ECOLOGICAL IMPACT ASSESSMENT

PURN WAY, BLEADON, NORTH SOMERSET

carried out by

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

commissioned by

URBAN DESIGN PRACTICE LTD

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ECOLOGICAL IMPACT ASSESSMENT

PURN WAY, BLEADON, NORTH SOMERSET

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EXECUTIVE SUMMARY

- Urban Design Practice Ltd commissioned Clarkson and Woods Ltd. to undertake an update Extended Phase 1 habitat survey of Land at Purn Way, Bleadon, North Somerset, BS24 0QF (central grid reference ST336571). This survey was required to update the previous ecological survey findings by Crossman Associates (March 2017), specifically with regard to botanical interest within the site and to address a number of issues with the assessment of protected species groups identified.

- In addition to the survey by Crossman Associates (2017), further surveys for reptiles and bats were undertaken within the Site between July and September 2018 by EcoLogic (2018). A summary of the survey data relating to these surveys is provided in this report and assessments made based on the findings of these surveys.

- Outline planning permission is being sought for the construction of 16 dwellings within the Site with gardens, associated infrastructure and access. This will result in the removal of approximately 0.5ha of the 0.8ha of habitat present within site.

- The update survey was undertaken on 12th of August 2019 by Henry Sturgess BSc GradCIEEM, an ecologist with over 5 years' experience undertaking ecological assessments.

- The Site is located within Band C of the North Somerset and Mendip Bat Special Area of Conservation (SAC) and is also within close proximity to a number of other designated sites.

- The Site was found to contain primarily poor semi-improved grassland with smaller extents of developing tall ruderal, ephemeral and scrub habitat. The site was surrounded by residential development to the south and west with gardens facing onto the Site. The northern and eastern boundaries comprised species-poor hedgerows with a derelict farm building present just outside of the Site in the North West corner; beyond this was 'The Mendip Way' footpath and a series of allotments and small holdings.

- The update survey found that the habitats on Site were generally of poor quality with the grassland and other central habitats being of low ecological value. The hedgerows, although well-established and tall, were species-poor and had suboptimal structure. Previous surveys identified the presence of a low population of slow worms on site. Bat activity surveys, including the use of static detectors, recorded 8 bat species using

habitats for foraging/commuting within the Site, including low use by both greater and lesser horseshoe bats.

- Key mitigation measures include the retention, protection and enhancement of the boundary hedgerows. A large extent of grassland will also be retained and enhanced acting as a buffer to these features. These retained boundaries will be enhanced through management and form a receptor area for reptiles within the Site and the key mitigation habitat for bats associated with the North Somerset and Mendip Bat Special Area of Conservation (SAC).

- A reptile translocation will be undertaken to remove reptiles and common amphibians from the construction zone and retain them within the receptor area on site. Other mitigation measures include: nesting bird checks, removal of the small sections of scrub under a Reasonable Avoidance Method Statement (RAMS) for dormice and a pre-commencement update badger survey.

- A Construction Ecological Management Plan and a Landscape Ecological Management Plan are also proposed to ensure that both the construction and operation of the site protect valuable ecological features and manage retained and created habitats to maximise their ecological value.

- A lux contour plan is proposed, which will map the spill of all external and relevant internal lighting to ensure all of the mitigation habitat proposed is lit to a maximum of 0.5 lux above baseline conditions and remains suitable for use by horseshoe bats.

- Further enhancements are proposed including the provision of a number of bird boxes, planting an additional hedgerow outside of the boundaries of the new dwellings, enhancement of the existing hedgerows through appropriate management and planting of a number of native shrub species within the retained grassland.

- Monitoring of the reptile fencing will take place by an Ecological Clerk of Works (ECoW) quarterly and monitoring for use of the site by bats will be undertaken in years 1 and 3 after construction with a 'sign off' on the habitat establishment during year 5.

1 INTRODUCTION

1.1.1 Clarkson and Woods Ltd. was commissioned by Urban Design Practice to carry out an update Ecological Impact Assessment at Purn Way, Bleadon, BS24 0QF, thereafter referred to as 'the Site'.

1.1.2 This Impact Assessment discusses the likely effects of the Proposed Development on the ecology of the Site using information collected during an Extended Phase 1 Habitat Survey and Building Inspection carried out by Clarkson and Woods Ltd on 12th August 2019. It updates the initial Phase 1 survey of the Site undertaken by Crossman Associates in February 2017. The report focuses on updating the botanical assessment and the likely impacts of the development on designated sites that were not identified in the 2017 assessment. This report also lays out the mitigation required for both reptiles and bats as a result of further survey undertaken by EcoLogic from July to September 2018.

1.1.3 The assessment has been prepared by Henry Sturgess, an experienced ecologist, who is a member of the Chartered Institute of Ecology and Environmental Management (CIEEM). At the time of the survey the weather was sunny with low wind and intermittent cloud, the temperature was approximately 18˚C.

1.1.4 Unless the client indicates to the contrary, information on the presence of species collected during the surveys will be passed to the county biological records centre in order to augment their records for the area. This is in line with the CIEEM code of professional conduct[1].

1.1.5 If no action or development of the Site takes place within twelve months of the date of this report, then the findings of the assessment and supporting surveys should be reviewed. An update of the surveys and/or assessment may be required.

1.2 Report Aims

1.2.1 The aims of this report are:

- To establish, as far as possible, the baseline ecological conditions existing on Site at the time of survey and to identify any likely future changes in the baseline conditions up to the point of commencement.
- To determine likely significant effects resulting from the proposals upon the ecological features identified within the assessment.
- To assess whether the proposals are likely to be in accordance with relevant nature conservation legislation and planning policies.
- To identify where further surveys to establish baseline conditions, inform assessment or develop mitigation or compensatory measures are required.
- To identify how mitigation or compensation measures will be secured, maintained and monitored.
- To identify ecological enhancements to be carried out and how they will be implemented, maintained and monitored.

1.3 Site Description Summary

1.3.1 The site is approximately 0.8ha and comprises an enclosed area of open grassland with encroaching tall ruderal and scrub patches. Vehicular access to the land is via an existing farm track taken from Purn Way, which borders properties alongside their rear gardens. Purn Way is a no through route and the road ends 70m to the east of the site. The West Mendip Way footpath skirts the northern boundary, beyond which are allotments. To the east of the site is a smallholding, also separated by the West Mendip Way.

[1] Code of Professional Conduct. CIEEM, January 2019.

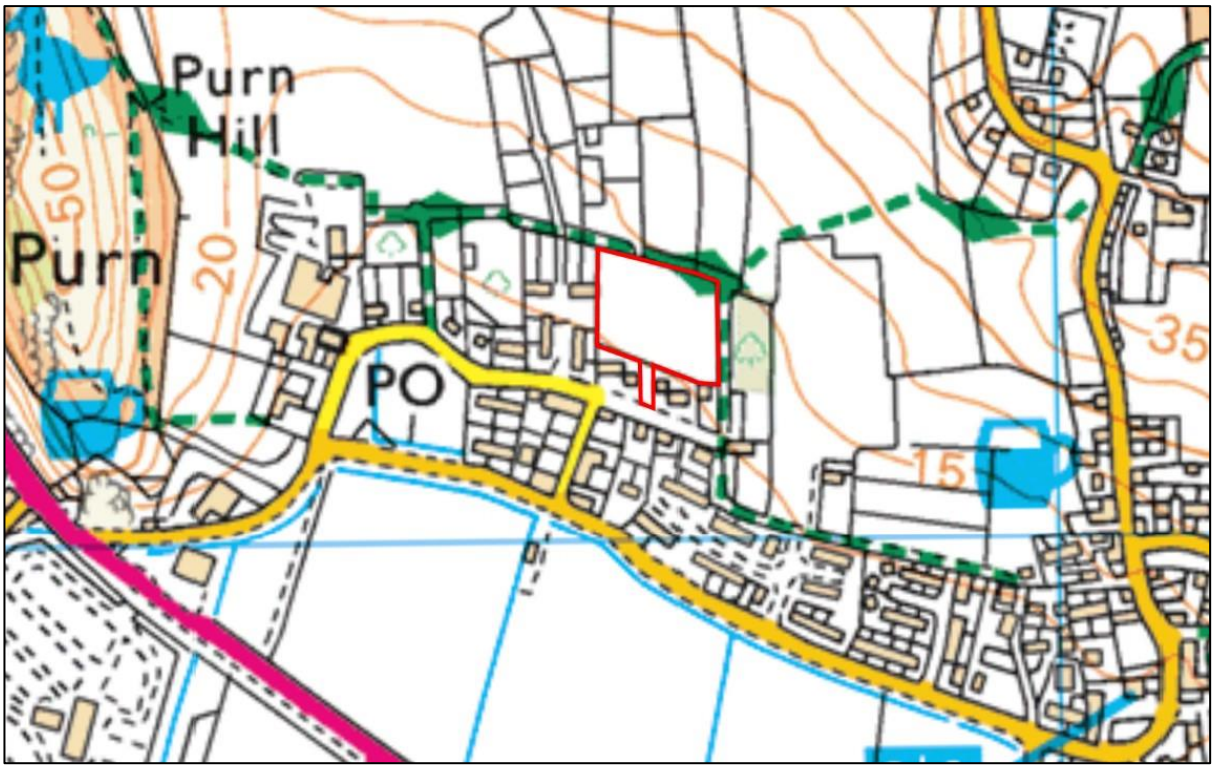


Figure 1: Ordnance Survey Map Showing Location of the Site (outlined in red) (OS Paper Copy Licence: 100050456)

Figure 2: Aerial Photograph of the Site Boundary (©2019 Google)

1.4 Development Proposals

1.4.1 Outline planning permission is sought for the construction of 16 residential properties with gardens, associated infrastructure and access, within the Site. All details are set aside for reserved matters approval, except for vehicle access.

