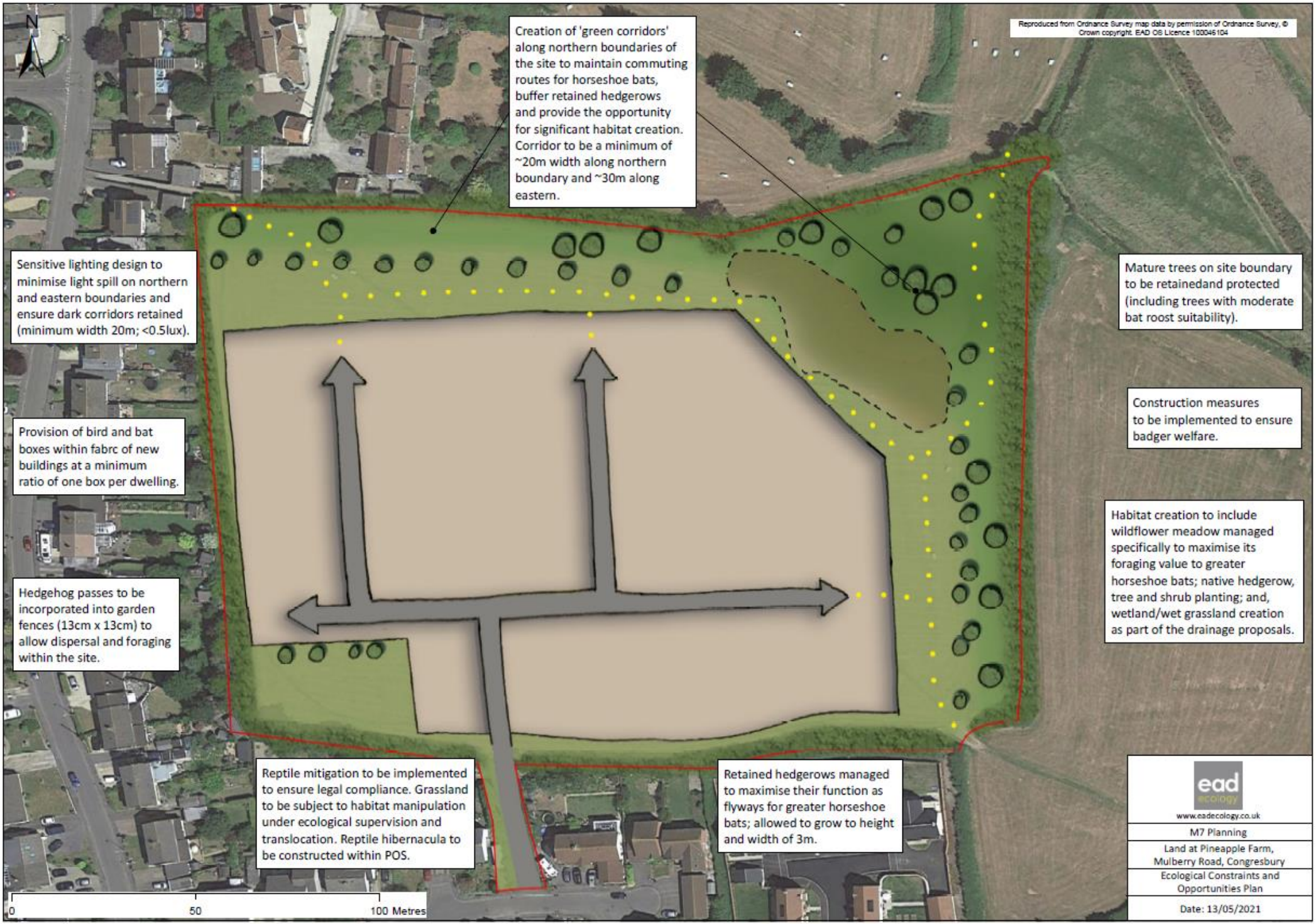
4	Standing water/end of wet ditch. Marginal hemlock water dropwort, duckweed on surface. Great Crested Newt (GCN) potential. 
5	Mature willow adjacent to standing water. Holes and cracks in lower trunk. Moderate BRP. 

6	Line of mature willows – low/ moderate BRP. Some cracks and fissures in their lower trunks. 
7	Fenced off ditch/culvert in field corner. Grass unmanaged beyond fence; suitable reptile habitat. 

8	Existing access track, flanked by species-poor hedgerows. 
9	Mature ash. Potential gaps at broken limbs; low to moderate BRP. 

10	Mature ash with hollowed out trunk and hole near top; moderate BRP. 

Figure 4: Ecological constraints and opportunities plan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Reproduced from Ordnance Survey map data by permission of Ordnance Survey, © Crown copyright. EAD OS Licence 100045104
Creation of 'green corridors' along northern boundaries of the site to maintain commuting routes for horseshoe bats, buffer retained hedgerows and provide the opportunity for significant habitat creation. Corridor to be a minimum of ~20m width along northern boundary and ~30m along eastern.
Sensitive lighting design to minimise light spill on northern and eastern boundaries and ensure dark corridors retained (minimum width 20m; <0.5lux).
Mature trees on site boundary to be retainedand protected (including trees with moderate bat roost suitability).
Provision of bird and bat boxes within fabrc of new buildings at a minimum ratio of one box per dwelling.
Construction measures to be implemented to ensure badger welfare.
Habitat creation to include wildflower meadow managed specifically to maximise its foraging value to greater horseshoe bats; native hedgerow, tree and shrub planting; and, wetland/wet grassland creation as part of the drainage proposals.
Hedgehog passes to be incorporated into garden fences (13cm x 13cm) to allow dispersal and foraging within the site.
Reptile mitigation to be implemented to ensure legal compliance. Grassland to be subject to habitat manipulation under ecological supervision and translocation. Reptile hibernacula to be constructed within POS.
Retained hedgerows managed to maximise their function as flyways for greater horseshoe bats; allowed to grow to height and width of 3m.
0
50
100 Metres
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Land at Pineapple Farm, Mulberry Road, Congresbury
Ecological Constraints and Opportunities Plan
Date: 13/05/2021

Appendix 1: Wildlife legislation

Wildlife Legislation

1 Conservation of Habitats and Species Regulations 2017 (as amended)

These Regulations, also referred to as the 'Habitats Regulations', provide for the designation and protection of 'European Sites' ('the National Site Network'). They convey a statutory requirement for local planning authorities to undertake a 'Habitats Regulations Assessment' of the potential impacts of plans and projects, including development proposals, on European Sites. The provisions also include protection of 'European Protected Species' (EPS). Under the Regulations, local planning authorities have to consider three 'derogation tests' when deciding whether to grant permission for a development that affects an EPS, which are as follows:

- the development must be for over-riding public interest or for public health and safety;
- there are no satisfactory alternatives to the proposed development; and
- the favourable conservation status of the EPS concerned must be maintained.

2 Wildlife and Countryside Act 1981 (as amended)

This Act is the principal wildlife legislation in Great Britain. It includes provisions for important habitats to be designated and protected as Sites of Special Scientific Interest (SSSIs). Numerous plant and animal species, and the places that they use for shelter and protection, are also protected under the Act, including all birds, their nests and eggs.

3 Countryside and Rights of Way Act 2000

Referred to as the CROW Act, this legislation increases the protection of SSSIs and strengthens wildlife enforcement action. The Act also strengthens the protection of protected species under the Wildlife and Countryside Act 1981 (as amended) through the introduction of a new offence of 'reckless disturbance'.

4 Natural Environment and Rural Communities Act 2006

This Act places a duty on all public bodies and statutory undertakers to have due regard to the conservation of biodiversity in all their functions. It also requires the publication of a list of habitats and species of principal importance for the conservation of the biodiversity. This list, known as the Section 41 list, includes all Priority Habitats and Species of Principal Importance for the Conservation of Biodiversity in England.

5 Protection of Badgers Act 1992

This Act was introduced primarily for animal welfare reasons, as opposed to species conservation. It provides protection of badgers and their setts.

6 Hedgerow Regulations 1997 (as amended)

These Regulations include provisions for the protection of hedgerows and make it an offence to remove 'important' hedgerows without consent from the local planning authority. Where planning permission is granted for a development proposal, the removal of 'important' hedgerows is deemed to be permitted.

Appendix 2: Species legislation and conservation status

Species legislation and conservation status

1 Invertebrates

A number of UK invertebrates are protected by international and national legislation, including the EC Habitats Directive (1992) and the Wildlife and Countryside Act 1981 (as amended). In addition, numerous species are Priority Species.

2 Plants

All wild plants are protected against unauthorised removal or uprooting under Section 13 of the Wildlife and Countryside Act 1981 (as amended). Plants listed on Schedule 8 of the Act (e.g. stinking goosefoot, red helleborine, monkey orchid) are afforded additional protection against picking, uprooting, destruction and sale. Bluebell (*Hyacinthoides non-scripta*) is protected against sale only. Further species are also protected under the Conservation of Habitats and Species Regulations 2017.

Notable plant species include those that are listed as:

- Nationally vulnerable – A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A-E for Vulnerable, and is therefore considered to be facing a high risk of extinction in the wild (Cheffings C M & Farrell L (Eds) (2005) *Species Status No. 7 – The Vascular Plant Red Data List for Great Britain*, JNCC (online).
- Nationally scarce – species recorded in 16-100 hectads in Great Britain.
- Nationally rare – species occurring in 15 or fewer hectads in Great Britain.

Section 14 of the Wildlife and Countryside Act 1981 (as amended) prohibits the planting of certain invasive plant species in the wild, or otherwise causing them to grow there. Prohibited plants are listed on Part 2 of Schedule 9 and include Japanese knotweed, Himalayan balsam and giant hogweed.

3 Amphibians

There are seven native amphibian species present in Britain. These are afforded varying degrees of protection under national and European legislation. Great crested newts (*Triturus cristatus*) and their habitat are afforded full protection under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way (CRoW) Act 2000 and the Conservation of Habitats and Species Regulations 2017 (as amended). Together, this legislation makes it illegal to:

- Deliberately capture, injure or kill a great crested newt.
- Damage or destroy any place used for shelter or protection by great crested newts, including resting or breeding places; or intentionally or recklessly obstruct access to such a place.
- Deliberately, intentionally or recklessly disturb great crested newts.

Great crested newt and common toad (*Bufo bufo*) are Priority Species.

4 Reptiles

Slow-worm (*Anguis fragilis*), viviparous/common lizard (*Zootoca vivipara*), adder (*Vipera berus*) and grass snake (*Natrix natrix*) are protected under the Wildlife and Countryside Act 1981 (as amended) against intentional killing and injuring. These species are also Priority Species.

5 Birds

The bird breeding season generally lasts from March to early September for most species. All birds are protected under the Wildlife and Countryside Act (1981) (as amended) and the Countryside & Rights of Way (CRoW) Act 2000. This legislation makes it illegal, both intentionally and recklessly, to:

- kill, injure or take any wild bird.
- take, damage or destroy the nest of any wild bird while it is being built or in use.
- take or destroy the eggs of any wild bird.

Furthermore, birds listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended) are protected against intentional or reckless disturbance whilst nest building and when at or near a nest containing eggs or young. Dependent young of Schedule 1 species are also protected against disturbance.

In addition to this legal protection, the leading governmental and non-governmental conservation organisations in the UK have reviewed the population status of the birds regularly found here and produced a list of birds of conservation concern. Of the 244 species assessed, 67 were placed on the Red List of high conservation concern, 96 on the Amber List of medium conservation concern and 81 on the Green List of low conservation concern:

- Red list species are those that are Globally Threatened according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery.
- Amber list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; and those with internationally important or localised populations.

6 Badgers

Badger (*Meles meles*) is a widespread and common species. However, they are legally protected under The Protection of Badgers Act 1992, due to animal welfare concerns. Under this legislation it is illegal to:

- Wilfully kill, injure, take, or cruelly ill-treat a badger, or attempt to do so.
- Intentionally or recklessly interfere with a sett by disturbing badgers whilst they are occupying a sett, damaging or destroying a sett, or obstructing access to it.

A badger sett is defined in the legislation as “any structure or place, which displays signs indicating current use by a badger”.

7 Bats

There are 18 species of bats found in the UK, 17 of which are known to breed here. The conservation status of these species is summarised in the table below:

Common name	Scientific name	IUCN Red List*	Priority Species
Greater horseshoe	*Rhinolophus ferrumequinum*	LC	Yes
Lesser horseshoe	*Rhinolophus hipposideros*	LC	Yes
Daubenton’s	*Myotis daubentonii*	LC	No
Brandt’s	*Myotis brandtii*	LC	No
Whiskered	*Myotis mystacinus*	LC	No
Natterer’s	*Myotis nattereri*	LC	No
Bechstein’s	*Myotis bechsteinii*	NT	Yes

Alcathoe bat	*Myotis alcathoe*	DD	No
Greater mouse-eared	*Myotis myotis*	LC	No
Common pipistrelle	*Pipistrellus pipistrellus*	LC	No
Soprano pipistrelle	*Pipistrellus pygmaeus*	LC	Yes
Nathusius' pipistrelle	*Pipistrellus nathusii*	LC	No
Serotine	*Eptesicus serotinus*	LC	No
Noctule	*Nyctalus noctula*	LC	Yes
Leisler's	*Nyctalus leisleri*	LC	No
Barbastelle	*Barbastella barbastellus*	NT	Yes
Brown long-eared	*Plecotus auritus*	LC	Yes
Grey long-eared	*Plecotus austriacus*	LC	No

*IUCN categories: LC Least Concern, NT Near Threatened, DD Data Deficient

All bat species are afforded full protection under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). Together, this legislation makes it illegal to:

- Deliberately capture, injure or kill a bat.
- Damage or destroy a bat roost; or intentionally or recklessly obstruct access to bat roosts.
- Deliberately, intentionally or recklessly disturb a bat, including in particular any disturbance which is likely:
- to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or
- in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
- to affect significantly the local distribution or abundance of the species to which they belong.

A bat roost is defined in the legislation as "any structure or place which a bat uses for shelter or protection". Roosts are protected whether or not bats are present at the time.

8 Otter

Otters (*Lutra lutra*) are fully protected under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way (CRoW) Act 2000 and the Conservation of Habitats and Species Regulations 2017 (as amended). Together, this legislation makes it illegal to:

- Deliberately capture, injure or kill an otter.
- Damage or destroy any structure or place used for shelter or protection by an otter; or intentionally or recklessly obstruct access to such a place.
- Deliberately, intentionally or recklessly disturb an otter whilst it is occupying a structure or place which it uses for shelter or protection.

Otter is a Priority Species.

9 Water vole

Water vole (*Arvicola amphibious*) are afforded full protection under the Wildlife and Countryside Act 1981 (as amended), which make it illegal to:

- Kill, injure or take a water vole.
- intentionally or recklessly destroy, damage or obstruct access to any structure or place that is used by a water vole for shelter or protection.
- intentionally or recklessly disturb a water vole whilst it is in a place used for shelter or protection.

Water vole is a Priority Species.

10 Common/Hazel dormouse

The hazel dormouse (*Muscardinus avellanarius*) is fully protected under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way (CRoW) Act 2000 and the Conservation of Habitats and Species Regulations 2017 (as amended). Together, this legislation makes it illegal to:

- Deliberately capture, injure or kill a dormouse.
- Damage or destroy any structure or place used for shelter or protection by a dormouse; or intentionally or recklessly obstruct access to such a place.
- Deliberately, intentionally or recklessly disturb a dormouse whilst it is occupying a structure or place which it uses for shelter or protection.