1.4.2 The development will result in the removal of approximately 0.5ha of poor quality grassland but retain the key woody vegetation on the northern and eastern boundaries. The northern and eastern boundaries will be enhanced as mitigation areas for bats, reptiles and a range of other species.

1.4.3 Any changes to the building design and layout and landscaping made subsequent to publication of this report should be issued to Clarkson and Woods Ltd. for review. Ecological impacts and mitigation opportunities may be affected by any such changes.

1.5 Quality Assurance

1.5.1 All ecologists employed by Clarkson and Woods are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow the Institute's Code of Professional Conduct[2] when undertaking ecological work.

1.5.2 The competence of all field surveyors has been assessed by Clarkson and Woods with respect to the CIEEM Competencies for Species Survey (CSS)[3].

1.5.3 This report has been prepared in accordance with the relevant British Standard: *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*[4]. It has been prepared by an experienced ecologist who is a member of CIEEM. The report has also been subject to a two stage quality assurance review by appropriately experienced ecologists who are full members of CIEEM.

1.6 Assessment Scope / Consultation

1.6.1 This document seeks to expand on previous ecological work undertaken on Site and provide additional information. The main issues the report covers are the botanical value of the Site, which was questioned due to the date of the initial survey. It also focuses on designated sites which were not fully represented within the initial ecological impact assessment.

1.6.2 A number of protected species have been scoped out including water vole and otter due to the lack of waterbodies within or joining the site. A brief assessment of the Site for bats and reptiles is provided; however, a full assessment is given in the initial further survey report by EcoLogic (2018). Mitigation measures are recommended for these species based on these assessments.

1.6.3 The Zone of Influence of the development will vary according to the impact or Site feature being assessed. With assessments made at an appropriate scale for protected species and habitats, designated sites will be assessed at their differing scales with impacts on LWS being considered within 1km, nationally designated sites assessed within 2km and international sites being assessed within 5km.

1.6.4 Scope of this assessment has been based on the formal comments from Lindi Rich, Natural Environment Officer Ecology at North Somerset Council, regarding the application 18.P.5035.OUT. This ecological impact assessment seeks to address these comments, providing further clarification and detail.

[2] CIEEM (2013). *Code of Professional Conduct*. www.cieem.net/professional-conduct.
[3] CIEEM (2013). *Competencies for Species Survey (CSS)*. www.cieem.net/competencies-for-species-survey-css-
[4] The British Standards Institution (2013*). BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*. BSI Standards Ltd.

2 BASELINE CONDITIONS

2.1 Introduction

2.1.1 This section sets out the results of the desk study and ecological field surveys along with an evaluation of their relative importance in order to inform the impact assessment. The methodologies associated with the baseline assessment are summarised with each ecological feature's subheading below.

2.1.2 The specific surveys carried out were chosen on the basis of the likelihood, in our considered opinion, of each protected species or Species of Conservation Concern being present on or within the vicinity of the Site. This is informed by the Site's geographic location and the habitat types present on and around the Site.

2.1.3 Details of the legislative protection afforded to those protected species which have been identified as occurring or potentially occurring on the Site are given in Appendix A. Species of Conservation Concern are defined as those appearing in any of the following: Priority Habitats and Species under Section 41 of the Natural Environment and Rural Communities Act (2006); red or amber-listed birds within the British Trust for Ornithology's Birds of Conservation Concern (2015); and any specific local conservation priority species such as those listed in Red Data Books.

2.2 Evaluation Methodology

2.2.1 Each recorded ecological feature, whether it is a species, a habitat or a site designated for nature conservation, is described in turn in this section to provide the pre-development baseline conditions on Site. Subsequently, an evaluation of each feature's 'ecological importance' is made. The evaluation of ecological importance is informed by the criteria provided within the CIEEM Guidelines for Ecological Impact Assessment (2016)[5].

2.2.2 With due consideration to the criteria, each feature is classified on a geographical scale of ascending importance as follows; Negligible, Site, Local, District, County, National and International. The chosen geographic level of importance is considered that which best represents the scale at which the loss of the Site's area or population of the feature would have the greatest impact. Where sufficient survey information not available to determine the importance of a species or habitat present on the Site, the importance of the receptor is marked as 'uncertain' and based upon the professional judgement of the author together with available relevant desk study information.

2.2.3 Once importance has been determined for each feature, those of Local importance or above will be considered to be Important Ecological Features (IEFs). Non-IEFs will typically not be considered further within the impact assessment. However, where a feature does not qualify as an IEF but is afforded specific legal protection or coverage under a particular legislation or planning policy it will also be assessed in order to ensure the scheme's legal and policy compliance.

2.3 Desk Study

Methodology

2.3.1 Statutory designated sites for nature conservation were identified using the Natural England/DEFRA web-based MAGIC map database (www.MAGIC.gov.uk). International-level sites such as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) within 5km from the Site were searched for. National-level sites such as National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSIs) within 2km of the Site were searched for.

2.3.2 The Bristol Regional Environmental Records Centre (BRERC) was consulted to provide details of locally-designated and non-statutory sites for nature conservation within 1km of the Site. A search for protected and notable species was not requested; however, inclusion of the data search as presented in the initial ecological appraisal undertaken by Crossman Associates in March 2017 is included where relevant.

[5] *CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition.* Chartered Institute of Ecology and Environmental Management. www.cieem.net

2.3.3 Clarkson and Woods' own database of ecological records derived from past survey work was also consulted for further locally-relevant ecological data.

2.3.4 The Natural England/DEFRA web-based MAGIC map database was also consulted for records of European Protected Species (EPS) licences issued for mitigation projects concerning EPS within 2km of the Site. Such data is only available for licence applications made between 2012 and 2015 (recent licence applications do not currently appear).

2.3.5 The 'North Somerset Local Plan Core Strategy' (2017) was consulted for details of planning policies relevant to designated sites, protected species and habitats, and general ecological and environmental protection.

2.3.6 The National Biodiversity Action Plan (BAP) was consulted for information on conservation priority species and habitats which may require further consideration and weight within Ecological Impact Assessments.

2.3.7 Ordnance Survey maps (1:25,000) and aerial images of the Site were examined online (bing.com/maps and maps.google.co.uk) to allow a better understanding of the context of the Site and its connections to potentially important habitats, known species records and protected sites.

2.3.8 The data presented within this report constitutes a summary of the data obtained from the local records centre. Should additional detail be required on any of the records described within this report Clarkson and Woods Ltd. should be contacted.

Limitations

2.3.9 The lack of protected and notable species data from BRERC represents a limitation in the background information gathered for the Site, particularly as the data search conducted by Crossman Associates to support the original Phase 1 report was of limited scope and appeared to omit several important records.

2.3.10 It should be noted that the data obtained from within the search area will not constitute a complete record of habitats and species present. It is therefore possible that protected species may occur within the vicinity of the proposed development site that have not been identified within the desk study.

Desk Study Findings

Designated Sites

Statutory Designated Sites

2.3.11 6 statutory designated sites for nature conservation were identified within the desk study and are summarised in Table 1 below.

Table 1: Summary of Statutory Designated Sites for Nature Conservation

Site Name	Size, Distance and Direction from Site	Reason for Designation	Importance
Purn Hill SSSI	330m west	Purn Hill is of interest for its exceptionally diverse unimproved calcareous grassland flora, which includes three nationally rare species: honewort *Trinia glauca, white rock rose Helianthemum apenninum and H. x sulphureum (a hybrid of white and yellow rock rose)*	National
Bleadon Hill SSSI	1150m east	A geological SSSI designated for its calcite-cemented Pleistocene sand and gravel on the southern side of Bleadon Hill, separated from the main hillslope by a dry valley	National
Uphill Cliff SSSI	1.85km north-west	This site consists of species-rich calcareous grassland and rock-face situated on carboniferous limestone. Rarities include rock hutchinsia *Hornungia petraea* and Curtis's mouse-ear chickweed *Cerastium pumilum*	National

Mendip Limestone Grasslands Special Area of Conservation (SAC)	1.85km north-west (at its closest point)	Designated primarily for its dry semi-natural grassland on calcareous substrates. The designation also covers European dry heaths, a number of inaccessible caves and Tilio-Acerion forests of slopes, screes and ravines. Greater horseshoe bats *Rhinolophus ferrumequinum* are present and are a qualifying feature for the designation	International
Severn Estuary SAC, SPA	2.1km west (at its nearest point)	The Severn Estuary lies at the mouth of four major rivers (the Severn, Wye, Usk and Avon) The immense tidal range (the second highest in the world) and classic funnel shape make the Severn Estuary unique in Britain and very rare worldwide. Fauna includes: internationally important populations of waterfowl and large populations of migratory fish, including the nationally rare and endangered allis shad *Alosa alosa*	International
North Somerset and Mendip Bats SAC	4.65km east of the site	The closest portion of the SAC is the Banwell Ochre Mines portion. This is designated for its hibernating greater and lesser horseshoe *Rhinolophus hipposideros* bats which use a number of caves and mines in the area for hibernation. The application site falls in the 'Band C' consultation zone for this SAC.	International

Local and Non-statutory Designated Sites

2.3.12 Eight local or non-statutory designated sites for nature conservation were identified within the desk study and are summarised in Table 2 below.

2.3.13 All of the sites listed below are Wildlife Sites (WS) designated as Sites of Importance for Nature Conservation (SINC).

Table 2: Summary of Local and Non-statutory Designated Sites for Nature Conservation

Site Name	Size, Distance and Direction from Site	Reason for Designation	Importance
Bleadon Hill Fields WS SNCI	220m North	Semi-improved calcareous grassland and unimproved neutral grassland with scrub (NVC CG2ai, MG5, W21). Unimproved calcareous grassland (NVC MG1e) containing a range of notable plant species	Local
Purn Hill WS SNCI	330m West	Exceptionally diverse unimproved calcareous grassland much of it Priority Habitat Lowland Calcareous Grassland, with scrub/ woodland, which may include Priority Habitat Upland Mixed Ashwoods Overlap between this designation and the Purn Hill SSSI and Purn Hill Avon Wildlife Trust Reserve	Local
Hellenge Hill to Loxton Wood Complex WS SNCI	400m East	Unimproved and semi-improved calcareous grassland, semi-improved neutral grassland, and semi-natural broad-leaved woodland, with unimproved neutral	Local

		grassland, lowland heath and scrub. Supports rare plant species including spring cinquefoil *Potentilla neumanniana*, dwarf sedge *Carex humilis,* common twayblade, *Neottia ovata* and heath milkwort *Polygala serpyllifolia*, Site overlaps in extent with a series of other sites including Bleadon Hill SSSI, Shiplate Slait SSSI, Bleadon Hill Gravels RIGS, Loxton Cave RIGS, Hellenge Hill AWT Reserve and Shiplate Wood AWI	
Ditches to the west of Purn Farm WS SNCI	500m East	A network of ditches containing standing water and supporting marginal habitats. No important species were listed in the data search for this site	Local
River Axe (Part of) WS SNCI	572m South/South West	This site is designated for its open running water (river) and associated marginal habitats. No important species were listed in the data search for this site	Local
Combes Farm drains and adjacent land WS SNCI	586m North West	Semi-natural broad-leaved woodland some of which may be Priority Habitat Upland Mixed Ashwoods with extents of unimproved and semi-improved neutral grassland along with semi-improved calcareous grassland. Key species include fern grass *Desmazeria rigida*, bluebell *Hyacinthoides non-scripta*, hairy dragonfly *Brachytron pratense*, milk thistle *Silybum marianum* and wild clary *Salvia horminoides.*	Local
South Hill Bleadon WS SNCI	650m South East	Unimproved and semi-improved calcareous and neutral grassland, scrub and broad-leaved woodland. Contains the following notable species: crested hairgrass *Koeleria macrantha*, little mouse-ear *Cerastium semidecandrum*, eyebright *Euphrasia*, pale toadflax *Linaria repens*, autumn gentian *Gentianella amarella*, long-stalked crane's-bill *Geranium columbinum*, blue fleabane *Erigeron acer* and meadow thistle *Cirsium dissectum*	Local
Oldmixon to Upper Canada Scarp WS SNCI	1.17km North	Ancient semi-natural broad-leaved woodland, with planted mixed and coniferous woodland, scrub, unimproved and semi-improved neutral grassland. Notable species include purple gromwell *Lithospermum erythrorhizon*, sharp-leaved fluellen *Kickxia elatine*, twayblade *Neottia ovata*, sanicle *Sanicula europaea*, and silver-washed fritillary *Argynnis paphia.*	Local

Planning Policy

2.3.14 The following policies have been identified within 'North Somerset Local Plan Core Strategy' (2017), which are considered relevant to the site.

Policy CS4: Nature conservation

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.

CS9: Green infrastructure

The existing network of green infrastructure will be safeguarded, improved and enhanced by further provision, linking in to existing provision where appropriate, ensuring it is a multi-functional, accessible network which promotes healthy lifestyles, maintains and improves biodiversity and landscape character and contributes to climate change objectives. Priority will be given to:

- The protection and enhancement of the formal parks and gardens originating from the Victorian era;
- The protection and planting of trees in woodlands and urban areas, particularly native trees, for public amenity and climate change mitigation and benefits to biodiversity, health and recreation;
- The promotion of the north slopes of the Mendip Hills AONB as sub-regional corridors for biodiversity, recreation and landscape retention;
- The promotion of the Congresbury Yeo, River Banwell, North Somerset Levels and Moors, and Grumblepill Rhyne as local corridors for biodiversity and landscape enhancement;
- The protection and enhancement of biodiversity;
- The connection of disjointed woodlands, particularly ancient and semi- natural woodland, such as those around the Wraxall/Failand ridge;
- The continued development of a network of green spaces, water bodies, paths and cycleways and bridleways in and around the urban areas, recognising the value of sustainable drainage systems for green infrastructure;
- The management, maintenance, upgrading and extension of the public rights of way network including improved connectivity to areas of green infrastructure within and outside North Somerset;
- The provision of strategically significant green spaces in association with all areas of development.

2.4 Habitat Survey

Habitat Survey Methodology

2.4.1 A habitat survey was carried out based on standard field methodology set out in the *Handbook for Phase 1 Habitat Survey* (2010 edition)[6]. The survey was completed by Henry Sturgess, GradCIEEM. Henry has over 5 years' experience undertaking ecological surveys and has a BSc in relevant subjects. Henry holds a great crested newt survey licence ref: 2016-27145-CLS-CLS and is accredited under a level 2 bat licence ref: 2015-13642-CLS-CLS.

2.4.2 Botanical names follow Stace (1997)[7] for higher plants and Edwards (1999)[8] for bryophytes.

[6] Nature Conservancy Council. (1990 - 2010 edition). *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit*, Joint Nature Conservation Committee
[7] Stace, C. (1997). *New Flora of the British Isles Second Edition*. Cambridge University Press
[8] Edwards, S.R. (1999). *English Names for British Bryophytes*. BBS, Cardiff

2.4.3 The results of the Phase 1 habitat survey are included in map form on Figure 3. Habitats are mapped following the codes and conventions described within the Phase 1 Habitat Survey Handbook and Target Notes (Table 4) are used to describe habitats not readily conforming to recognised types and evidence of, or potential for, protected species and species of conservation concern. Photographs of the Site are provided in Appendix B at the end of this report.

Habitat Assessment Limitations

2.4.4 The survey was conducted in August, and as such it was possible to adequately classify and assess the nature conservation value of the habitats involved. Although particular groups of species such as early flowering herbs and spring ephemerals may have been under-recorded or missed, considering the habitats recorded on the Site, any noteworthy species were unlikely to have been missed and effort was made to identify any dry or old specimens. An extensive species list was collected on site to address criticisms levelled at the previous survey effort.

Habitat 1 – Semi-improved grassland (species-poor)

Desk Study Information

2.4.5 The desk study indicated that the Site is within an area that contains a number of good quality species-rich or unimproved grasslands on base rich substrates. This includes designated sites such as Purn Hill SSSI, Uphill Cliff SSSI, the Mendip Limestone Grassland SAC, along with a series of SNCIS, which overlap these and unique sites with lower value such as South Hill SNCI. This illustrates the local prevalence of high quality chalk and limestone grasslands. Consultation of the Cranfield Universities Soilscapes website shows the site sits on the same underlying substrate as a number of these sites indicating the Site may be restored to support a calcareous grassland assemblage.

Field Survey Results

2.4.6 The main habitat present on Site comprised species-poor, semi-improved grassland, which has been subject to disturbance in recent years resulting in colonisation by several species that favour disturbed ground. Patches of ruderal habitat have become established; these are described separately below. Overall, the grassland was of low value having been historically improved and intensively managed, although management has recently ceased). A large number of different plant species were recorded within this habitat but overall it was not considered to be particularly diverse with most additional species being common pioneers of bare ground, scrub or ruderal species.

2.4.7 Species recorded within this habitat were: perennial rye grass *Lolium perenne*, timothy-grass *Pheum pratense*, common bent *Agrostis capillaris*, rough-stalked meadow-grass *Poa trivialis*, Yorkshire-fog *Holcus lanatus*, couch grass *Elymus repens*,, cultivated barley *Hordeum vulgare,* greater plantain *Plantago major*, ribwort plantain *Plantago lanceolata*, knotgrass *Polygonum aviculare*, scented mayweed *Matricaria chamomilla*, white clover *Trifolium repens,* red clover *Trifolium pratense*, shepherds purse *Capsella bursa-pastoris*, cocksfoot grass *Datylis glomerata*, broadleaf dock *Rumex obtusifolius*, creeping buttercup *Ranunculus repens*, creeping thistle *Cirsium arvense*, hogweed *Heracleum sphondylium*, common nettle *Urtica dioica*, grey poplar *Populus × canescens*, feverfew *Tanacetum parthenium*, spear thistle *Cirsuim vulgare*, field bindweed *Convolvulus arvensis*, rough chervil *Chaerophyllum temulum*, cleavers *Galium aparine,* sun spurge *Euphorbia helioscopia*, hedge mustard *Sisymbrium officinale*, ivy *Hedera helix*, lords-and-ladies *Arum maculatum*, bramble *Rubus fruiticosus* agg., red dead nettle *Lamium purpureum,* dandelion *Taraxicum agg*, autumn hawkbit *Scorzoneroides autumnalis* and common mallow *Malva neglecta*.

Evaluation

2.4.8 The species-poor, semi-improved grassland is considered to be of **Site** Importance.

Habitat 2 – Hedgerows

Desk Study Information

2.4.9 Aerial images of the local area show the remnants of agricultural hedgerow networks in the vicinity. Some of these are intact hedgerows and others are defunct tree lines or contain fragments of former hedgerows. To the south the hedgerow network is particularly strong beyond Bleadon Road and to the south of the River Axe. To the north and east the network is fragmented containing larger swathes of woodland and gappy

hedgerows. Clarkson and Woods in-house records from sites within 2km showed that sites surveyed contained species-poor hedgerows with commonly occurring hedgerow plant species.

Field Survey Results

2.4.10 Two hedgerows were present on Site. Hedgerow 1 (H1) formed the northern boundary and Hedgerow 2 (H2) formed the western boundary of the Site. Both of these hedgerows were unmanaged and have grown into tall treelines interspersed with bramble. A few semi-mature trees were present including ash *Fraxinus excelsior* trees in H2 and English elm *Ulmus procera* in both of the hedgerows. A detailed description of the hedgerows is provided below and photographs of these features are included in Appendix B.