Hazel dormouse is a Priority Species.

Appendix 3: Baseline evaluation criteria

Baseline Evaluation criteria

Key evaluation categories are as follows:

- International value (internationally designated sites, or sites meeting criteria for international designation. Sites supporting populations of internationally important species);
- UK value (sites with UK importance);
- National value (nationally designated sites (e.g. SSSIs) or sites meeting SSSI selection criteria. Sites containing viable areas of threatened Priority Habitat or supporting a viable population of Red Data Book species or supplying critical elements of their habitat requirements);
- Regional value (sites exceeding county-level designations but not meeting SSSI criteria. Sites containing viable areas of threatened habitats on the Regional BAP, supporting viable populations of species that are nationally scarce or included in the regional BAP due to rarity);
- County value (sites meeting criteria for county or metropolitan designations. Site containing a viable area of a threatened habitat identified on the county BAP or supporting viable populations of county or metropolitan rarities e.g. county BAP or county 'Red Data Book' species);
- District value (undesignated sites or features that are considered to appreciably enrich the habitat resource within the context of the Borough or District);
- Parish value (areas of habitat considered to appreciably enrich the habitat resource within the context of a parish or neighbourhood);
- Sub-Parish (ecological resource not meeting any of the above criteria).

Additional criteria employed were from the following:

- Schedules and Annexes of UK and European wildlife legislation (e.g. Wildlife and Countryside Act (1981) (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended);
- International conventions on wildlife (e.g. Bern Convention, Bonn convention);
- Habitats and species of Principal Importance.
- Local Biodiversity Action Plans.
- Taxi-specific conservation lists (e.g. Red Data Lists; Red/Amber Lists).

Appendix 4: National planning policy

National Planning Policy Framework (2019)

The National Planning Policy Framework (NPPF) includes the Government's policy on the protection of biodiversity through the planning system. The following policies are relevant to the Proposed Development:

170. Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider

benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

171. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework53; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

175. When determining planning applications, local planning authorities should apply the following principles:

a) *if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*

b) *development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*

c) *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons[2] and a suitable compensation strategy exists; and*

d) *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity."*

177. The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

[2] For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.

Appendix 5: Local planning policy

North Somerset Council Development Management Policies: Sites and Policies Plan Part 1 (Adopted July 2016)

DM8: Nature Conservation

Links to CS4: Nature Conservation and Replacement Local Plan Policies: ECH/10 Biodiversity, ECH/11 Protected species and their habitats, ECH/12 Wildlife sites of international importance, ECH/13 Sites of Special Scientific Interest and National Nature Reserves, ECH/14 Wildlife and Geological sites and Local Nature Reserves

Policy aim

To protect and enhance biodiversity, particularly on sites of recognised nature conservation interest. To protect trees, hedges and other landscape features of amenity value and to secure suitable replacements in instances where their loss is justified.

DM8

Policy DM8

Development proposals must take account of their impact on local biodiversity and identify appropriate mitigation measures to safeguard or enhance attributes of ecological importance.

Where appropriate, proposals should seek to conserve the local natural environment by retaining, protecting, enhancing and linking existing wildlife habitats; by incorporating retained habitats sensitively into the development through appropriate design; and by ensuring that such retained and enhanced habitats are managed appropriately. Where necessary, longer term management will be achieved through suitable planning conditions.

Sites of International and National Importance

Development which would have an adverse impact on identified sites of international importance (which include Special Areas of Conservation (SACs), Special Protection Areas (SPA) and Ramsar sites) will not be permitted.

The North Somerset and Mendip Bats SAC consultation area is defined on the Policies Map. The consultation will identify the potential impact of the proposed development in respect of, for example, bat navigation and foraging habitats and identify appropriate mitigation measures through site design and lighting strategies.

The Severn Estuary SAC, SPA and Ramsar site is defined on the Policies Map. Any proposals that could affect the sensitive bird species and other habitats and species of the Estuary will need to carry out adequate surveys and assessments of the cumulative, in-combination and offsite impacts (drainage, disturbance, runoff, impacts on managed realignment etc.) of the scheme.

Development within or in proximity to a Site of Special Scientific Interest (SSSI) or National Nature Reserve that is likely to have a direct or indirect adverse affect on its biodiversity or geological interest would not normally be permitted.

Local Nature Reserves and Local Sites

Planning permission will not normally be granted for development that would result in loss in extent or otherwise have a significant adverse effect on Local Nature Reserves or Local Sites (locally designated Wildlife Sites and Geological Sites), unless the harm can be mitigated by appropriate measures.

DM8

Policy DM8

Legally Protected Species and Habitats and Species of Principal Importance in England – Priority Habitats and Species

Development which could harm, directly or indirectly, species, which are legally protected, or species and habitats that have been identified as Species or Habitats of Principal Importance in England (also known as Section 41 or 'Priority' species and habitats) will not be permitted unless the harm can be avoided or mitigated by appropriate measures.

Development proposals should ensure that, where appropriate, provision is made for:

- any lighting scheme to avoid adverse impacts on light averse wildlife;
- retention of native woodland, native trees (to include veteran trees), native hedgerows, watercourses, ponds, rhynes, other wetland habitats such as reedbeds, botanically diverse grasslands, traditional orchards, geological features, and other major natural features, habitats or wildlife corridors, and their protection during construction work;
- protection of ecosystem resources, to include water quality;
- compensatory provision, within the site itself, or immediate vicinity if practicable, of at least equivalent biodiversity value, where the loss of habitats or features of importance to wild flora and fauna is unavoidable;
- incorporation of habitat features of value to wildlife within the development (to include within building design) and including those which meet the needs of local species (e.g. provision of nesting features for swifts, swallows, house sparrows, bats);
- appropriate long term management of retained and newly created features of importance to wildlife;
- provision of monitoring of key species to evaluate impact of site management;
- planting of locally appropriate native species of local origin wherever possible; and
- measures to link habitats within the development and also that link into adjoining wildlife corridor networks.

Policy DM8

Ecological mitigation measures provided within the development

Where development proposals may impact legally protected and notable species and habitats, they will need to be accompanied by an up to date ecological survey assessment as part of the submitted application. This will include:

- site context information provided by a local records data search of designated sites, legally protected and notable species in proximity;
- a description of the biodiversity interest of the site, to include current land use; and including, where applicable, regard for any Strategic Nature Areas;
- the nature and extent of the impact on legally protected species and habitats, Section 41 species and habitats/or other notable species of the proposed development or change of use of land; and the measures that may be needed to avoid, mitigate or compensate the identified impacts;
- the steps to be taken to retain, protect, enhance, link and, where appropriate, create and manage the biodiversity interest over the longer term; which may include monitoring;
- where necessary effective lighting design to avoid artificial light spill to wildlife habitats/corridors to avoid impacts on light averse wildlife.

Justification

North Somerset contains four sites of European importance, designated as Special Areas of Conservation (SACs). These include: the North Somerset and Mendip Bats SAC, Mendip Limestone Grasslands SAC, Avon Gorge Woodlands SAC and the Severn Estuary SAC. The Severn Estuary is also designated as a Special Protection Area (SPA), due to the internationally important assemblages of overwintering/wading birds that it supports; and is also designated as a Ramsar site, as it is an internationally important wetland.

The purpose of the 5km consultation zone set around the North Somerset SSSI component maternity and hibernation horseshoe bat roosts of the North Somerset and Mendip Bats SAC is to protect greater and lesser horseshoe bat navigation and foraging habitats (to include key habitats for insect prey such as cattle grazed pastures and wetlands). Protection of these habitats is required to ensure that these roosts continue to be viable and maintained in 'favourable condition' and that populations of horseshoe bats are maintained at favourable

DM8

conservation status. Horseshoe bats are known to be light sensitive requiring unlit, intrinsically dark navigation routes and foraging habitats. Following consultation with Natural England North Somerset Council are looking into producing detailed guidance on the North Somerset & Mendip Bat SAC for future proposed development in and around the 5km zone.

Any proposals with potential to directly or indirectly impact on a European site/SSSI will be subject to consultation with the government's statutory nature conservation body, Natural England.

North Somerset also supports other European protected species that are rare or declining across Europe, notably hazel dormouse, otter, a wide diversity of bat species and great crested newt.

The overall aim is to contribute to the international and national objective to halt loss of biodiversity, by the protection and creation of key habitats; and the maintenance of linked, coherent ecological networks, so that populations of species are not isolated and thereby made vulnerable to local extinction. Important ecological networks within North Somerset district include: the locally characteristic network of rhynes (wet ditches and their associated banks and marginal habitats) locally characteristic of the North Somerset Levels and Moors landscape; and which link to other key local wetland habitats such as reedbeds and wet woodlands (alder and willow), and to the watercourse networks/ catchments of the district and adjoining counties. Such networks are important for species such as otter, water vole and kingfisher.

On higher ground, notably on the limestone ridges, there are extensive networks of tall native hedgerows and tree lines, which are significant in providing key habitat links between woodlands for woodland species such as dormouse, as well as providing navigation routes for bats from breeding and hibernation roosts to insect rich foraging habitats. It is essential that key habitats are linked to allow migration and interbreeding of populations of local key species. It should also be recognised that linear corridors of taller grassland and herbaceous vegetation (provided by road verge networks, cycle routes, public rights of way routes) are also important wildlife corridors for migration and dispersal. These locally characteristic habitats have contributed to the continued presence of rare species within the North Somerset District and need to be protected if this area is to continue to be a significant stronghold for many of these species.

Retained and enhanced habitats will ensure the continued functionality of essential ecosystem services, such as flood storage, flood attenuation and crop pollination (provided by local populations of insect pollinators).

Developers should be aware that there are statutory controls relating to biodiversity. For example Habitats Regulation Assessment may be required under the Conservation of Habitats and Species Regulations 2010, which relate to Articles 6(3) and (4) of the Habitats Directive, where a planning application could impact on the integrity of a European Site such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites.

Delivery and monitoring

This policy is monitored through indicators set out in the Core Strategy Monitoring Framework. These will be reported on annually in the North Somerset Council Annual Monitoring Report.

DM9: Trees and Woodlands

Links to CS1 Addressing climate change and carbon reduction, CS4 Nature conservation, CS5 Landscape and the historic environment, CS9 Green infrastructure, CS12 Achieving high quality design and place making and

Replacement Local Plan Policies ECH/5 Historic Parks and Gardens, ECH/7 Landscape character areas, ECH/10 Biodiversity

Policy aim

Incorporate existing trees and wooded areas into design proposals where practical. Ensure the planting of new trees is properly designed and adequately maintained in the longer term and recognise the place-making quality of trees

Policy DM9

Development proposals affecting trees should:

- demonstrate that the retention, protection and enhancement of tree canopy cover has been considered throughout the design and development process;
- evaluate, at a level of detail appropriate to the proposal, the short and longer-term impacts that the development may have on existing trees;
- achieve high quality design by demonstrating that the long term retention of appropriate trees is realistic, and that the trees are viewed as an asset by new occupants rather than as an issue of conflict. The future growth of tree canopy and roots should be fully accounted for when designing:

DM9

Policy DM9

(i) the location, spacing and orientation of buildings, gardens and green spaces;

(ii) the location of underground services;

(iii) the relative positions of trees and windows for light;

(iv) specific issues relating to tree species eg. aphid honey dew, fruit drop, density of canopy, leaves and needles;

(v) future management requirements and accessibility.

- provide high quality physical protection of retained trees, which includes working methods that will be clearly communicated and understood by all site staff;
- include, where practical, the introduction of appropriate new tree planting and woodland creation as an integral part of the design and landscaping of new developments, using native species of local origin wherever possible;
- include, where appropriate, the provision of new large-growing street and open space trees that are planted in high-quality tree pit designs, which maximise tree health and minimise future maintenance of the street surface;
- protect ancient woodland and veteran trees, particularly where these provide important habitats;
- ensure the engineering requirements to accommodate tree planting and future tree growth in relation to building foundation design are complied with;
- include, for larger-scale developments, an initial tree maintenance specification for new trees to ensure they thrive and grow to healthy maturity, and
- provide a plan for the management of wooded areas that balances the protection and enhancement of biodiversity with increased opportunities for recreation and play.

The council will consider the use of Tree Preservation Orders where appropriate individual trees or groups of trees are considered worthy of protection.

Justification

This policy is to provide more detailed guidance on new planting and the protection of existing trees. Proposed developments will be expected to demonstrate that they adhere to the procedures and principles set out in British Standard 5837 (Trees in relation to design, demolition and construction – Recommendations).

Where the loss of trees is essential to allow for appropriate development a suitable number and species of replacement trees should be provided, to compensate for the loss in canopy cover. We would generally expect trees to be replaced on a one for one basis as a minimum.

Delivery and monitoring

This policy is monitored through indicators set out in the Core Strategy Monitoring Framework. These will be reported on annually in the North Somerset Council Annual Monitoring Report. Monitoring will be expanded to cover indicators relating to replacement planting.

North Somerset Council Core Strategy (Adopted January 2017)

CS4

Living within environmental limits

CS4: Nature conservation

North Somerset contains outstanding wildlife habitats and species. These include limestone grasslands, traditional orchards, wetlands, rhynes, commons, hedgerows, ancient woodlands and the Severn Estuary. Key species include rare horseshoe bats, otters, wildfowl and wading birds, slow-worms and water voles.

The biodiversity of North Somerset will be maintained and enhanced by:

1) seeking to meet local and national Biodiversity Action Plan targets taking account of climate change and the need for habitats and species to adapt to it;
2) seeking to ensure that new development is designed to maximise benefits to biodiversity, incorporating, safeguarding and enhancing natural habitats and features and adding to them where possible, particularly networks of habitats. A net loss of biodiversity interest should be avoided, and a net gain achieved where possible;
3) seeking to protect, connect and enhance important habitats, particularly designated sites, ancient woodlands and veteran trees;
4) promoting the enhancement of existing and provision of new green infrastructure of value to wildlife;
5) promoting native tree planting and well targeted woodland creation, and encouraging retention of trees, with a view to enhancing biodiversity.

Background

3.55 Biodiversity is concerned with the rich variety of plant and animal species and fungi, within their various habitats. National guidance promotes the conservation and enhancement of biodiversity as an integral part of sustainable development.

3.56 North Somerset has a particularly rich biodiversity and variety of habitats. Species present include those which have undergone severe national declines, including many birds, bats, water voles, dormice, great crested newts and the brown hare. This rich variety of wildlife is a valuable resource that adds greatly to the identity of the area and quality of life.

3.57 Internationally Important European Sites or Natura 2000 sites include the Severn Estuary SSSI, a Ramsar site, Special Protection Area (SPA) and Special Area of Conservation (SAC), an outstanding area for its migratory and over-wintering birds. The other SACs are the North Somerset and Mendip Bats which supports rare greater and lesser horseshoe bats, the Mendip Limestone Grasslands and the Avon Gorge Woodlands.

3.58 Natura 2000 sites are statutorily protected under the Habitats Regulations. Habitats Regulation Assessment (HRA) is required to investigate whether projects or plans, alone or in combination, are likely to have a significant effect on Natura 2000 sites.

3.59 North Somerset also includes 39 Sites of Special Scientific Interest (SSSIs) of national importance, and two National Nature Reserves (Leigh Woods and part of the Gordano Valley).

3.60 205 sites in North Somerset have been designated as Wildlife Sites in the adopted Replacement Local Plan as important local areas for biodiversity, and there are 12 designated Local Nature Reserves such as at Uphill. It is important that habitats rich in species are not confined to reserves but that interconnected networks of such habitats exist throughout an area to allow dispersal and interbreeding between different populations.