Table 3: Hedgerow Descriptions and Assessment under The Hedgerow Regulations 1997 (Appendix A refers)

Hedgerow number	Hedgerow description/ Species present	Species richness/ Importance
H1	A 6m tall hedgerow with hedgerow trees, this feature is approximately 3m in width and in places is gappy. The hedgerow does not extend across the whole of the northern boundary, being interrupted by Building 1 on the western side. Parts of the hedgerow abutted walls and fence lines. Species present include hawthorn *Crataegus monogyna*, English elm, purging buckthorn *Rhamnus cathartica*, ash *Fraxinus excelsior*, elder *Sambucus nigra*, and bramble. Areas of encroaching English elm and bramble scrub extended into the site from this feature.	This hedgerow is species-poor and is not considered "Important" under the hedgerow regulations.
H2	An outgrown hedgerow to 8m with regular small gaps. Particularly gappy to the south. It contained the following species: ash, English elm, bramble, field maple *Acer campestre*, hawthorn and elder.	This hedgerow is species-poor and is not considered "Important" under the hedgerow regulations.

Evaluation

2.4.11 The hedgerows present are considered to be of **Local** Importance.

Habitat 3 – Scrub

Desk Study Information

2.4.12 The citations of Local Wildlife Sites show that a number of these are affected by developing or dense scrub habitats. Purn Hill and Bleadon Hill SSSI's containing large extents of scrub habitat developing within grassland habitats. Overall it is considered scrub is an abundant habitat locally.

Field Survey Results

2.4.13 Some areas of dense and loose scrub were developing, particularly at the fringes of the Site. These were not particularly diverse and were generally resulting from scrub encroachment from the boundary hedgerows. The larges patches were to the east of the track onto Site, which contained a large patch of suckering grey poplar, dense patches of bramble and English elm were also present to the north of the Site.

2.4.14 Species recorded in dense and loose scrub patches during the survey included: bramble, elder, grey poplar, English elm, with a small number of silver birch *Betula pendula* saplings on the southern boundary.

Evaluation

2.4.15 The patches of scrub present are considered to be of **Site** importance

Habitat 4 – Tall ruderal vegetation

Desk Study Information

2.4.16 No pertinent information was found during the desk study that relates to this habitat.

Field Survey Results

2.4.17 The site contained some patches of developing tall ruderal vegetation particularly at the fringes of the site. Two smaller patches of common nettle *Urtica dioica* were present in the centre of the field. Some tall ruderal species were interspersed with the dense scrub patches.

2.4.18 Tall ruderal species recorded on site were: creeping thistle, common hogweed, common nettle, spearmint *Mentha spicata* and hedge woundwort *Stachys sylvatica*.

Evaluation

The tall ruderal vegetation present are considered to be of **Site** importance

Habitat 5 – Ephemeral vegetation

Desk Study Information

2.4.19 No pertinent information was found during the desk study that relates to this habitat.

Field Survey Results

2.4.20 A limited extent of short ephemeral vegetation had established on the aggregate and shallow substrate areas within and surrounding the entrance track onto site. This contained a range of species that establish well in disturbed ground or that specialise in persisting in dry bare ground habitats.

2.4.21 Species recorded in this habitat included: annual meadow grass *Poa annua*, knotgrass, and lesser swine cress *Coronopus didymus*. perennial sow thistle *Sonchus arvensis*, creeping buttercup, yarrow *Achillea millefolium*, creeping thistle, fat hen *Chenopodium album*, hedge mustard, groundsel *Senecio vulgaris*, greater plantain, scented mayweed, spotted medic *Medicago arabica*, common vetch *Vicia sativa* and upright hedge parsley *Torilis japonica.*

Evaluation

2.4.22 The patches of ephemeral vegetation present are considered to be of **Site** importance

Habitat 6 – Mature/Semi Mature Trees

Desk Study Information

2.4.23 The desk study results show that a number of notable ash woodland sites are present within 2km. These feature ash as the key species, which is also present on Site as the prevalent semi mature tree.

Field Survey Results

2.4.24 A few semi-mature trees were present within the Site, the most notable of which was a semi-mature ash present at the junction between H1 and H2. Other semi-mature specimens included English elm in both of the hedgerows and two large elder bushes within the body of the site. A mature *Sorbus* sp. and a mature leylandii were present just outside of the Site to the southwest and west respectively.

Evaluation

2.4.25 The small number of semi-mature trees within the Site are considered to be of **Site** importance.

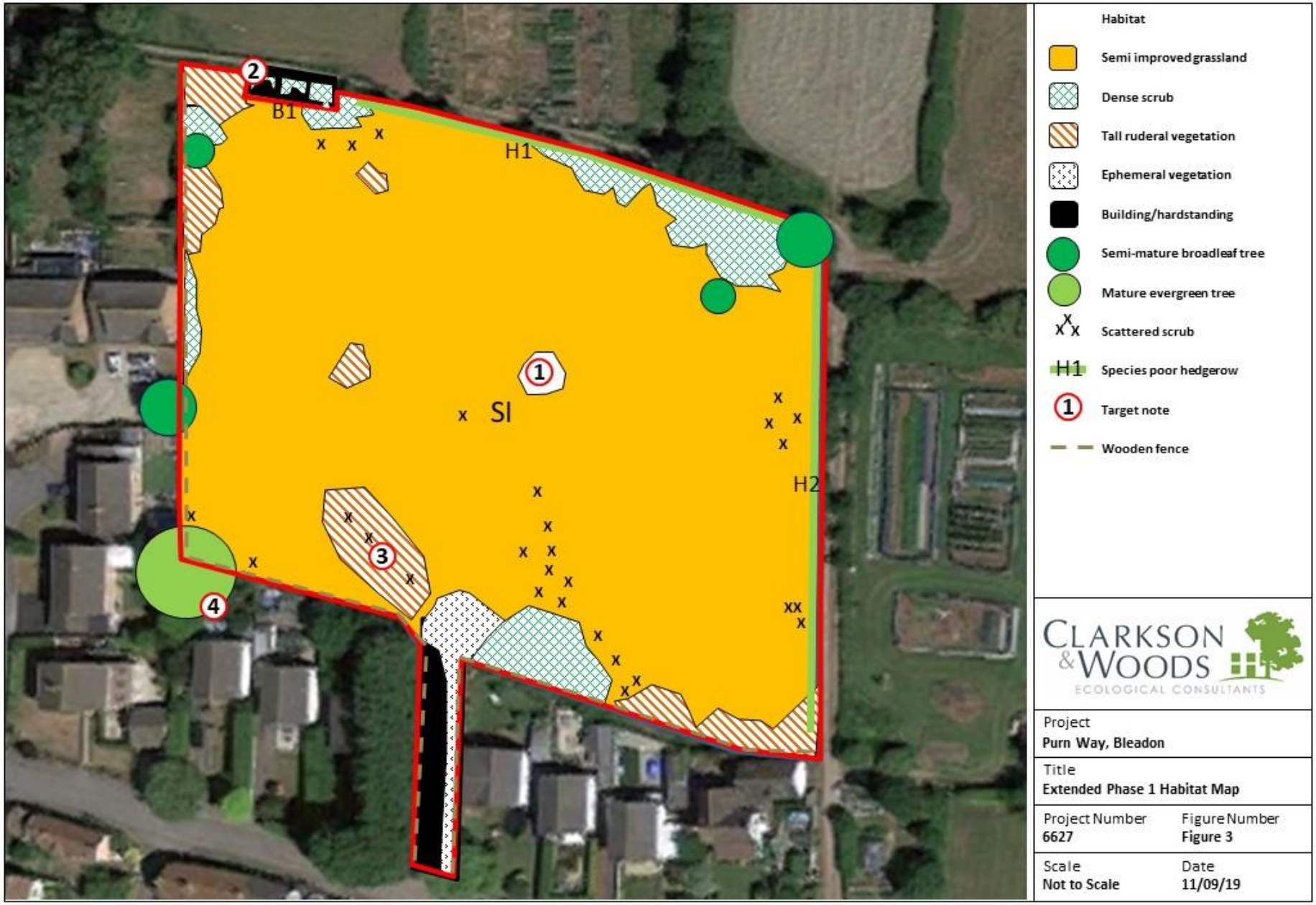

2
B1
H1
1
SI
H2
3
4
Habitat
Semi improved grassland
Dense scrub
Tall ruderal vegetation
Ephemeral vegetation
Building/hardstanding
Semi-mature broadleaf tree
Mature evergreen tree
Scattered scrub
H1
Species poor hedgerow
1
Target note
Wooden fence
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS
Project
Purn Way, Bleadon
Title
Extended Phase 1 Habitat Map
Project Number
6627
Figure Number
Figure 3
Scale
Not to Scale
Date
11/09/19

Table 4: Target Notes

No.	Description
TN1	Wooden material stacked assumed to be a bonfire. Some (potential to provide shelter opportunities for hedgehogs and other notable species)
TN2	Derelict agricultural building outside of the red line boundary with negligible bat potential. Low crevice with signs of nesting birds
TN3	Soil bund with dense vegetation of tall ruderals and developing scrub
TN4	Small garden pond in the garden of an adjoining house could not be observed from the site but has a pump, which can be heard operating a water feature (some potential for widespread amphibians)

2.5 Protected Species Survey and Species of Conservation Concern

Badgers

Methodology

2.5.1 A search was made for badger *Meles meles* setts, and any sett entrances found were checked for signs of use by badgers or other mammals.

2.5.2 Field signs such as 'snuffle holes' (holes dug by badgers when searching for invertebrates), pathways through vegetation, 'latrines' (small pits in which badgers deposit their faeces) and 'day nests' (nests of bedding material made by badgers for sleeping above ground) were also mapped, if found.

Limitations

2.5.3 Areas with dense ground cover such as the dense scrub at the fringes of the Site may contain badger setts which are not accessed regularly. Hedgerows, tall ruderal and dense scrub habitats were examined closely. Where dense impenetrable scrub prevented entry then the perimeter was examined in order to detect badger paths suggesting a hidden sett within the area. It cannot be guaranteed that all the entrances have been located, especially if a small sett is currently inactive or used seasonally and concealed in an area of thick scrub. Badgers may also dig new holes and create new setts in a very short space of time.