3.61 The North Somerset Biodiversity Action Plan (BAP) 2005 highlights the value of a wide variety of wildlife habitats, including UK Biodiversity Action Plan (BAP) priority habitats. They include for example, coastal habitats, such as mudflats, sand dunes, saltmarsh, and maritime cliffs and slopes, and inland lakes. Other examples are the extensive network of watercourses, comprising rivers, streams, rhynes and ditches. These habitats support many types of mammals, amphibians, reptiles, birds, fish, invertebrates and plants.

3.62 Extensive woodland areas, of many different types, occur, such as ancient and more recent semi-natural woodland, wet woodland, veteran trees, and parkland. However semi-natural habitats (not subject to intensive agricultural practices so retaining a high diversity of species) comprise only 8% of the land area of North Somerset. The district also contains UK priority grassland habitats, including lowland calcareous grassland, lowland meadows and lowland dry acid grassland.

3.63 The traditional hedgerows, stone walls and the extensive network of rural road verges, with scrub and grassland habitats, function as wildlife corridors, as well as refuges for wildflowers, invertebrates, reptiles, amphibians, small mammals and birds. Hedgerows, areas of livestock grazing and features such as ponds, wetlands, scrub and woodland edges are all important to bats.

3.64 Old orchards and urban public and private open spaces, such as parks and urban gardens, are also important for biodiversity. Commons are also a valued resource, often comprising semi improved grassland which can be important for wildlife and recreation. Trees are very important for wildlife, providing food and shelter, nesting and roosting sites for birds and bats and habitats for invertebrates.

The Core Strategy approach

3.65 The policy reflects the importance of meeting regional biodiversity targets. It also emphasises the need to design development to maximise benefits to biodiversity, incorporating and enhancing natural habitats and features, particularly networks of habitats, which are very important as wildlife corridors. It stresses that development should not result in net loss of biodiversity interest, and promotes achievement of a net gain where possible.

3.66 The policy sets out the requirement to protect and enhance biodiversity in broad terms, although more detailed guidance will be provided within the Sites and Policies Development Plan Document.

3.67 The policy reflects the importance of strategies very relevant to biodiversity, including the emerging Green Infrastructure Strategy. Green infrastructure includes linear green space which can provide valuable wildlife corridors.

3.68 The policy reflects the importance of trees for biodiversity, and regard must be had to the Biodiversity and Trees SPD, which includes guidance for developers on planning for biodiversity; e.g. screening for the presence of biodiversity, undertaking tree and ecological surveys and planning to protect, retain and manage existing trees, habitats and species.

How and where the policy will be delivered

3.60 Policy CS4 recognises the importance of locations supporting priority habitats, and also networks of habitats, designated or not, ancient woodlands and veteran trees. The policy seeks to protect and enhance biodiversity as a whole but particularly at those valuable locations, and locations where development occurs. The policy is consistent with the aims of South West Nature Map – A Planner's Guide by Biodiversity South West (February 2007), which refers to Strategic Nature Areas that represent the best areas to maintain and expand wildlife habitats through their management, restoration and/or re-creation.

3.70 Development proposals will be carefully assessed to ensure protection and enhancement of biodiversity, including retention and incorporation of important features, using conditions and or planning obligations to mitigate any potentially adverse impacts.

3.71 The council will have close regard to its duty under the Natural Environment and Rural Communities (NERC) Act, to have regard to the purpose of conserving biodiversity in exercising its functions, so far as is consistent with the proper exercising of those functions. This includes the need to consider habitats and species of principal importance in England as set out in section 41 of the NERC Act.

3.72 Planning applications which have the potential to impact on biodiversity will need to be accompanied by ecological surveys which incorporate a biodiversity impact assessment, describing the biodiversity interest of the site, and the nature and extent of any impact of the proposed development. They should outline any mitigation measures and the steps to be taken to retain, incorporate, protect, enhance and where appropriate manage the biodiversity interest, as part of the proposals.

3.73 Use of guidance for developers such as the SPD on Biodiversity and Trees, and the emerging Green Infrastructure Strategy for North Somerset will be particularly useful.

3.74 The council and developers will liaise and work closely with the various advisory bodies and interest groups on biodiversity, including for example Natural England, the Avon Biodiversity Partnership, Avon Wildlife Trust, the Bristol Regional Environmental Records Centre (BRERC), North Somerset Parish Wildlife Wardens, etc.

Monitoring and review

3.75 As a general approach, it would be prudent to monitor whether the principle that there should be no net loss of native habitat and species, and where possible net gain, as a result of development is being upheld. Use of Local Area Agreement measures for biodiversity, and also national indicators, such as implementation of active conservation management of local sites, would also be appropriate.

Policy EH4 – Landscape and Wildlife Preservation Measures

a) Development proposals should maintain and enhance the connectivity of all green corridors and not result in the loss or deterioration of irreplaceable habitats, including local wildlife sites, aged or veteran trees and hedges. Development proposals for new dwellings should demonstrate how they have incorporated appropriate measures to ensure the connectivity of any green corridor and the freedom of movement for species on or through the site.

b) As appropriate to their location and the scale development proposals should be designed to limit the impact of light pollution from artificial light on local amenity and nature conservation.

c) As appropriate to their location and the scale development proposals should include natural landscaping using native species and incorporate existing hedgerows, wetland areas and other wildlife features where it is practicable to do so.

d) As appropriate to their location and scale development proposals should provide buffer zones to sites of special scientific interest, local nature reserves and local wildlife sites in general, and in relation to the Strawberry Line in particular where it is practicable to do so.

e) Development proposals should take into consideration and provide where appropriate mitigating measures against the harmful impact of noise pollution on animal life.

Justification for Policy EH4

The North Somerset and Mendip Bats SAC is designated under the Habitats Directive 92/43/EEC, which is transposed into UK law under the Conservation of Habitats and Species Regulations 2010 (as amended) ('Habitat Regulations"). This means that the populations of bats supported by this site are of international importance and therefore afforded high levels of protection, placing significant legal duties on decision-makers to prevent damage to bat roosts, feeding areas and the routes used by bats to travel between these locations. Any development must take into consideration the North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance: Supplementary Planning Document (http://www.n-somerset.gov.uk/wp-content/uploads/2015/12/North-Somerset-and-Mendip-Bats-SAC-guidance-supplementary-planning-document.pdf Adopted Jan 2018) to conserve and protect the vital habitats.

Artificial light offers valuable benefits to society. It is an essential aid to safety and facilitates a thriving night-time economy. However, if used incorrectly, artificial light can contribute to a range of problems, with the potential to become light pollution. Artificial light can not only be a source of annoyance to people, it can be harmful to wildlife, waste energy and detract from the enjoyment of the night sky. Any development must strive to protect wildlife and respect the rural environment with lighting that includes low level shielded lighting in wildlife corridors, and lighting curfews in industrial/commercial areas.

North Somerset and Mendip Bats SAC – potential impacts and mitigation measures identified within local planning policy and related documents

Habitat Regulations Assessments of Plans

Habitats Regulations Assessment (HRA; April 2016) of the re-adopted North Somerset Core Strategy (January 2017)

The HRA (April 2016) of the re-adopted North Somerset Core Strategy (re-adopted January 2017) considered potential disturbance of bats associated with the SAC from increased noise and light, along with potential loss of foraging area or disruption to commuting routes (particularly hedgerows and pasture), as possible effects from new housing development in North Somerset (Policies CS13: Scale of New Housing, CS14: Distribution of new housing, and CS32: Service Villages).

Habitats Regulations Assessment (HRA; June 2015) of the Sites and Policies Plan (Part 1): Development Management Policies (adopted July 2016)

The HRA (June 2015) of the Sites and Policies Plan (Part 1): Development Management Policies (adopted July 2016) highlights the following potential effects on the North Somerset and Mendip Bats SAC as a result of the following Core Strategy policies:

- CS13 (Scale of New Housing) and CS14 (Distribution of new housing) - potential disturbance from increased noise/light; potential loss of foraging area particularly hedgerows and pasture.
- CS32 (Service Villages) - Possible impact of artificial lighting associated with new development if inappropriately designed.

Habitats Regulations Assessment (HRA, October 2016) of the Sites and Policies Plan (Part 2): Site Allocations Plan.

The HRA (October 2016) of the Sites and Policies Plan (Part 2): Site Allocations Plan (adoted April 2018) considered potential disturbance of bats associated with the SAC from increased lighting, along with potential loss of foraging area or disruption to commuting routes as possible effects of from new housing allocations (Policy SA1: Housing Allocations).

Conclusion of the HRAs

The above HRAs conclude that, providing appropriate mitigation is implemented, there would not be a Likely Significant Effect (LSE) on the North Somerset and Mendip Bats SAC as a result of the implementation of the policies within the Core Strategy and the Sites and Policies Plan Parts 1 and 2.

Mitigation and avoidance measures in the HRAs

In outlining mitigation and avoidance measures with respect to North Somerset and Mendip Bats SAC for Policies CS13 (Scale of New Housing), CS14 (Distribution of New Housing), and CS32 (Service Villages), the HRAs of the re-adopted Core Strategy (April 2016) and the Sites and Policies Plan (Part 1): Development Management Policies (June 2015) identified the following:

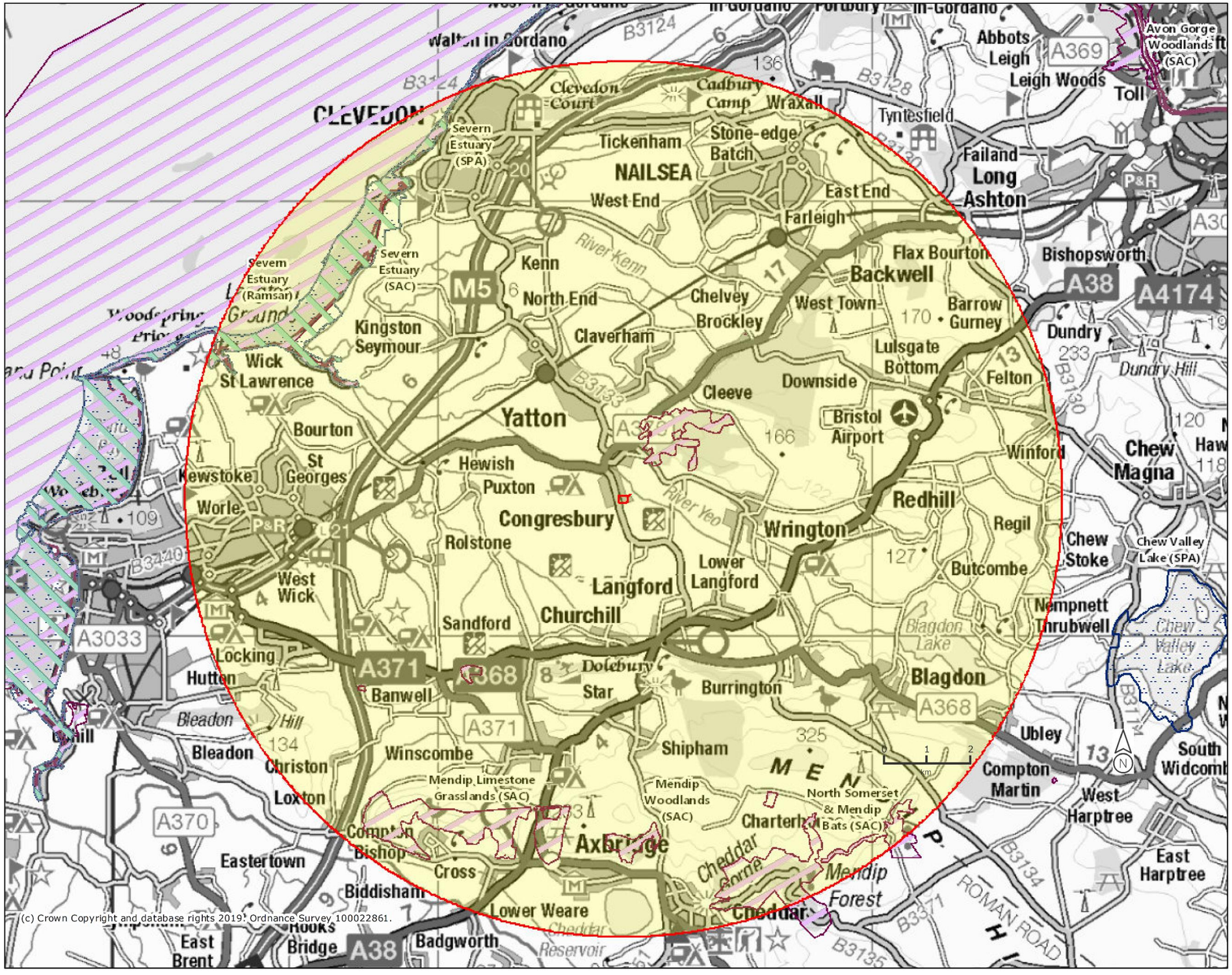
- References to be made in the nature conservation policy of the Site Allocations Plan to the need for any lighting scheme to avoid negative impacts on light-averse wildlife, and where necessary effective design to avoid artificial light spill to wildlife habitats/corridors.
- Retention of dark vegetated corridors within green infrastructure to form part of any large-scale development.
- A site-wide lighting strategy, incorporating a lighting contour plan with details of light intensity and hours of lighting operation, will be required on large-scale developments.

- Consideration should be given to providing green (living) roofs on suitable large buildings. This should be covered with local substrates or grass rather than sedum species to maximise its value for wildlife conservation and foraging bats.
- Off-site areas to be grazed to benefit horseshoe bats may be required.
- Possible provision of buffers with suitable habitat.
- Guidance on development relating to the Bats SAC is to be prepared (the North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development: Supplementary Planning Document (SPD) was subsequently drafted and adopted in January 2018).

With respect to mitigation and avoidance measures, the HRA of the Sites and Policies Plan (Part 2): Site Allocations Plan states that mitigation would be ensured through the application of the North Somerset and Mendip Bats SAC Guidance on Development SPD and application of relevant policies of the Sites and Policies Plan (Part 1): Development Management Policies such as policy DM8: Nature Conservation.