Desk Study Information

2.5.4 The data search carried out by Crossman Associates did not identify any records of badgers; however, BRERC highlighted that two badger setts are present within 700m of the site. No records of badger setts are held by Clarkson and Woods Ltd for the 2km search area.

Field Survey Results

2.5.5 The Site had some signs of digging and foraging by mammals, although none of these signs could be linked unequivocally with badger activity and are considered likely to be attributed to rabbits.

2.5.6 No badger setts were identified within or directly adjacent to the Site.

Evaluation

2.5.7 Badgers, if present on Site, are considered to be of **Site** level of importance.

Bats

Methodology

2.5.8 The assessment of the suitability of the Site for foraging and roosting bats was based on current guidance set out by the Bat Conservation Trust (2016)[9].

[9] Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1.

2.5.9 *Buildings:* the exteriors of the buildings were examined through the use of torches and binoculars for potential roosting features (PRFs). Wherever possible, these points were thoroughly investigated to determine the likelihood of their occupation and evidence of presence. Extra factors taken into consideration included the potential for noise disturbance to the potential roost feature, exposure to the elements, lighting levels, proximity/connectivity of vegetation and water and whether these PRFs led on to cavities further into the structure.

2.5.10 Following the inspections, each building was assigned a 'high', 'medium', 'low' or 'negligible' category as a guide to inform any necessary further survey effort as stipulated in the Bat Surveys Good Practice Guidelines (Bat Conservation Trust, 2016).

2.5.11 *Trees:* an inspection of trees on Site was carried out from the ground, using binoculars, to record any signs of use of the tree by bat species. A ladder, powerful torch and a video fibrescope were available. Features such as frost cracks, rot cavities, flush cuts, split or decaying limbs (including hazard beams), loose bark and dense plates of ivy were inspected and recorded. Any signs of staining (from urine or fur rubbing) and scratch marks below potential access points were noted, and a search was made for droppings underneath these features.

2.5.12 *Habitat:* the habitats within the Site were appraised for their suitability for use by foraging and commuting bats. In particular, the connectivity of the habitats on Site to those lying beyond was taken into account. Vegetated linear features are typically important for many species to navigate around the landscape, while the presence of woodland, scrub, gardens, grassland and wetland features increases a site's foraging resource value to bats. The potential for noise or lighting disturbance which may affect commuting links was also recorded.

Limitations

2.5.13 Bats are small in size, capable of roosting within small spaces and it is possible that these animals, or their signs, might have been missed during the survey if they are normally present opportunistically or in small numbers for a short period of time each year.

2.5.14 Not all features in trees or buildings suitable for use by bats are visible from the ground and there may be no external evidence of use of features by bats; consequently it is only possible to make a best effort when carrying out such a survey.

Desk Study Information

2.5.15 A search of granted European Protected Species licences was undertaken. Licences within 3km are detailed, the closest of which is a licence granted for the destruction of a resting place for lesser horseshoe *Rhinolophus hipposideros* bats 1km to the south east of the Site with the licence running from 2015 to 2020 (licence reference: 2015-8611-EPS-MIT-1). Another licence for damage of a breeding site and destruction of a resting place of brown long eared *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, lesser horseshoe and soprano pipistrelle *Pipistrellus pygmaeus* was granted 2.6km to the North West. This licence runs from 2016 to 2021 (licence reference: 2016-24966-EPS-MIT). A further licence for the damage of a breeding site and destruction of a resting site was granted for lesser horseshoe located 2.9kn to the north east, the licence runs between 2017 and 2027 (licence reference: 2017-31511-EPS-MIT).

2.5.16 Consultation of the Clarkson and Woods in-house records gave several bat records within 2km of the Site; this included the presence of greater horseshoe and lesser horseshoe droppings in a building approximately 800m to the south of the Site in 2018. Three records of roosts attributed to brown long eared bats with some old droppings attributed to serotine bat *Eptesicus serotinus* were also recorded in Hutton between 1.8-1.9km of the Site to the north east during 2009 and 2010. Further records of commuting and foraging bats collected during 2010 1.9km to the north east of the Site included the following species: brown long eared, common pipistrelle, *Myotis* species, and serotine.

The North Somerset and Mendip Bats SAC: Supplementary Guidance on development

2.5.17 The North Somerset and Mendip Bats SAC is a composite site comprising of several separate compartments where each compartment is a Site of Special Scientific Interest (SSSI), and specifically includes important roosts for greater horseshoe and lesser horseshoe bats. The Planning Document (produced by the 'Somerset Authorities' in 2018) specifically regarding proposed developments in North Somerset and Mendip identifies critical zones for greater and lesser horseshoe bats. This guidance document identifies that the proposed development site is within the 'Band C' consultation zone.

Field Survey Results

Habitat

2.5.18 The habitat present on Site was of low to moderate value to bat species associated with the Site. It contained a variety of common habitats including semi-improved grassland, tall ruderal, scrub and ephemeral habitats. It also contained two species-poor hedgerows forming the eastern and northern boundaries. Overall the hedgerows represent valuable commuting and foraging habitat with the grassland habitats forming low value foraging habitats for a range of species. At present the site is relatively dark and this increases its value to bats. The surrounding gardens, allotments and small holding were of varying quality with changeable crops and levels of cultivated land varying seasonally. The trackway to the east and north is well vegetated and is considered likely to form a valuable commuting structure leading to open grassland and woodland sites to the north.

Buildings

2.5.19 A single derelict agricultural building was present in the North West corner of the Site but is outside of the red line boundary. This was predominantly of stone construction with some sections containing modern blocks or bricks and comprised two sections internally. The structure was likely to have been used as a stable and was missing its roof. As a consequence it had exposed stonework at the tops of the walls, which allowed water ingress. This building was closely inspected and had become encroached with bramble scrub over the past few years with the larger of the two sections to the east being predominantly inaccessible. On the southern elevation the structure had three old doorways, two of which were blocked with thick scrub. This elevation was constructed using concrete blocks and contained no potential bat features. The eastern elevation was entirely covered in bramble and appeared to be a mix of stone and brick work that was inaccessible to bats due to the encroaching bramble scrub.

2.5.20 The western elevation was partially clear of vegetation and was predominantly crumbling stone over concrete blockwork. This contained a few large gaps in the mortar, which were investigated fully. None of these gaps contained signs of bats and all of these were considered too light and exposed to be suitable for day roosting by crevice roosting bat species. The northern elevation was a mix of brick and stonework and contained a number of gaps. To the top of the wall a number of shallow exposed features were recorded, which offered negligible roosting opportunities. Three gaps low in the wall below 0.7m were recorded which offer some suitability for roosting bats one of which contained an old blue/great tit nest. Although these are considered suitable in terms of their structure (they were dark, accessible and of a suitable size) they were recorded very low in the stone work and are considered unlikely to be used by roosting bats due to their height and the lack of evidence encountered.

2.5.21 Overall the building was assessed as having **negligible potential** to support roosting bats.

Trees

2.5.22 The trees on Site were closely inspected and contained no visible potential roost features. A small amount of developing ivy was recorded on the mature ash in the north east corner of the Site; however, this was limited and considered to offer **low potential** for roosting bats. No other PRFs were recorded within the trees on Site and no further survey for roosting bats is considered necessary.

Activity Transect Surveys

2.5.23 Two activity transects and static detector surveys were undertaken on site by EcoLogic ecological consultants in July and August 2018. The results of these surveys are provided in the Bat Activity Survey and Reptile Report, EcoLogic 2018. A brief summary of the findings is provided below.

2.5.24 The bat activity survey was undertaken in accordance with the North Somerset and Mendip Bats SAC guidance document (2018) for a minor development within the "Band C" consultation zone.

2.5.25 The combined bat activity survey results, consisting of manual transects (July and August 2018), revealed a low level of bat activity for a low diversity of bat species. The activity surveys showed that at least six species use the site. Species recorded predominantly comprised common pipistrelle, soprano pipistrelle and noctule *Nyctalus noctula*, with a lower level of recorded activity for undetermined *Myotis* species, serotine and greater horseshoe. A total of 51 passes were recorded throughout the two walked transect surveys with 66%

of all passes attributed to common and soprano pipistrelle. 29% of calls were attributed to serotine and noctule and 3.9% of the calls from greater horseshoe and *Myotis* sp.

2.5.26 Bat activity was concentrated predominantly along the field boundaries particularly the eastern and northern hedgerows, although the southern boundary also appeared to be well used. These areas provide sheltered conditions, which allow bats to feed upon invertebrates associated with the grassland, scrub and hedge vegetation. The boundary vegetation also provides sheltered, predominantly dark commuting corridors for bats associated with the site.

Static Detector Surveys

2.5.27 Automated static bat detector surveys were also conducted by EcoLogic during July and August 2018, recording for 5 nights over each deployment. The static detector surveys comprised the use of two automated static detectors per deployment with a different key location covered during each deployment. A total of eight species were recorded during both deployments with additional species including lesser horseshoe and a single pass from a barbastelle bat *Barbastella barbastellus.* Overall the majority of recordings were attributed to common pipistrelle, soprano pipistrelle and noctule bats with 92.7% of the calls attributed to these three species. 41% of calls were from common pipistrelle, 24.5% of calls from soprano pipistrelle and 26.3% of all calls from noctule bats. Approximately 3% of all calls were attributed to serotine with 2.75% from *Myotis* species, 0.9% from greater horseshoe, 0.42% from lesser horseshoe and 0.1% of all calls attributed to barbastelle.