Appendix 6: Designated sites of nature conservation importance

European Designated Sites Within 10km



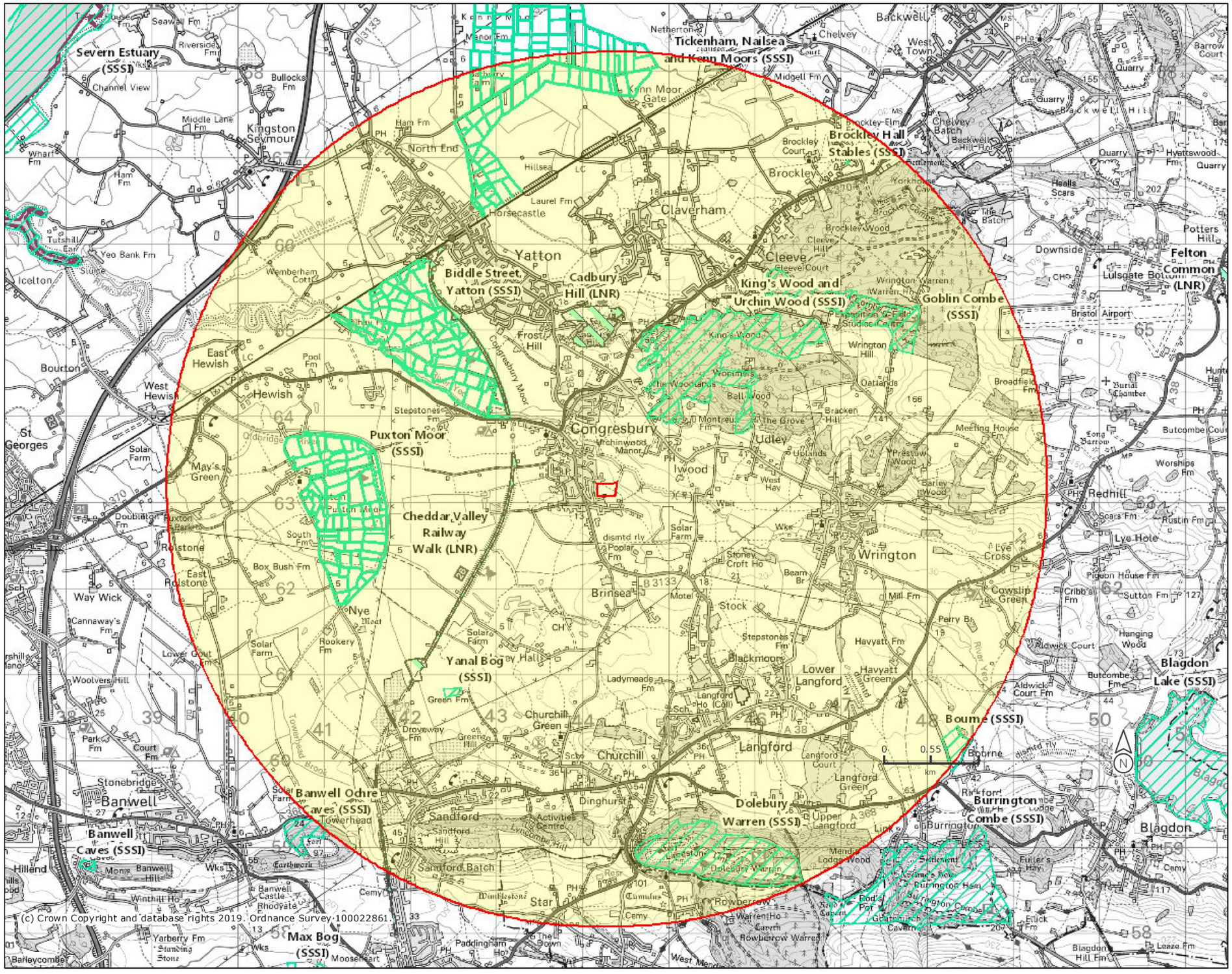
Legend

- Ramsar Sites (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)

Projection = OSGB36
xmin = 321800
ymin = 152100
xmax = 366400
ymax = 174800

0 1.5 3 km

National Designated Sites Within 5km

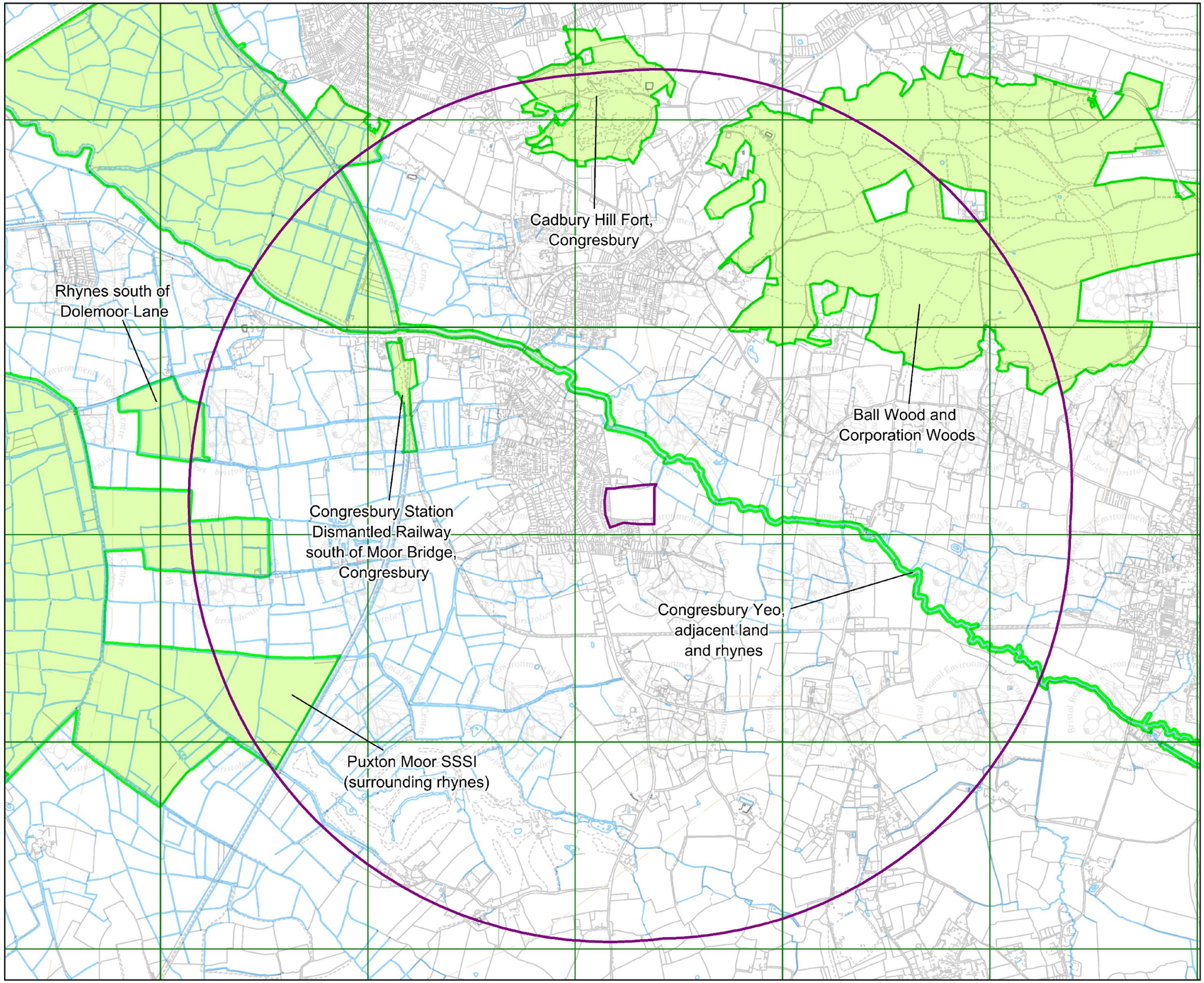


Legend

- Local Nature Reserves (England)
- National Nature Reserves (England)
- Sites of Special Scientific Interest (England)

Projection = OSGB36
xmin = 333200
ymin = 157500
xmax = 355600
ymax = 168900

0 0.85 1.7
km



Enq0148

P1031 Mulberry Road Congresbury

SNCI

2km buffer

Compiled by BRERC on 11/09/2019

BRERC
Blaise Castle House Museum
Henbury Rd
Bristol
BS10 7QS

Bristol Regional Environmental Records Centre
Sorbus bristoliensis

Appendix 7: Hedgerow survey results

Hedgerow survey results

1 Methodology

A hedgerow survey was undertaken on 24 August 2020 in accordance with survey guidelines by Defra (2007). The survey focused on the ecological component of the hedgerow assessment; no cultural heritage aspects were assessed. For each hedgerow, the central 30m section of each 100m was surveyed in detail, identifying woody and woodland indicator species present. Other features, such as the presence of a ditch, wall or trees were also noted. Each hedgerow was then assessed against the criteria set out in the Hedgerows Regulations 1997 to establish whether or not it qualified as 'important'.

2 Results

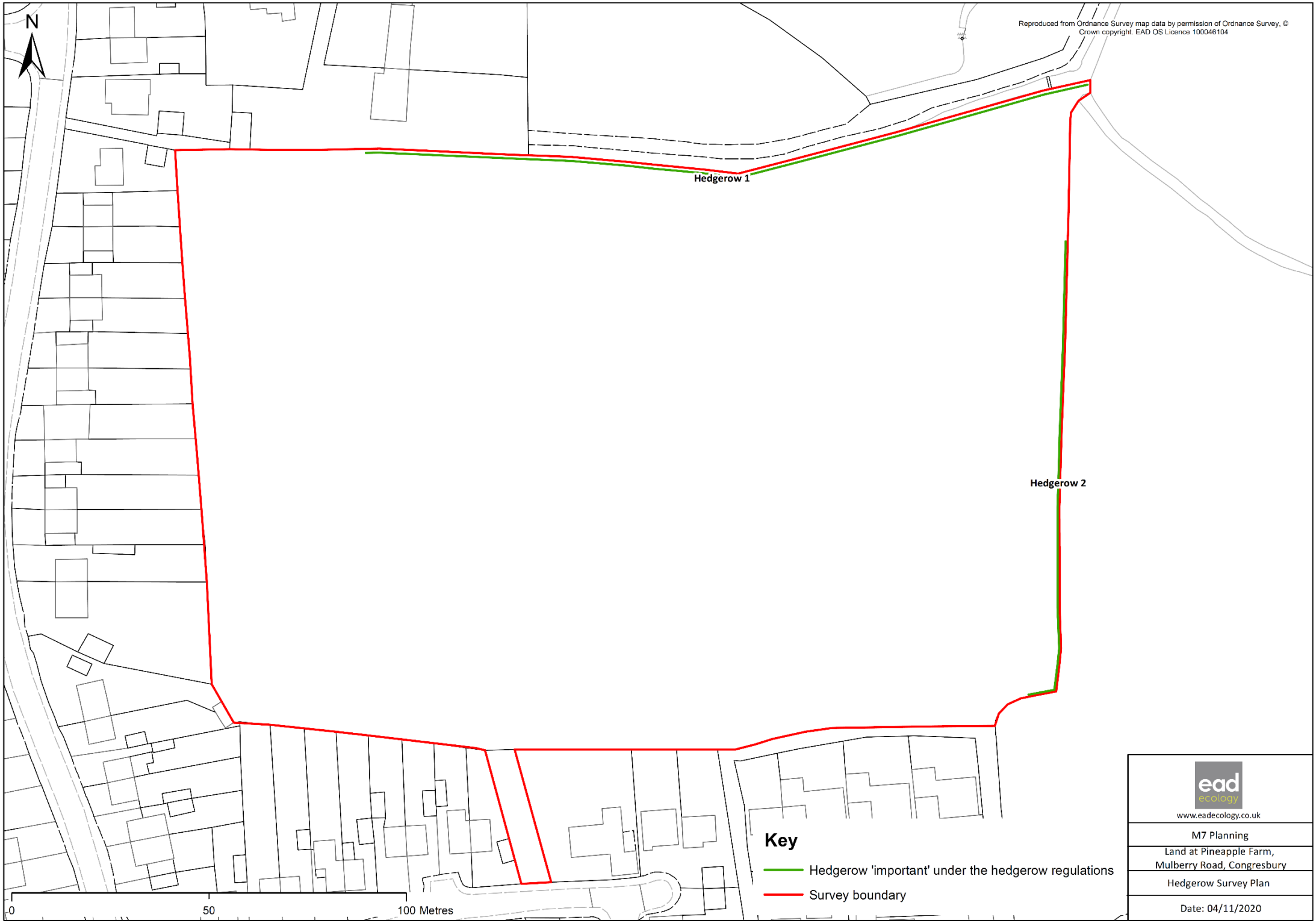
The results of the hedgerow survey are presented on Table A7.1 and the Hedgerow Survey Plan. Two hedgerows were surveyed and assessed as ecologically 'important'. Two further hedgerows were present on site but were not assessed against the Hedgerows Regulations Criteria as they formed the garden boundaries of residential housing. The locations of the 'important' hedgerows are shown on the Hedgerow Survey Plan below.

3 References

Defra (2007) *Hedgerow Survey Handbook – a standard procedure for local surveys in the UK.* Defra, London.

Table A7.1 Hedgerow survey results

Hedgerow number	Length (metres approx.)	Presence of protected/notable species	Parallel to right of way	Gaps <10% hedgerow length	Parallel to hedgerow within 15m	Wall/bank over half length of hedgerow	Ditch over half length of hedgerow	Number of connections	At least one standard tree per 50m length	Woody species	Average number of woody species in 30m length	Woodland indicator species	Number of woodland indicator species	Important?
1	214	No	✓	✓	✓	X	✓	7	X	Field maple, hawthorn, blackthorn, willow sp., hazel, dogwood, ash and elm	4.3	Herb Robert, lords-and-ladies,	2	**Yes**
2	165	No	✓	✓	X	X	✓	7	X	Blackthorn, elm, hawthorn, hazel, rose, dogwood, field maple and lime sp.	5.5	Primrose, lords-and-ladies	2	**Yes**


N
Reproduced from Ordnance Survey map data by permission of Ordnance Survey, © Crown copyright. EAD OS Licence 100046104
Hedgerow 1
Hedgerow 2
Key
Hedgerow 'important' under the hedgerow regulations
Survey boundary
0
50
100 Metres
ead ecology
www.eadecology.co.uk
M7 Planning
Land at Pineapple Farm, Mulberry Road, Congresbury
Hedgerow Survey Plan
Date: 04/11/2020

Appendix 8: Reptile survey results

Reptile survey

1 Methodology

A reptile survey was undertaken according to standard methodology (Froglife 1999). A total of 60 artificial refuges (0.5m x 0.5m roofing felt tiles) were placed in suitable habitats within the survey area on 17 June 2020 and checked on seven occasions in appropriate weather conditions in July and August 2020 (refer to Table A8.1 and reptile survey plan below).

2 Results

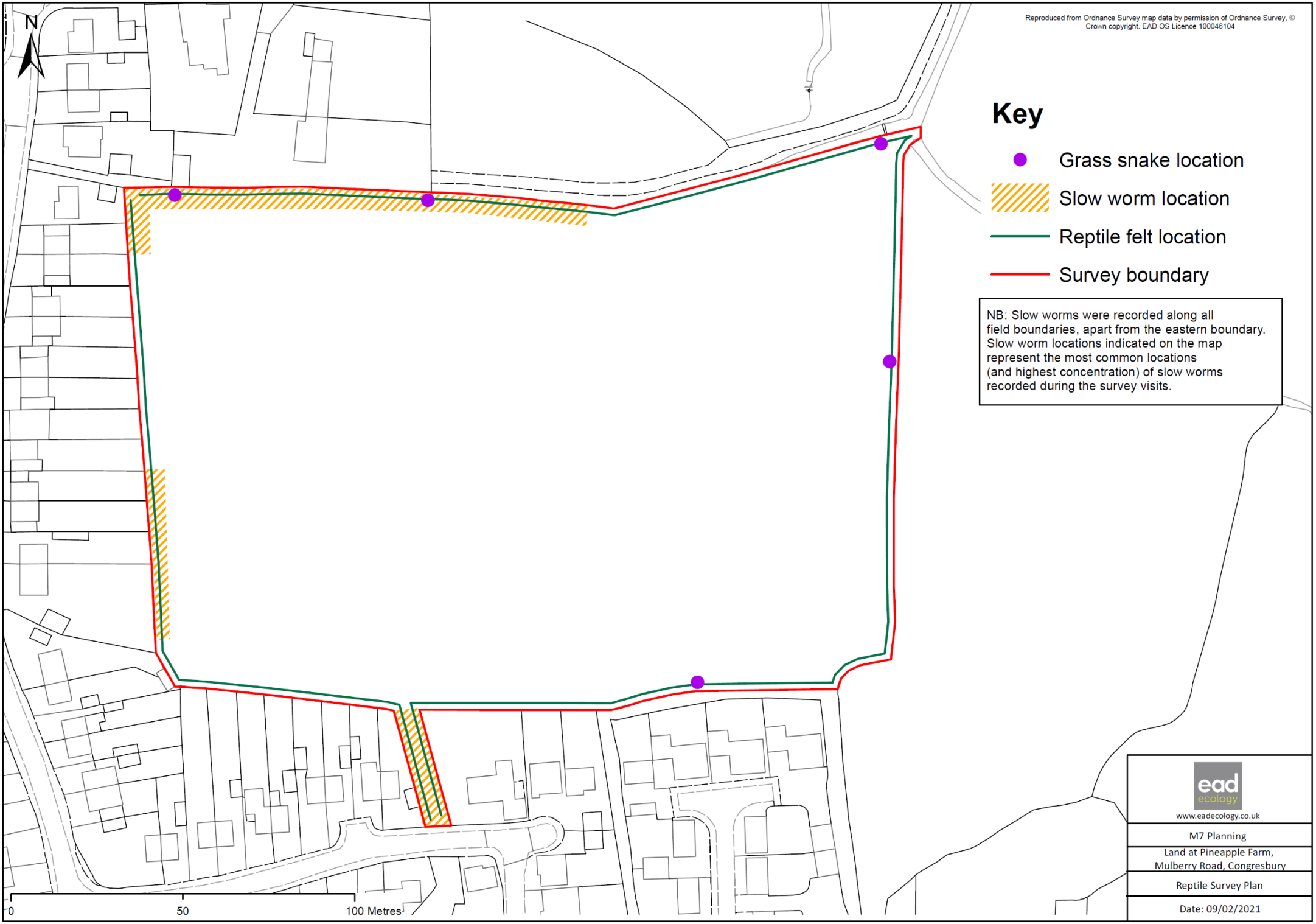
The survey results are shown in Table A8.1 below. An 'exceptional population' of slow worms (maximum count 53) and 'low population' of grass snakes (maximum count 5) were recorded across the site (Froglife, 1999).

Table A5.1 Reptile survey results

Visit number	Date	Start Time	Temperature ('C)	Cloud cover	Wind force	Results
1	08.07.2020	12:15	17˚C	8/8	1-2	34 slow-worms (15 male and 19)
2	15.07.2020	11:45	17 ˚C	8/8	0-1	47 slow-worms (21 male, 22 female and 4 juvenile) 5 grass snakes
3	22.07.2020	09:30	17	1/8	0-1	19 slow-worms (6 male, 10 female and 3 juvenile)
4	28.07.2020	10:00	16 ˚C	2/8	1-2	19 slow-worms (6 male and 13 female)
5	03.08.2020	10:30	16 ˚C	8/8	1	41 slow-worms (14 male, 19 female and 8 juvenile)
6	19.08.2020	14:00	19 ˚C	8/8	2	20 slow-worms (6 male, 14 female and 10 juvenile) 2 grass snakes
7	24.08.2020	15:00	19 ˚C	7/8	2	32 slow-worms (8 male, 16 female and 8 juvenile) 3 grass snakes (2 adults and 1 juvenile)

3 References

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



ead ecology
www.eadecology.co.uk

M7 Planning

Land at Pineapple Farm, Mulberry Road, Congresbury

Reptile Survey Plan

Date: 09/02/2021

Appendix 9: Hazel dormouse survey results

Hazel dormouse survey

1 Methodology

A dormouse survey was undertaken following standard methodology (Bright et al. 2006) and under Natural England dormouse survey licence. Dormouse nesting tubes were installed within hedgerows on 27 September 2019. Dormouse surveys were subsequently completed in October 2019, November 2019 and once a month between May and August 2020. 50 dormouse nest tubes were installed giving an index score of 25; the suggested minimum score for adequate survey effort is 20 (Chanin & Woods 2003). A feeding sign/ nut search survey was undertaken in September 2019

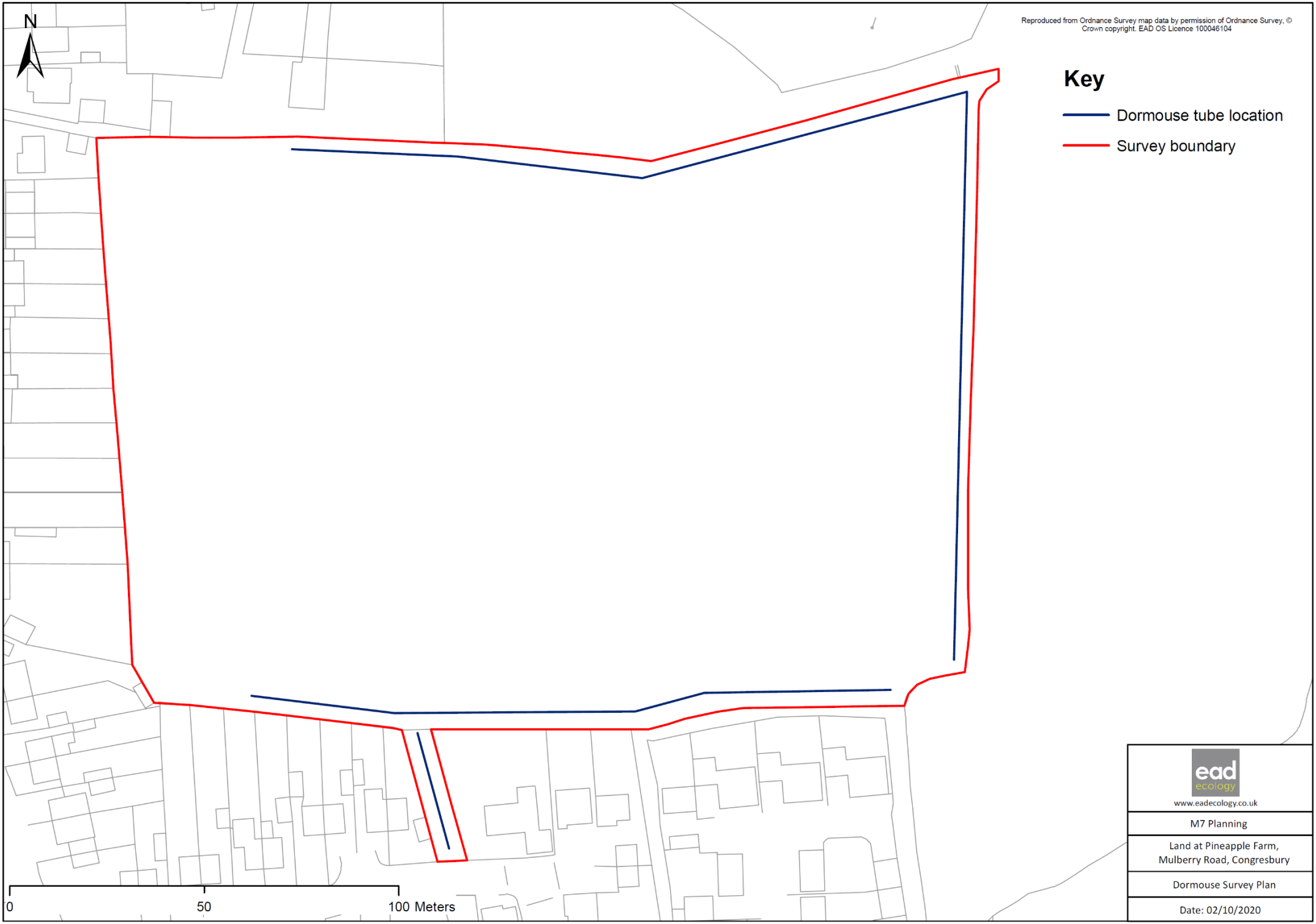
2 Results

No signs of hazel dormice were recorded during the nest tube survey or feeding sign survey. Refer to the Dormouse Survey Plan for dormouse nesting tube locations.

3 References

Bright, P., Morris, P and Mitchell-Jones, T 2006. *The Dormouse Conservation Handbook 2nd edition.* English Nature, Peterborough.

Chanin, P & Woods, M (2003). Surveying dormice using nest tubes. Results and experiences from the South West Dormouse Project. English Nature Research Report No. 524


N
Reproduced from Ordnance Survey map data by permission of Ordnance Survey, © Crown copyright. EAD OS Licence 100046104
Key
Dormouse tube location
Survey boundary
0
50
100 Meters
ead ecology
www.eadecology.co.uk
M7 Planning
Land at Pineapple Farm, Mulberry Road, Congresbury
Dormouse Survey Plan
Date: 02/10/2020

Appendix 10: Badger survey results

Badger survey

1 Methodology

A badger survey was undertaken in accordance with the Mammal Society publication 'Surveying badgers' (Harris et al, 1989). A search for badger setts and other badger activity (e.g. hairs, pathways, latrines, and foraging signs) was carried out within the site and surrounding area (30m from site boundary where access allowed) on 21 October 2019.

2 Results

No setts or other signs of badger activity were recorded on site. Habitats within the site provided suitable habitat for badger, and are likely to be used periodically.

3 References

Harris, S, Cresswell P & Jeffries D (1989) *Surveying Badgers.* The Mammal Society, London.

Appendix 11: Bat survey results

Bat survey results

1 Methodology

1.1 Preliminary roost assessment

All trees within the survey area were subject to a ground-based inspection and assessment of their potential to support roosting bats on 26 September 2019, following Bat Conservation Trust (BCT) Guidelines (Collins [ed.]2016; refer to Table A11.1). This involved a detailed inspection of each tree using binoculars to record potential bat roosting features such as rot holes, woodpecker holes and hazard beams. Trees assessed as having 'Negligible bat roost suitability were not recorded. There were no buildings or structures within the site.

Table A11.1 Guidelines for assessing the potential suitability of proposed development sites for bats (adapted from Collins, 2016)

Suitability	Description of Roosting habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of the species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

1.2 Activity survey

The bat activity survey was undertaken in accordance with *North Somerset and Mendip Bats SAC Guidance on Development Version 2.1* (Burrows, 2019) and current BCT guidelines (Collins [ed.] 2016). The survey comprised two elements: transect survey and static detector survey.

1.3 Activity survey – transect survey

A transect survey was carried out on 10 occasions between September and October 2019, and April and August 2020 in appropriate weather conditions; refer to Table A11.2. On each occasion, two surveyors walked a pre-determined transect route at a constant pace; refer to Bat Activity Plan for transect route. Surveys began at sunset and continued for at least three hours. Surveyors carried Anabat Express (Titley Electronics Ltd) bat detectors in order to record and GPS tag bat registrations for later analysis, and Batbox Duet bat detectors to aid bat identification during the survey. Notes on the presence of early bats, multiple bats and observations of behaviour including the height, direction and pattern of commuting/ foraging activity were made where possible. In order to facilitate the production of a kernel density estimate plot of bat activity along the transect/transects, the start point of each transect was randomised between surveys. All surveys were carried out by suitably qualified ecologists.

Table A11.2: Weather conditions during bat transect surveys

Date	Data at start/end of survey period	Sunset	Cloud (Oktas)	Wind speed (Beaufort)	Temperature (C)
26.09.2019	Start: 19:04	19:04	3	1	16
	End: 22:04		2	2-3	15
21.10.2020	Start: 18:06	18:06	8	0-1	10
	End: 21:06		6	0-1	9
22.04.2020	Start: 20:19	20:19	4	0-1	18
	End: 23:19		0	0-1	14
28.05.2020	Start: 21:14	21:14	1	1	20
	End: 00:14		0	1	16
16.06.2020	Start: 21:30	21:30	2	3	15
	End: 00:30		0	2	14.5
13.07.2020	Start: 21:23	21:23	8	1	17
	End: 00:23		8	1	17
27.07.2020	Start: 21:06	21:06	1	1	18
	End: 00:06		0	2	15
11.08.2020	Start: 20:40	20:40	2	0-1	23
	End: 23:40		2	0-1	21
25.08.2020	Start: 20:11	20:11	8	8-9	19
	End: 23:11		6	8-9	18

1.4 Activity survey – static detector survey

In accordance with *North Somerset and Mendip Bats SAC Guidance on Development Version 2.1* (Burrows, 2019), two static bat detectors (Anabat Express, Titley Electronics) were deployed within the site on 20 September 2019, 14 October 2019, 14 April 2020, 19 May 2020, 17 June 2020, 13 July 2020 and 11 August 2020, for a cumulative total of 50 nights per detector.

2 Analysis

2.1 General

All bat registrations recorded during transect and static detector surveys were downloaded and analysed to species level, where possible, using 'AnalookW'. Species identification was carried out using data from known bat roosts, as well as stock recordings from other bat workers, and relevant literature (Russ, 2012). For both the transect and static detector surveys, 'registrations' for each species were defined as the series of pulses within a single Anabat Express Zero Crossing (ZC) file. The Anabat Express hardware imposes a limit of 15 seconds per file, but also a limit of 32k for the total file length and 16384 transitions within in the file (Chris Corben, Titley Electronics, pers. comm. 12/06/2017). Whilst this results in files of different length, consideration of a file as a single registration provides a consistent measure of relative activity for each species and total bat activity to enable comparison across the dataset.

2.2 Transect survey

The geotagged bat registrations recorded during the transect survey were processed, using the kde2d function from the MASS package (Venables & Ripley 2002) in R version 3.5.2 (R Core Team, 2018), to produce a kernel density estimate plot of overall bat activity along the transect route; refer to Bat Survey Plan. The locations of individual bat registrations for species of particular interest were overlain on to the kernel density plot. The kernel density plot enables a visual comparison of the estimated density of bat registrations along the transect, via a colour gradient. The kernel density plot is provided to aid the

visualisation of the density of bat registrations recorded along the transect, rather than as a means to estimate bat activity where recordings weren't made. The estimated density of bat registrations, as represented by the colour gradient, is relative only to the analysed dataset and should not be compared to other kernel density plots.

2.3 Static detector survey

The dataset from static detector surveys were processed to provide 'Bat Activity Index (BAI)' scores. The BAI was calculated as the number of registrations recorded per hour during the time the detectors were operational each night (bat detectors started recording half an hour before sunset to half an hour after sunrise). The BAI was calculated using R version 3.5.2 (R Core Team, 2018).

3 Results

Species name abbreviations used in the results hereafter are provided in Table A11.3.

Table A11.3 Bat species recorded

Common name	Scientific name	Species code
Common pipistrelle	*Pipistrellus pipistrellus*	Pp
Soprano pipistrelle	*P. pygamaeus*	Ppyg
Nathusius' pipistrelle	*P. nathusii*	Pn
Pipistrelle	*Pipistrellus sp.*	Pip
Noctule	*Nyctalus noctula*	Nn
Nyctalus bat	*Nyctalus sp.*	Ny sp.
Myotis bat	*Myotis sp.*	My sp.
Serotine	*Eptesicus serotinus*	Es
Serotine, Leisler's or noctule	*Eptesicus, serotinus or Nyctalus sp.*	EorNy
Long-eared bat	*Plecotus sp.*	Pl sp.
Greater horseshoe	*Rhinolophus ferrumequinum*	GHS
Lesser horseshoe	*Rhinolophus hipposideros*	LHS
Barbastelle	*Barbastelle barbastellus*	Bb

3.1 Roost survey

The results of the tree assessment are provided in Table A11.4. Within the survey area, six trees were assessed as having 'Moderate' roost suitability and one tree was assessed as having 'Low' roost suitability. A further three trees, located just outside the site boundary and within residential gardens, were assessed as having 'Moderate' roost suitability. Refer to Bat Tree Roost Assessment Plan for tree locations.

None of the trees within the site would be affected by the development therefore no further surveys were carried out.