Evaluation

2.5.28 Overall the Site is used by commuting and foraging bats including a small proportion of rarer species including greater and lesser horseshoe, barbastelle and *Myotis* sp. The open grassland, tall ruderal and ephemeral vegetation are suitable for foraging and a number of common species including common pipistrelle, soprano pipistrelle and serotine were recorded foraging during the transect surveys. The level of use of the Site by bats associated with the SAC appears to be low with less than 1 pass recorded per night of deployment for both greater and lesser horseshoe bats. The boundaries of the Site had the highest level of use with the eastern and southern boundaries having the most bat passes recorded during the transect surveys. However, the automated static detector surveys identified the north western corner of the Site as the most used with a higher number of calls from this location than all of the other detector deployments combined. Overall it is considered that the eastern and northern boundary are the most important bat features due to the woody vegetation present and the commuting function that these features serve.

2.5.29 Bats associated with the Site are considered to be of **Local** importance

Dormouse

Methodology

2.5.30 Hedgerows, scrub and any woodlands present were assessed during the survey for their suitability to support dormice *Muscardinus avellanarius*. Particular consideration was paid to the abundance of food sources within them, density for nesting and overnight shelter and the strength of connectivity to other suitable habitats leading off site. In addition, any direct sightings, nests or feeding signs during the site visit were also recorded. Where hazel *Corylus avellana* was recorded on site, a search for gnawed hazelnuts was conducted.

Limitations

2.5.31 The Site contained no hazel so a nut search for this species was not possible. However, this is not considered to be a serious limitation to the assessment of the Site for this species.

Desk Study Information

2.5.32 No European Protected Species Licences have been granted for this species within 10km of the site. The Crossman Associates data search did not identify records of dormice within 500m of the site. Clarkson and Woods hold no records for dormice within 3km of the site.

Field Survey Results

2.5.33 The Site contains a limited number of features suitable for dormice; these include the boundary hedgerows and the dense scrub patches. There is some connectivity between the boundary hedgerows to woodland

to the north of the Site. However, the hedgerows on Site are considered to be fairly poor in structure, diversity and extent; these are unlikely to provide the foraging opportunities required to support a dormouse population. The hedgerows may be used by dispersing dormice associated with wooded habitats to the north of the site but this is likely to be on an occasional basis and by low numbers.

2.5.34 Overall, it is considered that the Site offers a small extent of sub optimal habitat for dormice. It is considered unlikely that this species will be present on Site due to the small extent and low quality of the hedgerows; however, there is some potential for dispersing individuals to use these habitats. The dense scrub on Site where it bounds the hedgerows is also considered suitable habitat although the southern extent is fragmented from other suitable habitat and is consequently considered unlikely to support this species.

Evaluation

2.5.35 Dormice, if present, are considered to be of **Local** Importance.

Great Crested Newt and Common Toad

Methods

2.5.36 All waterbodies within 500m of the Site were identified using Ordnance Survey maps and aerial imagery. Waterbodies within the site ownership and on publically accessible land were assessed during the field survey for their suitability to support amphibian species, such as great crested newts *Triturus cristatus* and common toad *Bufo bufo*, where access was possible.

2.5.37 Where suitable water bodies were identified on accessible land a Habitat Suitability Index (HSI) score was calculated for each one following the methodology described by Oldham et al[10]. HSI scores give a relative indication of the likelihood that a water body would support breeding great crested newts. Factors which increase these scores include the presence of other ponds nearby, water quality, pond size, absence of fish/waterfowl, vegetation cover and shading.

2.5.38 Terrestrial habitats were also assessed for their suitability for foraging and sheltering great crested newts and common toad. This species requires habitats such as grassland, scrub, woodland and hedgerows for dispersal and hibernation. Further hibernation features include buried rubble and logs, or mammal burrows.

Limitations

2.5.39 Three ponds were identified within the search area, all of which were in private ownership and were not accessible at the time of survey. As such no HSI assessments were undertaken for these ponds. Ideally these would be subject to an eDNA survey to ascertain the absence of great crested newt but due to the time of year and access issues this has not been possible.

Desk Study Information

2.5.40 The closest European Protected Species Licence granted for great crested newt is 4km to the south of the site, the licence runs from 2015 to 2017 (licence reference: 2015-14083-EPS-MIT). Clarkson and Woods Ltd in-house records indicate the closest record of GCN presence was recorded 3.5km to the east of the site. 12 records resulting from negative eDNA surveys were recorded within 3km of the site indicating the species is likely to be absent from the area. The closest negative record was 900m to the south of the site.

2.5.41 The closest registered toad crossing point is 6.4km away to the north east.

Field Survey Results

Ponds within 500m

2.5.42 Three ponds have been identified within 500m of the Site; these were highlighted in the independent ecological review undertaken of the ecological work carried out on Site to date by Phil Quin (January 2019). OS mapping shows the location of a pond which has apparently been subsequently removed approximately 12m to the south east of the Site boundary. According to Kirsten Hemmingway, a local resident, another pond within 50m of this pond exists in her garden and supports breeding amphibians. The location of this

[10] Oldham. R.S., Keeble L., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

pond could not be ascertained but running water could be heard in the south west corner of the Site from a back garden and it is assumed this is the location of this waterbody, which is within 10m of the Site boundary. A further pond is, according to the independent assessment by Phil Quin (January 2019), located in the adjacent allotments (this is presumably to the north of the Site where allotments are present). However, this cannot be seen on aerial imagery of from the periphery of the allotments whilst on Site indicating it is very small in size.

2.5.43 None of these ponds could be accessed due to them being within private ownership but all are present within 500m of the Site and as such if amphibians are present they may access the terrestrial habitat on Site.

Habitat

2.5.44 The survey assessed the quality of habitat on Site as moderate for supporting amphibians including great crested newt. Overall the Site is considered suitable containing some developing grassland and tall ruderal habitat and some loose and dense scrub. This is suitable to support amphibians in their terrestrial phase and provides areas such as the building in the North West corner (just outside of the Site) portions of which may provide hibernation potential for amphibians.

2.5.45 The data search for European protected species licences and Clarkson and Woods Ltd in-house records indicate that great crested newts are absent from the local area. Furthermore, the BRERC data search indicated no records of this species within the search area. The presence of up to three small garden/allotment ponds introduces the potential for widespread amphibians and potentially great crested newts being present within the terrestrial habitat present on site. It is considered that the presence of great crested newt is highly unlikely given the small size of the ponds present, the distance between these and also the lack of local records for this species.

Evaluation

2.5.46 Common toads may be present on site and are considered to be of **Site** importance.

2.5.47 Great crested newt (in the unlikely event this species is present) would be of **Local** importance.

Reptiles

Methods

2.5.48 Features on site were assessed for their potential to support reptile species. These include rough, tussocky grassland, scrub, disturbed land or refugia such as wood piles, rubble or compost heaps. Where present, suitable existing refugia were inspected for sheltering reptiles, and the ground was scanned whilst walking to look for basking species.

Desk Study Information

2.5.49 The desk study from the previous ecological assessment made by Crossman Associates during 2017 indicate that BRERC provided a record of slow worms *Anguis fragilis* 450m to the west of the site. Clarkson and Woods Ltd in-house records had no reptile records within 3km of the site.

2.5.50 A survey has been undertaken for reptiles and the data from this is presented in the Protected Species Further Survey Report by EcoLogic. The survey was undertaken between August and September 2018. The full report should be referred to for the full findings; a summary of the results are reproduced below. These show a peak count of 4 adult slow worms were encountered during any given inspection. This is interpreted as being a low population based on the peak count per hectare.

2.5.51 The survey indicates that a population of slow worms is present on site; no indication is given in the protected species report as to where these individuals were encountered so it is assumed they are present throughout the site. It is considered the Site offers moderate habitat quality for slow-worms and is likely to support a low population. Given this, a translocation exercise is likely to be required, the details of which are provided in the Assessment of Effects section of this report.

Table 5: Reptile Survey Results (reproduced from the EcoLogic Protected species further survey report (2018))

Visit	Date and Time	Environmental conditions		Reptiles
1	5th August 2018 09:25	Temp. (°C): Cloud cover (%): Wind (Beaufort scale):	20 0 1	None
2	13th August 2018 08:20	Temp. (°C): Cloud cover (%): Wind (Beaufort scale):	18 10 2	None
3	23rd August 2018 14:30	Temp. (°C): Cloud cover (%): Wind (Beaufort scale):	21 85 2	None
4	24th August 2018 09:50	Temp. (°C): Cloud cover (%): Wind (Beaufort scale):	15 20 2	1 juvenile slow worm
5	28th August 2018 08:50	Temp. (°C): Cloud cover (%): Wind (Beaufort scale):	16 100 1	1 male adult slow worm 6 juvenile slow worm
6	2nd September 2018 10:30	Temp. (°C): Cloud cover (%): Wind (Beaufort scale):	20 90 2	1 male adult slow worm 2 adult female slow worm 3 juvenile slow worm
7	6th September 2018 10:15	Temp. (°C): Cloud cover (%): Wind (Beaufort scale):	17 70 1	2 male adult slow worm, 2 female adult slow worm 10 juvenile slow worm

Field Survey Results

2.5.52 The site contains habitats of value to slow worms; these habitats include the grassland, scrub, tall ruderal habitat and the boundary hedgerows.

Evaluation

2.5.53 The population of slow worm on site are of **local** importance.

Birds

Methodology

2.5.54 Any buildings and vegetation were surveyed for signs of use by nesting birds and any birds seen or heard during the survey were noted. The Site's potential to support bird species of particular conservation concern (i.e. Schedule 1, NERC S41 and Red List species) was assessed, taking into consideration the bird species assemblage observed during the survey, the habitats present on and around the Site, the context of the Site in the wider landscape and the results of the desk study.

Limitations

2.5.55 The survey was undertaken at the end of the bird nesting season so the birds encountered may not be representative of the assemblage which may nest on the Site during the spring and early summer.