Table A11.4 Preliminary roost assessment of trees - results

Tree	Species	Description of tree and features	% Ivy cover	Bat roost suitability
1	Ash	Mature, pollarded within garden. Three holes on northern side of trunk.	0	Moderate
2	Ash	Mature, within garden boundary. Poor visibility for thorough assessment of tree; appropriate age for potential suitable features.	0	Low
3	Ash	Mature, within garden boundary. Hollow, rotten trunk.	2	Moderate

Table A11.4 Preliminary roost assessment of trees - results

Tree	Species	Description of tree and features	% Ivy cover	Bat roost suitability
4	Ash	Mature. Knot hole on southwest elevation and hole on the end of a broken limb on the north-west side.	0	Moderate
5	Willow	Mature, multi-stemmed. Multiple cracks, holes and crevices throughout.	0	Moderate
6	Willow	Mature, multi-stemmed. Multiple cracks, holes and crevices throughout.	0	Moderate
7	Willow	Mature, multi-stemmed. Multiple cracks, holes and crevices throughout.	0	Moderate
8	Willow	Mature, multi-stemmed. Multiple cracks, holes and crevices throughout.	0	Moderate
9	Willow	Mature, multi-stemmed. Multiple cracks, holes and crevices throughout.	20	Moderate

3.2 Activity survey – transect survey

At least seven bat species were recorded during the ten transect survey sessions. Soprano pipistrelle was the most common bat recorded comprising 45% of all registrations, followed by common pipistrelle (30%). Other bat species included noctule (8.0%), Myotis species (6.0%) serotine (6.0%) and serotine/Nyctalus species (4.0%). Greater horseshoe, lesser horseshoe and Nyctalus bat species were also recorded and accounted for less than 1.0% of registrations.

Bat activity was predominantly concentrated along the mature willow tree line in the north east corner of the site and among mature ash trees in the south-west corner of the site; refer to the Bat Transect Survey Results Plan. Activity in these areas was dominated by common and soprano pipistrelle. Myotis activity was also concentrated along the mature willow tree line.

A concentration of common pipistrelle activity was recorded along the access track on the southern boundary of the site, with serotine and noctule also recorded in this area. Serotine and serotine/Nyctalus bat activity was concentrated within the south east corner of the site and visual observations were made of multiple bats foraging along hedgerows and between fields. Noctule bat activity was greatest in the centre of the field. Bat activity in the north-west corner of the site was very low and comprised a few common and soprano pipistrelle bat registrations.

Two greater horseshoe bat registrations were recorded during the ten transect survey sessions; one registration was recorded along the mature willow tree line in the north-east corner of the site and the other registration was recorded along the western boundary. One lesser horseshoe bat registration was recorded among the mature ash trees in the south-west corner of the site.

3.3 Activity survey – static detector survey

At least ten bat species were recorded during the static detector survey with an overall total of 27,852 registrations. Soprano pipistrelle and common pipistrelle were the most abundant species comprising 44% and 41% of all recordings respectively, followed by *Myotis* species (8.0%), lesser horseshoe (3.0%), greater horseshoe (1.26%) and noctule (1.02%). Other species recorded on static detectors but accounting for less than 1% of registrations were serotine/*Nyctalus* species, serotine, unidentified pipistrelle species, long-eared bat species, Nathusius' pipistrelle, barbastelle and *Nyctalus* species.

The highest overall levels of bat activity were recorded at Position 1, located along the mature willow tree line in the north-east corner of the site, which recorded a BAI of 26.47. Position 2, located within species-

poor hedgerow in the south-west corner of the site, recorded 20.69 bat registrations per hour on average (refer to Table A11.5 and Graph A11.1). Soprano pipistrelle was the most common species recorded at Position 1, followed by common pipistrelle and *Myotis* species. Common pipistrelle was the most common species recorded at Position 2, followed by soprano pipistrelle and *Myotis* species. Monthly bat activity level varied between positions; activity levels at Position 1 were highest in April, whilst activity levels at Position 2 were more consistent throughout the season with lower bat activity levels present in July and August (refer to Table A11.5 and Graph A11.2).

Greater horseshoe bat (GHS) activity was recorded on both static detectors in all surveyed months (April to October) except during October at Position 2. A total of 351 GHS registrations was recorded on static detectors, with a resultant BAI of 0.3. GHS activity was highest at Position 2. GHS activity was highest at both static positions in August; Position 1 recorded 38 registrations whereas Position 2 recorded 80 registrations. Greater horseshoe activity levels were very low in October with only one registration recorded at Position 1. Refer to Table A11.6, Graph A11.3, and Graph A11.4.

Lesser horseshoe bats were recorded at both static positions. Position 1 recorded higher levels of lesser horseshoe bat activity than Position 2; a total of 549 registrations (BAI 0.93) and 204 registrations (BAI 0.35) were recorded, respectively (refer to Table A11.6 and Graph A11.3). Monthly lesser horseshoe bat activity levels varied between positions; activity levels at Position 1 were highest in April and September, whereas higher activity levels recorded at Position 2 were in October. No lesser horseshoe bats were recorded in July or August at Position 2 and in June at Position 1 (refer to Table A11.6 and Graph A11.5).

Further analysis of the data set for GHS and LHS bats was undertaken to determine whether commuting or foraging activity had occurred, as defined by NSMB SAC guidance which states:

'Call sequences (ultrasonic registrations) with a negative minute on either side of the (i.e. a minute in which the species was not recorded) are judged to be commuting contacts, whereas contacts in two consecutive minutes or more are judged to be foraging contacts. Foraging is defined as 6 or more such minutes over any three nights in the five nights on any one automated detector during the recording period.'

The analysis consisted of a manual search of the GHS and LHS static detector data set for patterns of activity which fitted the above definition of 'foraging'. There were no incidences of GHS foraging as defined above, but there were incidences of LHS foraging.

4 References

Burrows, L (2019) *North Somerset and Mendip Bats Special Area of Conservation (SAC). Guidance on Development (Version 2.1)*.

Collins J (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London.

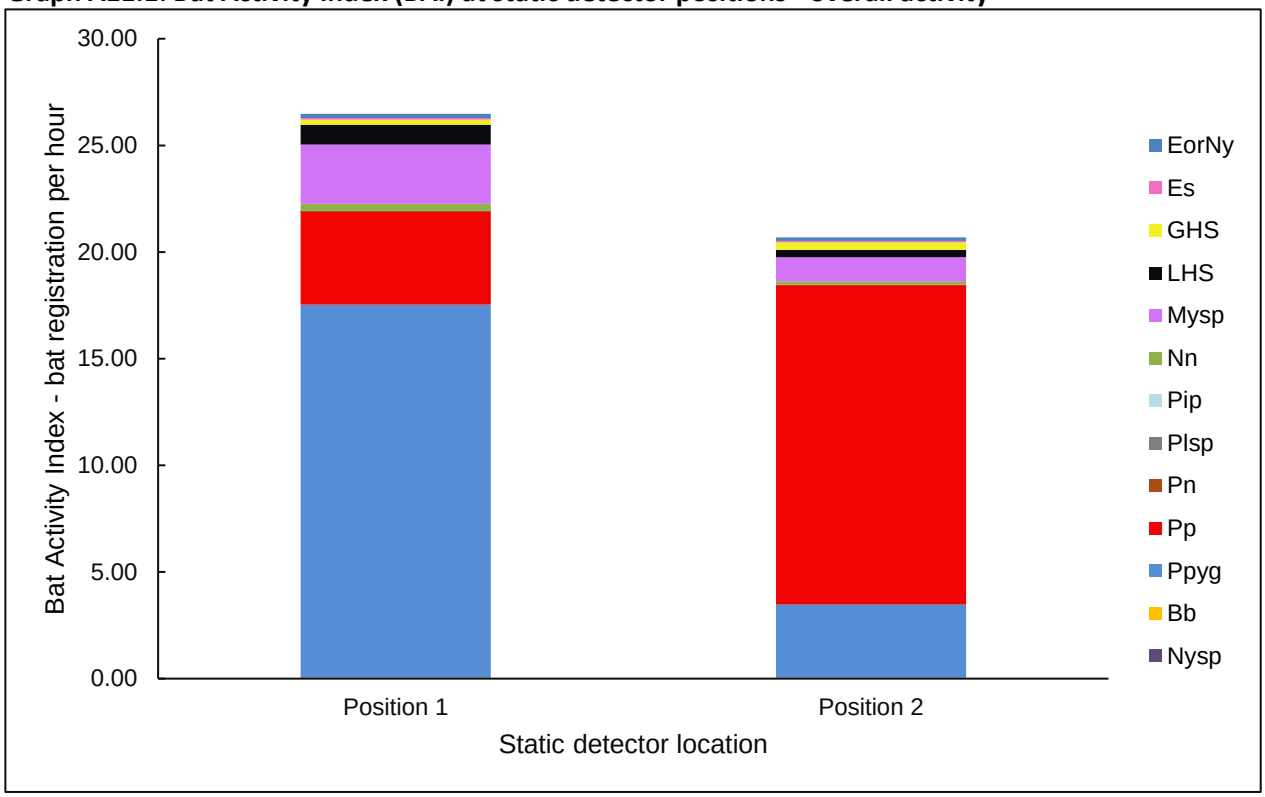
English Nature (2004) *Species Conservation Handbook*. English Nature, Peterborough.

Russ J (2012) *British Bat Calls: A guide to Species identification.* Pelagic Publishing, Exeter.

Table A11.6. Bat Activity Index (BAI) at static detector positions

Static Detector Location	Month	EorNy	Es	GHS	LHS	Mysp	Nn	Pip	Plsp	Pn	Pp	Ppyg	Bb	Nysp
1	Apr	0.18	0.02	0.22	3.71	10.57	0.13	0.01	0.06	0.02	14.97	58.65	0.00	0.00
	May	0.33	0.00	0.31	0.14	2.85	0.76	0.00	0.01	0.00	1.26	7.66	0.00	0.01
	Jun	0.29	0.00	0.31	0.00	0.73	0.02	0.02	0.00	0.00	1.36	3.69	0.00	0.00
	Jul	0.15	0.02	0.19	0.11	1.64	0.60	0.01	0.00	0.00	5.40	9.65	0.00	0.11
	Aug	0.16	0.01	0.46	0.02	0.23	0.60	0.00	0.01	0.00	2.72	8.18	0.01	0.17
	Sep	0.16	0.47	0.23	2.09	2.92	0.13	0.00	0.04	0.00	4.36	25.21	0.00	0.01
	Oct	0.07	0.00	0.01	0.12	0.08	0.00	0.00	0.00	0.00	0.25	5.66	0.00	0.00
	Total	**0.18**	**0.08**	**0.24**	**0.93**	**2.79**	**0.32**	**0.01**	**0.02**	**0.00**	**4.37**	**17.49**	**0.00**	**0.04**
2	Apr	0.10	0.01	0.02	0.07	1.26	0.14	0.00	0.01	0.00	22.20	1.09	0.00	0.03
	May	0.53	0.07	0.22	0.17	0.41	0.32	0.00	0.11	0.00	12.44	4.10	0.00	0.12
	Jun	0.32	0.00	0.39	0.51	1.84	0.39	0.00	0.02	0.00	17.19	1.00	0.00	0.05
	Jul	0.09	0.00	0.12	0.00	0.07	0.12	0.00	0.00	0.00	0.10	12.00	0.00	0.02
	Aug	0.06	0.01	0.96	0.00	0.54	0.16	0.00	0.00	0.00	1.54	2.12	0.01	0.08
	Sep	0.04	0.36	0.85	0.36	2.09	0.09	0.00	0.00	0.00	19.81	2.37	0.00	0.00
	Oct	0.04	0.01	0.00	1.20	1.70	0.00	0.00	0.00	0.00	28.36	1.42	0.00	0.00
	Total	**0.16**	**0.07**	**0.36**	**0.35**	**1.13**	**0.16**	**0.00**	**0.02**	**0.00**	**14.98**	**3.42**	**0.00**	**0.04**

Graph A11.1: Bat Activity Index (BAI) at static detector positions - overall activity



Graph A11.2: Bat Activity Index per month for Static Positions

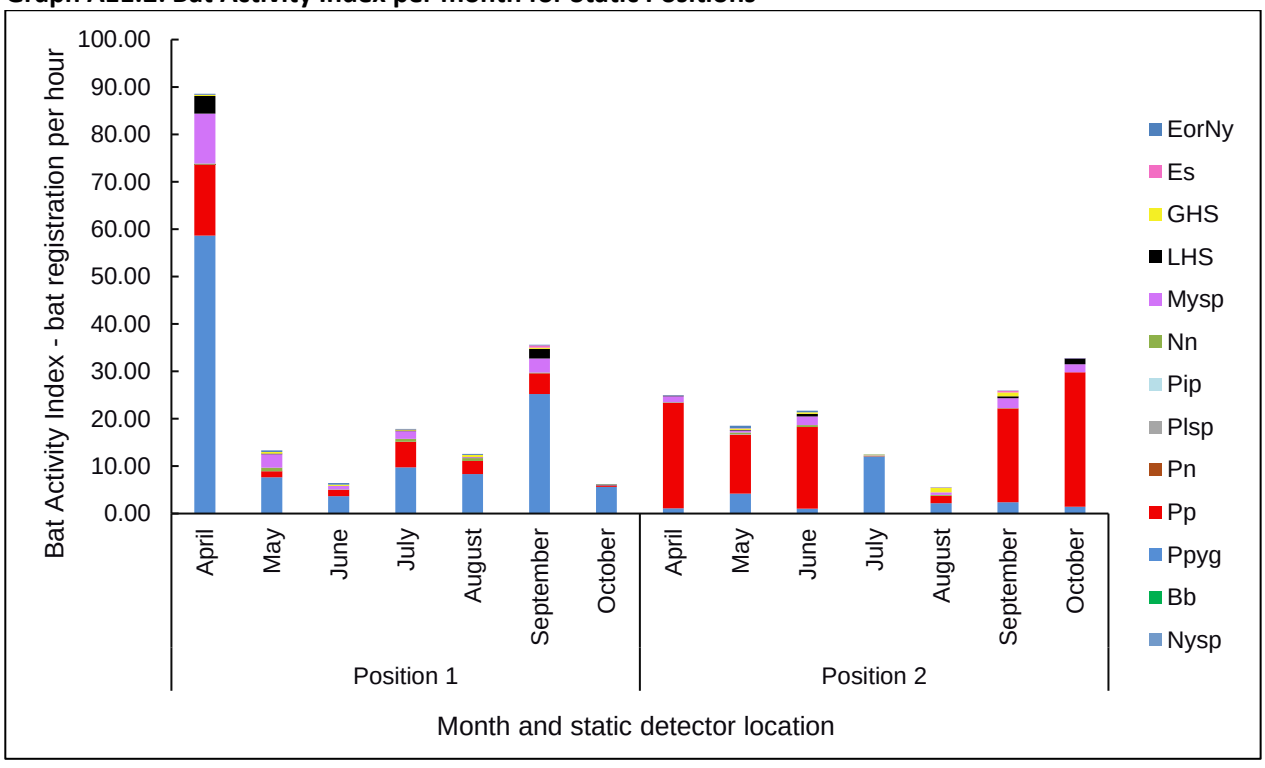
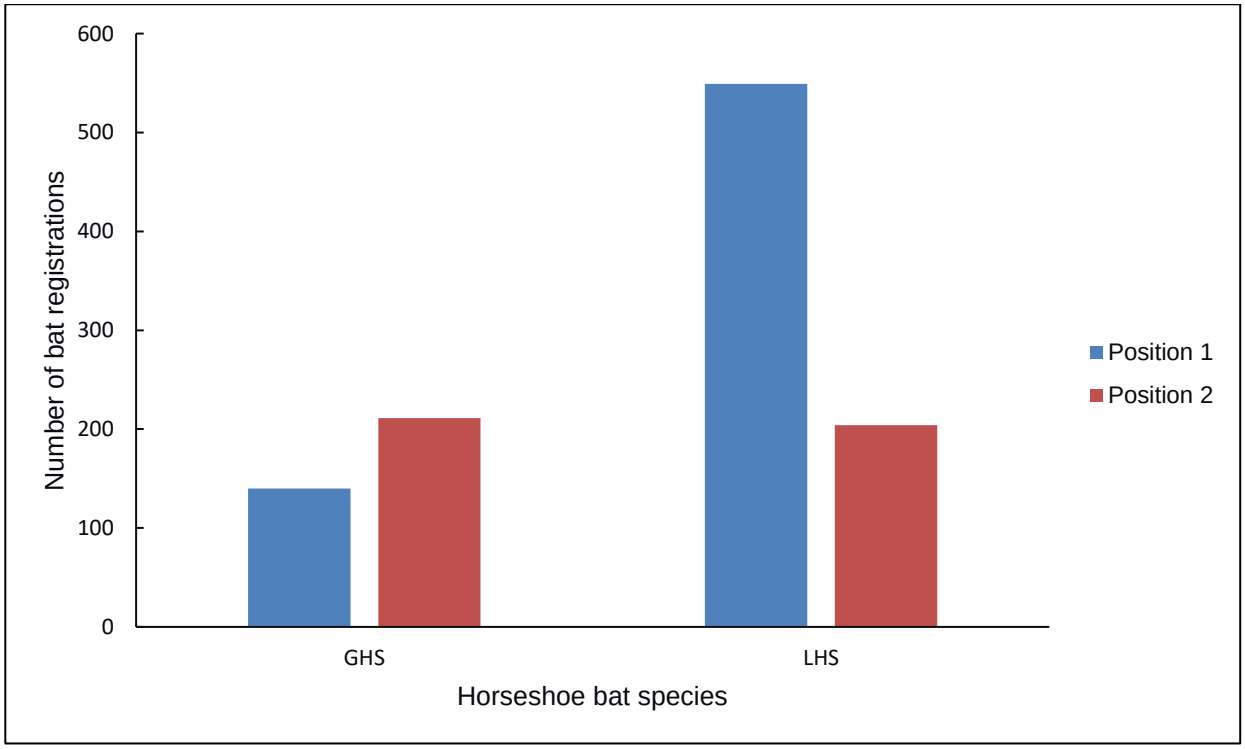