Desk Study Information

2.5.56 A search of the Clarkson and Woods in house data base was undertaken and found a number of records resulting from survey in Western-super-Mare, approximately 3km to the west of the Site. The following species were recorded during the surveys: mallard *Anas platyrhynchos*, common sandpiper *Actitis hypoleucos*, little egret *Egretta garzetta*, oyster catcher *Haematopus ostralegus*, gadwall *Mareca strepera*, shelduck *Tadorna tadorna*, lesser black-backed gull *Larus fuscus*, black-headed gull *Chroicocephalus ridibundus*, moorhen *Gallinula chloropus*, cormorant *Phalacrocorax carbo*, grey heron *Ardea cinerea*, mute swan *Cygnus olor*, little grebe *Tachybaptus ruficollis*, coot *Fulica atra*, wigeon *Anas penelope*, tufted duck *Aythya fuligula*, goosander *Mergus merganser*, Canada goose *Branta canadensis*, whimbrel *Numenius phaeopus* and common redshank *Tringa tetanus.* Despite a wide range of species being recorded locally the majority are wetland birds and are considered unlikely to use the Site for either foraging or sheltering.

Field Survey Results

2.5.57 The habitats were assessed and provide foraging and nesting opportunities for common garden and farmland birds. The grassland and tall ruderal habitats are likely to represent good foraging habitat. The hedgerows and dense scrub represent suitable nesting habitat for a range of species. The grassland within the centre of the Site was considered to be too limited in extent to provide good opportunities for ground nesting birds. The main nesting opportunities come from the hedgerows and dense scrub habitats which are likely to support common species.

2.5.58 A single old bird nest was found in the northern elevation of the building on Site. This nest was attributed to great or blue tit but the building, which contains this feature, is located just outside of the red line boundary.

2.5.59 Bird species recorded on Site during the survey were limited and are detailed in Table 6 below. Dunnock, which was recorded calling from the hedgerows, is an amber listed Bird of Conservation Concern, and house sparrow, which were foraging in the dense scrub, is a red list species. All the other bird species recorded were of least concern.

Table 6: Bird Species Recorded During the Field Survey

Species	Latin
Blackbird	*Turdus merula*
Chaffinch	*Fringilla coelebs*
Dunnock	*Prunella modularis*
Goldfinch	*Carduelis carduelis*
Great tit	*Parus major*
House sparrow	*Passer domesticus*
Jackdaw	*Corvus monedula*
Robin	*Erithacus rubecula*
Wood pigeon	*Columba palumbus*
Wren	*Troglodytes troglodytes*

Evaluation

2.5.60 Birds recorded on the Site and associated with the habitats are considered to be of **Site** importance.

Invertebrates

Methods

2.5.61 Any notable invertebrates identified during the survey were recorded. The habitat was also assessed for its suitability for notable invertebrates, including the presence of specific species known to be foodplants or larval plants or habitats which may be favoured by invertebrates (such as bare ground, deadwood or grass tussocks). The habitat structure was also considered, such as mosaics, brownfield or unmanaged areas.

Limitations

2.5.62 No specific limitations were encountered in relation to assessment for this species group. A full invertebrate survey was not conducted.

Desk Study Information

2.5.63 No desk study information was pertinent to invertebrates from the Clarkson and Woods in house records or the BRERC data search as presented in the initial ecological assessment.

Field Survey Results

2.5.64 The Site contained a wide range of habitats although these were small in extent and formed a mosaic transitioning from poor semi-improved grassland into ephemeral vegetation, tall ruderals and woody species present in the scrub habitat and the boundary hedgerows. A good diversity of invertebrates were recorded including red tailed bumblebee *Bombus lapidaries* and buff tailed bumblebees *Bombus terrestris*, shield bugs *Pentatomidae spp* of various species, butterflies including large white *Pieris brassicae*, meadow brown *Maniola jurtina*, along with a large diversity of crickets and grasshoppers. The timing of the survey in August is likely to increase the number of invertebrates recorded due to crickets, grasshoppers and a range of beetles breeding and stridulating at that time of year.

2.5.65 The Site appears to be valuable to a range of common invertebrates. This is likely due to the variety of micro habitats and the dead wood present at the base of the established hedgerows. Unimproved and semi-improved grassland habitats in the vicinity of the Site are likely bolster the number of invertebrates that make their way onto the Site from elsewhere and take the opportunity to forage in the relative shelter of the Site, which is provided by the tall boundary hedgerows.

Evaluation

2.5.66 Invertebrates recorded and likely to be present are considered to be of **Site** importance.

Other Protected Species and Species of Conservation Concern

Methods

2.5.67 An assessment of the suitability of the Site to support a range of notable and invasive species was undertaken. This included for brown hare *Lepus europaeus*, hedgehog *Erinaceus europaeus*, harvest mice *Micromys minutus* and a range of invasive plant species.

Desk Study Information

2.5.68 No pertinent desk study information was available in the Clarkson and Woods in house records of the BRERC data search as presented in the ecological report in relation to other protected species of conservation concern or invasive species.

Field Survey Results

2.5.69 The Site contained features suitable for hedgehogs, especially the heap of wood and other materials in the centre of the Site. The connectivity of the Site with the adjacent allotments, small holdings and the back gardens of local residents is likely to provide optimal habitat for this species. The Site also had limited potential to support harvest mice within the longer grassland habitats at the margins of the Site; however, this has established in recent years and the species may not yet be present within the red line boundary if it is present in the locality. Brown hare are considered unlikely to use the Site due to its small size and tall boundary features as this species prefers open grassland habitats. Nonetheless this species may be present on Site intermittently if they occur locally to the Site.

2.5.70 No invasive species were recorded during the Phase 1 survey and no records of these were encountered as part of the data search.

2.6 Summary of Ecological Importance

2.6.1 Table 7 below provides all the identified ecological features on Site and their individual assessment of importance. Those coloured green are considered to be Important Ecological Features and will form the basis of the Assessment of Effects in Section 3. Those coloured yellow will be included on the basis of their specific legal protection or applicable planning policies.

Table 7: Ecological Importance

Feature	Importance
Non statutory designated sites	
Bleadon Hill Fields WS SINC	Local
Purn Hill WS SINC	Local
Hellenge Hill to Loxton Wood Complex WS SINC	Local
Ditches to the west of Purn Farm WS SINC	Local
River Axe (Part of) WS SINC	Local
Combes Farm drains and adjacent land WS SINC	Local
South Hill Bleadon WS SINC	Local
Oldmixon to Upper Canada Scarp WS SINC	Local
Designated Sites (Statutory)	
Purn Hill SSSI	National
Bleadon Hill SSSI	National
Uphill Cliff SSSI	National
Mendip Limestone Grasslands Special Area of Conservation (SAC)	International
Severn Estuary SAC, SPA	International
North Somerset and Mendip Bats SAC	International
Habitats	
Semi-improved grassland	Site
Hedgerows	Local
Scrub	Site
Tall ruderals	Site
Ephemeral vegetation	Site
Semi-mature trees	Site
Species	
Badger	Site – included due to legal protection
Bats	Local
Dormouse	Local

Birds	Site - included due to legal protection
Common toad	Site
Great crested newt	Local
Reptiles	Local
Invertebrates	Site

3 ASSESSMENT OF EFFECTS

3.1 Methodology

3.1.1 Continuing from the valuation of Important Ecological Features (IEFs), this section lists each IEF in turn together with a characterisation of any potential impacts upon them likely to arise from the proposals. This takes into consideration any measures inherent to the designed scheme which seek to avoid such impacts altogether. Next, any agreed mitigation measures chosen to reduce likely impacts are then set out, along with the mechanism(s) through which these would be secured.

3.1.2 Residual effects, being those effects which would likely still arise despite any avoidance measures or agreed mitigation efforts, are subsequently discussed. Residual effects are determined to be either significant or not significant and any significant residual effects are given a geographical scale at which they might be felt. This assessment methodology is in accordance with that set out in the CIEEM Guidelines for Ecological Impact Assessment, 2016.

3.1.3 Where residual effects are identified compensatory measures may be proposed to make up for the loss or permanent damage to an IEF, as far as possible. Monitoring or management schemes which may be necessary to ensure the long-term achievement of all intended mitigation and compensation are discussed.

3.1.4 Where potential for cumulative impacts upon IEFs in association with other proposed or ongoing local development are identified these are described as appropriate for the affected IEF. The Zone of Influence for each IEF, together with their level of ecological importance will be of relevance when considering the scope of a cumulative impact assessment.

3.1.5 Ecological enhancement measures that will be incorporated into the development are given in line with the National Planning Policy Framework.

3.2 Summary of Development Proposals

3.2.1 Outline planning permission is sought to construct 16 residential properties within the Site, along with gardens, associated infrastructure and access. All details are set aside for reserved matters approval, except for vehicle access.

3.2.2 The development will result in the removal of the majority of the semi-improved grassland habitat on Site along with the majority of dense scrub, tall ruderal and all of the ephemeral vegetation approximately 0.5 hectares. The eastern and northern boundaries including the hedgerows and an offset of grassland a minimum of 4 meters in width will be retained and a protected throughout construction to serve as both a receptor area for reptiles on Site and to provide a dark corridor for bat species associated with the Site. Access will be provided to the mitigation area from a locked gate within the Site. This will allow maintenance of the newly created habitats from within the Site on both the eastern and northern boundaries, the other side of the hedgerow features can be managed from Mendip Way.

3.2.3 The development will result in the removal of approximately 0.5ha of poor quality grassland but retain the key woody vegetation on the northern and eastern boundaries and approximately 0.2ha of grassland habitat. The northern and eastern boundaries will be enhanced as mitigation areas for bats and reptiles. Hedgerows and semi-mature trees will be protected during construction along with the grassland using appropriate protective fencing.

3.3 Designated Sites

Statutory Designated Sites

Potential Impacts

3.3.1 The proposed development is relatively small in scale in the context of the local landscape, and will be situated on land previously used for agriculture at the edge of a rural conurbation. The limited extent of development proposed along with the low value of the habitats present on Site means it is highly unlikely that the proposed development will have any significant direct or indirect impacts on the designated sites identified during the desk study.