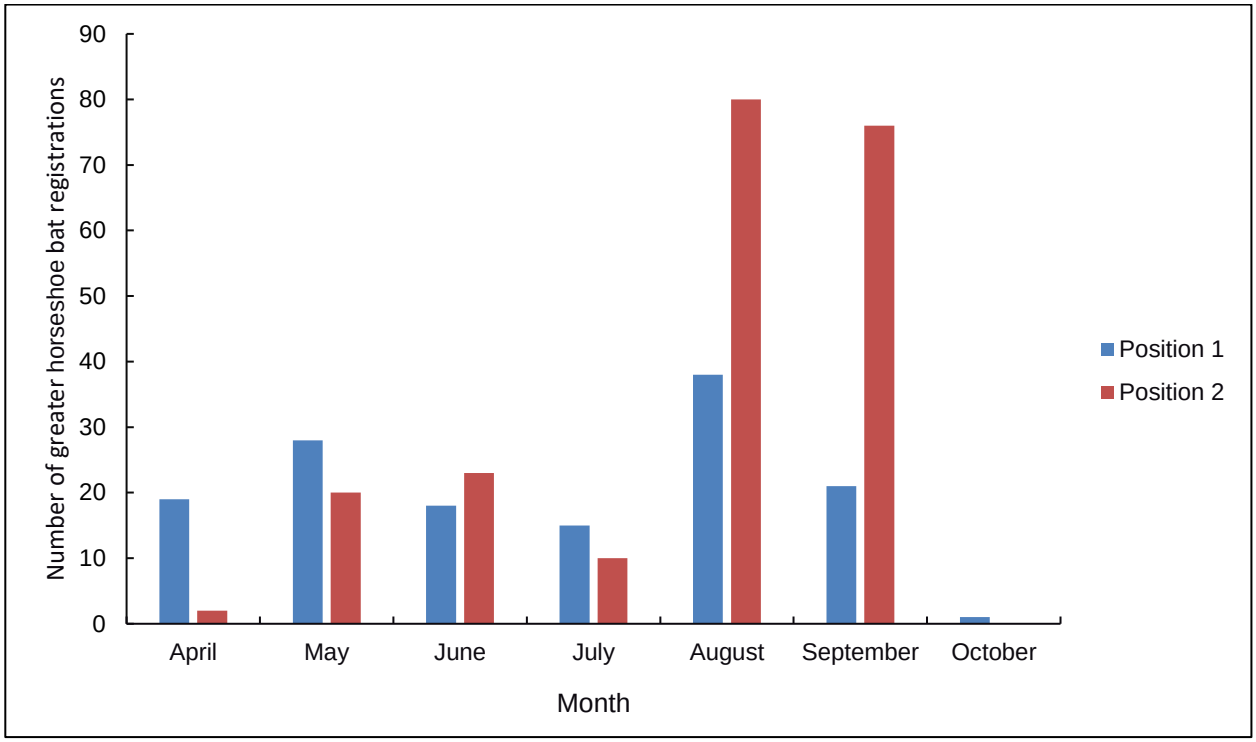
Table A11.7: Summary of the number of greater horseshoe and lesser horseshoe bat registrations recorded during the static detector surveys.

		Greater Horseshoe Bat	Lesser Horseshoe Bat
Position 1	April	19	325
	May	28	13
	June	18	0
	July	15	9
	August	38	2
	September	21	188
	October	1	12
	Total	**140**	**549**
Position 2	April	2	6
	May	20	15
	June	23	30
	July	10	0
	August	80	0
	September	76	32
	October	0	121
	Total	**211**	**204**

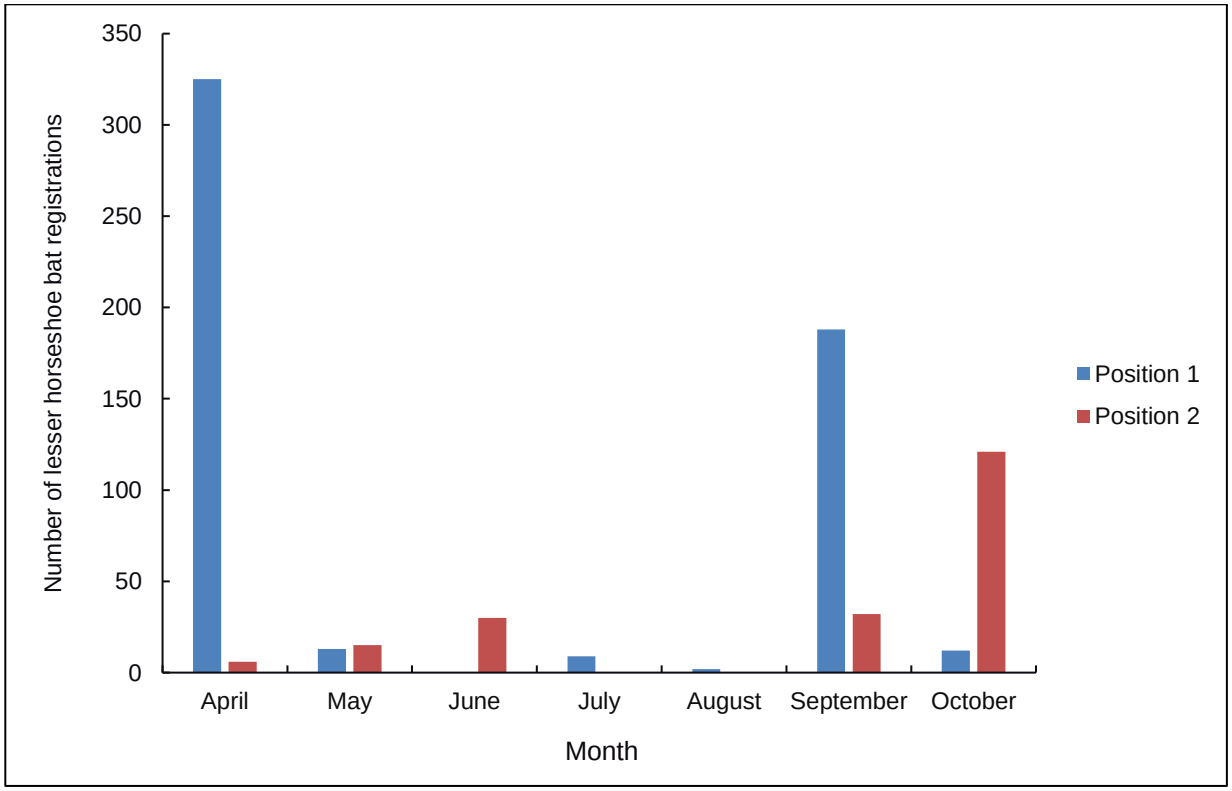
Graph A11.3: Total number of greater horseshoe and lesser horseshoe bat registrations at static detector positions – overall activity

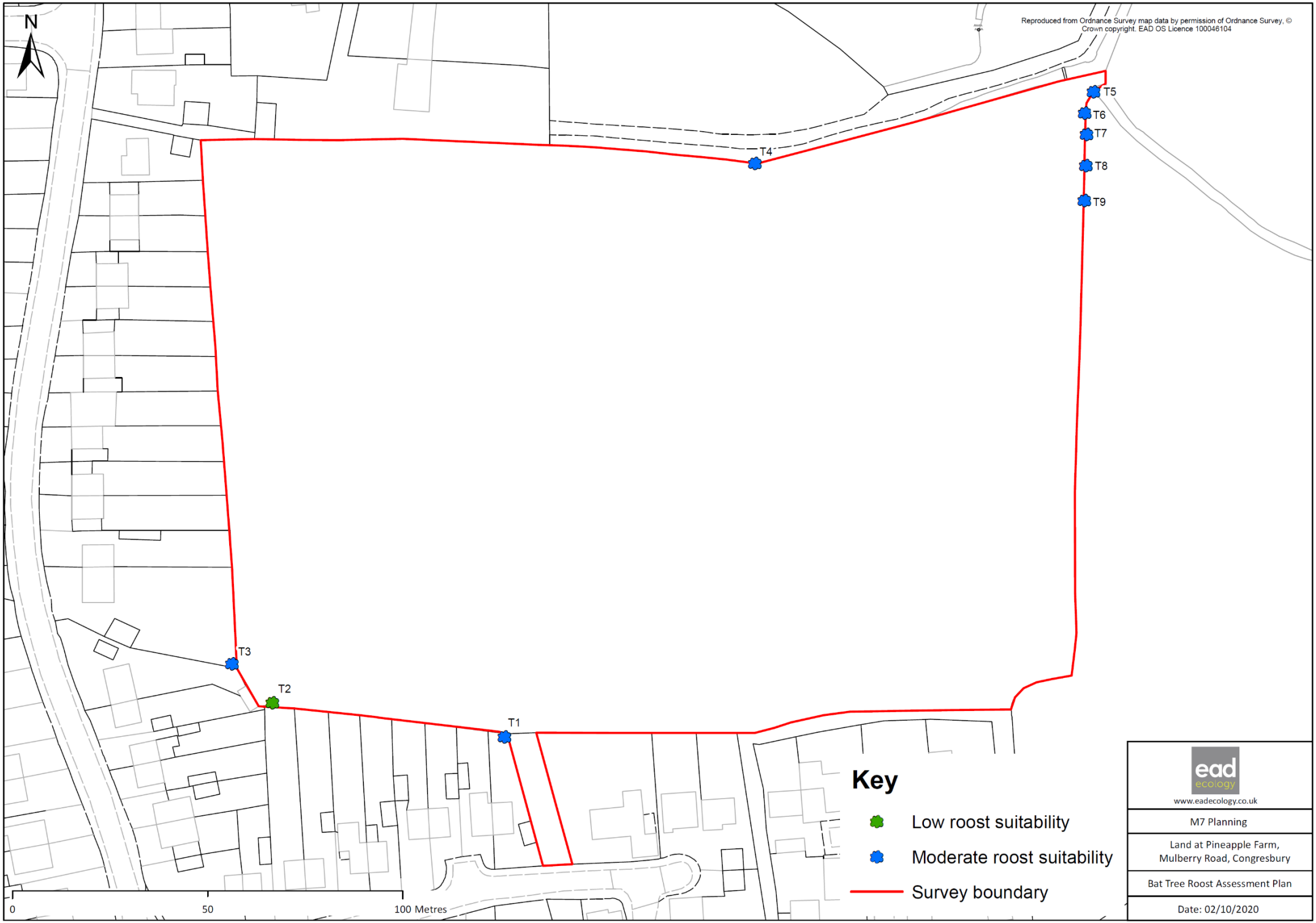


Graph A11.4: Greater horseshoe bat registrations per month for Static Positions



Graph A11.5: Lesser horseshoe bat registrations per month for Static Positions

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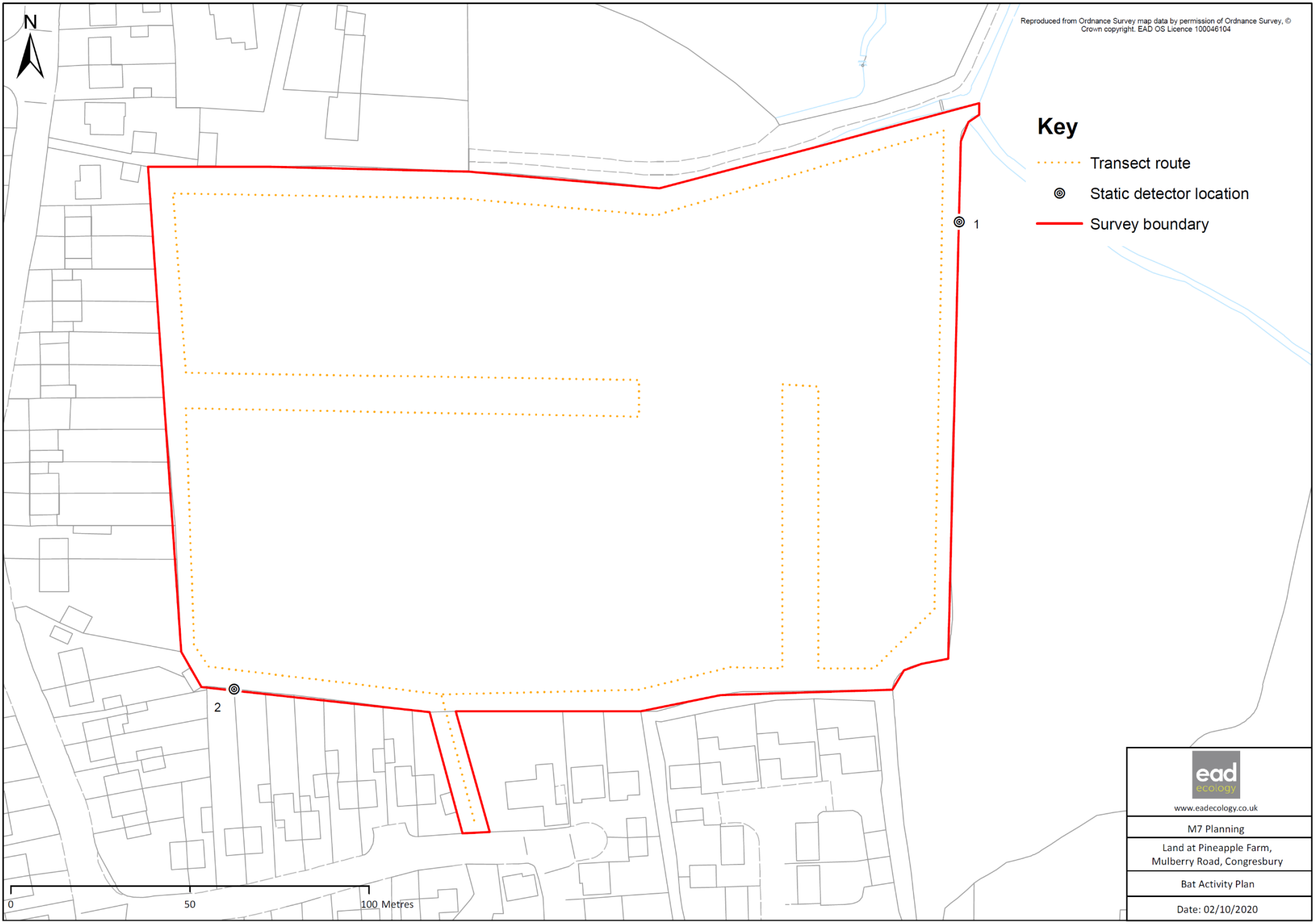
Reproduced from Ordnance Survey map data by permission of Ordnance Survey, © Crown copyright. EAD OS Licence 100046104
T1
T2
T3
T4
T5
T6
T7
T8
T9
0
50
100 Metres
Key
Low roost suitability
Moderate roost suitability
Survey boundary
ead ecology
www.eadecology.co.uk
M7 Planning
Land at Pineapple Farm, Mulberry Road, Congresbury
Bat Tree Roost Assessment Plan
Date: 02/10/2020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Reproduced from Ordnance Survey map data by permission of Ordnance Survey, © Crown copyright. EAD OS Licence 100046104
Key
Transect route
Static detector location
Survey boundary
1
2
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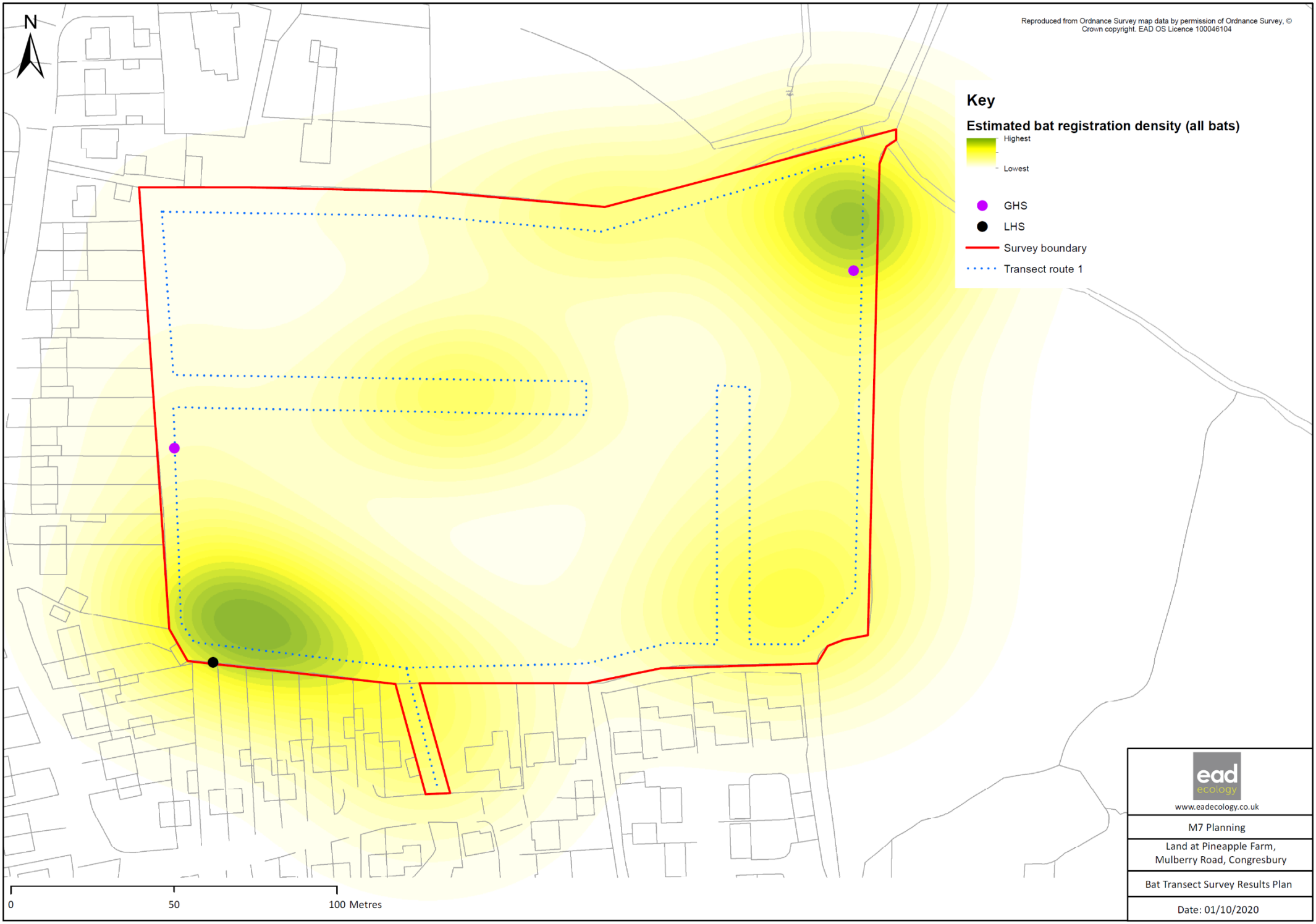
100 Metres
ead ecology
www.eadecology.co.uk
M7 Planning
Land at Pineapple Farm, Mulberry Road, Congresbury
Bat Activity Plan
Date: 02/10/2020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Reproduced from Ordnance Survey map data by permission of Ordnance Survey, © Crown copyright. EAD OS Licence 100046104
Key
Estimated bat registration density (all bats)
Highest
Lowest
GHS
LHS
Survey boundary
Transect route 1
0
50
100 Metres
ead ecology
www.eadecology.co.uk
M7 Planning
Land at Pineapple Farm, Mulberry Road, Congresbury
Bat Transect Survey Results Plan
Date: 01/10/2020

Appendix 12: Plant species list

Scientific name	Common name
Trees	
Acer campestre	Field maple
Carpinus betulus	Hornbeam
Cornus sanguinea	Dogwood
Corylus avellana	Hazel
Crataegus monogyna	Hawthorn
Euonymus europaeus	Spindle
Fraxinus excelsior	Ash
Hedera helix	Ivy
Prunus spinosa	Blackthorn
Rosa sp.	Rose. sp.
Salix sp.	Willow sp.
Sambucus nigra	Elder
Tilia platyphyllos	Large-leaved lime
Ulmus procera	English elm
Herbs	
Arum maculatum	Lords-and-ladies
Calystegia sepium	Hedge bindweed
Centaurea nigra	Common knapweed
Cerastium fontanum	Common mouse-ear
Cirsium arvense	Creeping thistle
Galium aparine	Cleavers
Geranium robertianum	Herb-Robert
Plantago major	Greater plantain
Polygonum aviculare	Knotgrass
Primula vulgaris	Primrose
Ranunculus acris	Meadow buttercup
Rubus fruticosus	Bramble
Rumex acetosa	Common sorrel
Rumex obtusifolius	Broad-leaved dock
Stachys sylvatica	Hedge woundwort
Taraxacum officinale	Dandelion
Trifolium repens	White clover
Urtica dioica	Common nettle
Grasses, sedges, rushes and ferns	
Agrostis stolonifera	Creeping bent
Dactylis glomerata	Cock's-foot
Holcus lanatus	Yorkshire-fog
Lolium perenne	Perennial rye-grass
Phleum pratense	Timothy

Appendix 13: HEP calculation (excluding off-set habitat)

Field No	Habitat	Primary Habitat		Matrix		Formation		Management / Land use		HSI Score	Density Band Score	Hectares	Habitat Units	Species / Notes
		Code	Score	Code	Score	Code	Score	Code	Score					
1	Poor semi-improved grassland [4]+ tall ruderal [OT3; 0] + scattered scrub [SC2; 1]	GU0	4	OT3, SC2	1	-	1.00	GM12/GM21	0.65	3.25	3.0	3.309	32.26	The site is within the North Somereset and Mendip Bats SAC Consultation Zone Band A for greater horseshoe bats. The primary habitat within the site is poor semi-improved grassland with matrix habitats of scattered scrub and tall ruderal. Consultation with the landowner established that the grassland was managed for haylage, with subsequent grazing by sheep. As the land management did not precisely fit with the management codes within the SAC guidance, a bespoke multiplier of 0.65 was agreed with Larry Burrows (email dated 15/10/2021 available on request).
-	Non-important hedgerows	LF11Z	5		0		1.00	LM2	0.90	4.50	3.0	0.07	0.95	Hedgerows managed as 'uncut' as they are >2m in height - Lost to development by lighting or other means
-	Non-important hedgerows	LF11Z	5		0		1.00	LM1	0.30	1.50	3.0	0.0216	0.10	Hedgerows managed as 'cut' as they are <2m in height - Lost to development by lighting or other means
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
												3.4006		

Habitat Units	33.30
Hectares Required	**1.85**

Value from 'Replacement Habitat' worksheet	**Equivalent Hectares Provided**	**0.43**
If required, Value from Receptor Habitat Worksheet	**Equivalent Hectares of Existing Habitat on**	**0.00**
	Gain/ Deficit	**-1.42**

Note: Where there is significant residual replacement habitat that cannot be accommodated within the proposed development site off site enhancement will be needed. The amount required will be increased by the value of the existing habitat on the receptor site (see A5.54 in the Technical Guidance)

If deficit then further input is required into either 'Replacement Habitat' and/or Off-site Replacement Habitat' worksheets until an equal or gain is provided. (Non-significant amounts of loss need to be agreed with planning authority ecologist)

Appendix 14: HEP calculation (including off-set habitat)

HEP Worksheet

Field No	Habitat	Primary Habitat Code	Primary Habitat Score	Matrix Code	Matrix Score	Formation Code	Formation Score	Management / Land use Code	Management / Land use Score	HSI Score	Density Band Score	Hectares	Habitat Units	Species / Notes
1	Poor semi-improved grassland [4]+ tall ruderal [OT3; 0] + scattered scrub [SC2; 1]	GU0	4	OT3, SC2	1	-	1.00	GM12/GM21	0.65	3.25	3.0	3.309	32.26	The site is within the North Somereset and Mendip Bats SAC Consultation Zone Band A for greater horseshoe bats. The primary habitat within the site is poor semi-improved grassland with matrix habitats of scattered scrub and tall ruderal. Consultation with the landowner established that the grassland was managed for haylage, with subsequent grazing by sheep. As the land management did not precisely fit with the management codes within the SAC guidance, a bespoke multiplier of 0.65 was agreed with Larry Burrows (email dated 15/10/2021 available on request).
-	Non-important hedgerows	LF11Z	5		0		1.00	LM2	0.90	4.50	3.0	0.07	0.95	Hedgerows managed as 'uncut' as they are >2m in height - Lost to development by lighting or other means
-	Non-important hedgerows	LF11Z	5		0		1.00	LM1	0.30	1.50	3.0	0.0216	0.10	Hedgerows managed as 'cut' as they are <2m in height - Lost to development by lighting or other means
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
			0		0		1.00		1.00	0.00			0.00	
												3.4006		
											Habitat Units		33.30	
											Hectares Required		**1.85**	

Value from 'Replacement Habitat' worksheet	**Equivalent Hectares Provided**	**2.18**
If required, Value from Receptor Habitat Worksheet	**Equivalent Hectares of Existing Habitat on**	**0.29**
If deficit then further input is required into either 'Replacement Habitat' and/or Off-site Replacement Habitat' worksheets until an equal or gain is provided. (Non-significant amounts of loss need to be agreed with planning authority ecologist)	**Gain/ Deficit**	**0.04**

Note: Where there is significant residual replacement habitat that cannot be accommodated within the proposed development site off site enhancement will be needed. The amount required will be increased by the value of the existing habitat on the receptor site (see A5.54 in the Technical Guidance)

Replacement habitat

Habitat	Primary Habitat		Matrix		Formation		Management		HSI Score	Hectares	Delivery Risk	Temporal Risk	Spatial Risk		Equivalent Hectares	
	IHS Code	Score	Code	Score	Code	Score	Code	Score					Development Site Band Score	Replacement Site Band Score		Habitat areas calculated as the following proportions of Public Open Space on Framework Plan 25.02.2021: Unmanaged neutral grassland: 60%, Amenity grassland (25%), native tree/shrub (10%) (areas were only included if they were considered likely to be suitable post-development (i.e. dark suitable habitat)). The area of the Sustainable Urban Drainage System was measured directly from the Framework Plan 25.02.2021.
Neutral grassland	GN0	6		0		1.00	GM4	1.00	6.00	0.469	1.00	0.84	3.0	3.0	2.36	Habitat area is approx 60% of Dark POS area on plan - unmanaged - Dark POS is defined as built form plus 7m buffer for light spill- excludes SUDs
Improved grassland	GI0	3	BG1	0		1.00	GL1	0.10	0.30	0.235	1.00	1.00	3.0	3.0	0.07	Amenity grassland (Improved grassland managed as amenity)
Other broadleaved woodland	WB3Z	6		0	WF21	0.75	WMZ	1.00	4.50	0.078	0.67	0.49	3.0	3.0	0.12	Native tree/shrub (other broadleaved woodland with native species plantation formation code, and other woodland management)
Other standing open water and canal	ASZ	2		0	AP1Z	0.10	LT15	0.50	0.10	0.127	1.00	1.00	3.0	3.0	0.01	SUDs pond (other standing open water and canals with other pond formation code, and canal-side with grassland)
Neutral grassland	GN0	6		0		1.00	GM4	1.00	6.00	1.750	1.00	1.00	3.0	3.0	10.50	Unmanaged neutral grassland on hypothetical receptor site
		0		0		0.00		0.00	0.00	0.000	1.00	1.00	1.0	1.0	0.00	
										2.659						
					Value of Habitat Provided in Hectares										2.177	

Receptor Habitat

Habitat	Primary Habitat		Matrix		Formation		Management / Land use		HSI Score	Development site	Receptor Site	Hectares	Equivalent Hectares
	IHS Code	Score	Code	Score	Code	Score	Code	Score		Density Band Score	Density Band Score		
Grass and grass-clover leys	CR1	1		0		1.00	CL1	1.00	1.00	3.00	3.00	1.750	0.29
		0		0		1.00		1.00	0.00	1.00	1.00	0.000	0.00
		0		0		1.00		1.00	0.00	1.00	1.00	0.000	0.00
		0		0		1.00		1.00	0.00	1.00	1.00	0.000	0.00
											Equivalent Value of Habitat on Receptor Site		0.29

Use this sheet where some or all of the replacement habitat is not provided within the development site. The value of the exisitng off site habitat needs to be taken away from the value of that provided.

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