3.3.2 Purn Hill SSSI, Uphill Cliff SSSI, and the Mendip Limestone Grasslands Special Area of Conservation (SAC) are all unlikely to be affected by construction or operation of the development as they are designated for their

extents of grassland and woodland. These habitats are most vulnerable to deposition by pollutants, which are unlikely to be significant given the relatively small size of the development. Minor direct impacts from increased visitation by new residents as a result of leisure activities, such as dog walking, are possible given their proximity, particularly Purn Hill SSSI which is just 330m to the west of the Site and can be accessed directly by following the Mendip Way footpath adjacent to the Site. Given the small number of units proposed significant impacts (such as recreational pressure, i.e. erosion) on these designated sites are considered unlikely.

3.3.3 Severn Estuary SAC, SPA located 2.1km west of the Site is considered unlikely to be impacted due to its distance from the Site. This site is designated for wildfowl and other estuarine fauna which are considered unlikely to use habitats within the Site and is considered outside the zone of influence for the development impacts for the Site.

3.3.4 There is some potential for lesser and greater horseshoe bats associated with the North Somerset and Mendip SAC to experience a minor adverse impact from the removal of habitat on Site in the absence of mitigation. Impacts to the designated sites themselves are considered unlikely given the closest portion of this is SAC is 4.65km from the Site. Impacts to horseshoe bats associated with the SAC have the potential to include a minor reduction in foraging habitat within the Site, severance of flight routes from the removal of wooded boundary features or the introduction of artificial lighting, which may deter these light sensitive bats from using illuminated habitat features.

Mitigation

3.3.5 To mitigate the potential for pollution and other direct impacts resulting from the construction of the Site, a Construction Environmental Management Plan will be prepared for the Site covering pollution prevention and other measures to avoid associated risks and impacts on nearby designated sites. Specific mitigation measures for bats associated with the SAC are given in the bats section below.

Non-statutory Designated Sites

Potential Impacts

3.3.6 Overall the development proposals are considered unlikely to directly impact the non-statutory sites identified during the desk study due to the small size of the Site and the low likelihood for potential impacts resulting from the construction and operation of the proposed development. It is considered unlikely that the development will cause significant deposition of pollutants or direct damage to the sites or the species or habitats they support. The likelihood of impacts are particularly low with regard to Oldmixon to Upper Canada Scarp WS SINC given it is located over 1km from the Site.

3.3.7 Ditches to the west of Purn Farm, River Axe (part of) and Combes Farm Drains and Adjacent Land WS SINC are also unlikely to be affected by the proposals given they are linear riparian and ditch habitats, which are located over 500m from the Site and, as such, are highly unlikely to suffer pollution such as runoff during the construction phase. This is primarily due to the lack of linking hydrological features. Additional recreational pressure on these sites is considered to be negligible, as a result of the additional local residents associated with the development due to the lack of open access to these features

3.3.8 The closest non-statutory wildlife sites, including Bleadon Hill Fields, Purn Hill, Hellenge Hill to Loxton Wood Complex, and South Hill Bleadon, are all unlikely to receive direct impacts from construction of the proposals. However, as these non-statutory sites are all within 600m of the Site, are open access and contain unimproved to semi-improved calcareous grassland habitats, along with valuable ash woodland, there is potential for minor impacts to these sites from additional recreational pressure. The largest concern is that the sites will be damaged by increases in dog walking, dog fouling and potentially an increase in the number of domestic cats (resulting in increased predation of local wildlife). However, given the low number of units proposed it is considered unlikely that the development will result in significant impacts upon these non-statutory designated sites as a result of increased recreational pressure.

Mitigation

3.3.9 To mitigate for the potential for pollution and other direct impacts from construction activities, the Construction Environmental Management Plan discussed above will cover pollution prevention and other mitigation measures to limit the impacts from construction on nearby non-statutory designated sites.

Residual Effects

3.3.10 It is likely that the closer non-statutory wildlife sites may experience a minor adverse impact from additional recreational pressure as a result of the development.

3.4 Habitats

3.4.1 As noted above, a Construction Environmental Management Plan (CEMP) will be prepared to detail how the habitats within and surrounding the Site will be protected during the construction phase. The CEMP will include details of appropriate fencing to restrict access into key ecological areas, information on any timing restrictions and measures to prevent damage to sensitive ecological habitats. Typically the preparation of a CEMP will be a conditional requirement of the planning permission.

3.4.2 A Landscape and Ecological Management Plan (LEMP) will also be prepared for the operational site that will cover how retained habitats and newly planted areas should be managed so as to maximise their biodiversity value and achieve the objectives of ecological mitigation and compensation. The LEMP will also set out any measures necessary to ensure protected species are appropriately accommodated within the operational site.

Habitat 1- Hedgerows

3.4.3 The site contains 2 overgrown species-poor hedgerows that form the northern and eastern boundaries.

Potential Impacts

3.4.4 The hedgerows will be retained as part of the scheme but have the potential to suffer direct impacts from construction activities. These impacts include root compaction and damage to the trunk and limbs through the operation of plant within the site. Pollution of the soil through runoff of cement, polluted water and fuel also have the potential to impact these features.

Mitigation, Compensation, Enhancement and Monitoring

3.4.5 The hedgerows will be protected with tree protection fencing (to BS5837:2012) establishing a protection zone, which covers the spread of the canopy as a minimum. A grassland buffer will be established to allow for reptiles to be retained within the Site; therefore, the buffer area will be over 4m in width in all locations. This buffer will protect the hedgerow and associated trees that form the boundaries of the Site. Other measures detailed in the CEMP will ensure that the development does not pollute the soil through spillages or other construction activities.

3.4.6 To enhance the hedgerows which have become overgrown in places remedial management will be applied. Sections of the eastern hedgerow to the south of the Site have become defunct and contain a number of gaps at the base of the woody vegetation. In the North West Site boundary, close to the building, the hedgerow is primarily dense bramble and this section of the hedgerow is also considered in poor condition. To restore the hedgerow in these locations it is recommended the hedgerow is laid or coppiced and supplemented with plantings of blackthorn, which will sucker at the base of the hedgerow and create a denser structure. The semi-mature trees will remain unmanaged and a range of other suitable native species will also be planted to augment the species diversity of these features; species including guelder rose *Viburnum opulus*, wayfaring tree *Viburnum lantana*, dog rose *Rosa canina* and hazel will be used.

3.4.7 The condition of the hedgerow will be assessed during years 1 and 3 after construction to ensure their condition is maintained and measures to enhance these features for bats and other wildlife are being achieved.

Residual Effects

3.4.8 Providing the protection measures outlined in the tree protection plan and the CEMP are adhered to it is not anticipated that the hedgerow habitat on Site will suffer any adverse residual effects. It is likely that with the additional planting and sensitive management, the hedgerow habitat will be enhanced as a result of the proposals.

3.5 Protected Species and Species of Conservation Concern

Species 1- Badger

3.5.1 No signs of badger activity was recorded on Site during the Phase 1 survey although the habitats may be used by badgers intermittently for forging.

Potential Impacts

3.5.2 There is limited potential for badgers to create setts within the site between the completion of the Phase 1 survey and the outset of construction. There is a risk that the dense bramble scrub may contain a sett entrance that was not evident at the time of survey, particularly if they are poorly used or disused.

3.5.3 The proposed construction will reduce the extent of potential foraging habitat for badgers as approximately 0.5ha of semi-improved grassland, tall ruderal vegetation, ephemeral vegetation and dense and loose scrub will be removed. However, the large extents of similar habitat present locally will reduce the impact of this loss on the local badger population and overall it is considered to represent a minor adverse impact on this species.

Mitigation, Compensation, Enhancement and Monitoring

3.5.4 A badger survey of the Site will be undertaken prior to construction commencing to check for any new setts that may have been constructed since the previous survey was undertaken. This survey will also involve careful clearance of the bramble scrub to check for setts (outside of the bird nesting season or checking for active nests by the ecologist). In the unlikely event that an active badger sett is found, it will be closed under licence from Natural England, subject to mitigation.

3.5.5 Badgers will have access to the retained grassland habitat within the Site. The grassland buffer along the boundary hedgerows will be enhanced through over-seeding of suitable chalk grassland species and maintained through appropriate management. By keeping the grassland open and relatively short, badgers will be able to continue to forage for worms within the grassland. Provision of a number of fruiting shrubs including bramble, damson and potentially crab apple will be included as a loose planting of shrubs/trees throughout this grassland providing enhanced seasonal foraging opportunities for badgers. No monitoring for this species is proposed.

Residual Effects

3.5.6 The loss of grassland extent will result in a reduction in the extent of foraging habitat available to badgers (although no evidence of badger activity on site was noted), although given the mitigation and enhancement measures proposed these impacts will be reduced. The large extents of similar grassland habitat available locally in combination with the mitigation and enhancement measures, residual negative impacts on local badger populations are considered to be Negligible.

Species 2- Bats

3.5.7 The Site falls within Band C of the consultation zone for the North Somerset and Mendip Bat SAC; this allows for a reduced survey effort and mitigation requirements based on the Site's proximity to the SAC roosts. Survey for bats was reduced in line with this but particular emphasis is given to lesser and greater horseshoe bats as part of this assessment. Furthermore this scheme will provide mitigation in line with the guidance to ensure that bats associated with the SAC are not adversely affected by the proposals.

Potential Impacts

3.5.8 The removal of approximately 0.5ha of habitat, including species-poor, semi-improved grassland, tall ruderal and ephemeral vegetation will result in a reduction of suitable, albeit suboptimal, foraging habitat for a range of bat species. The removal of these habitats will reduce the available extent of foraging habitat available to bats locally. Other potential impacts include the introduction of artificial lighting from new dwellings, which has the potential, if not controlled, to deter bats from foraging in areas affected by light pollution, and potentially sever existing flight paths where important commuting features are illuminated.

3.5.9 Overall as was identified in the initial bat survey report (EcoLogic 2018) bat activity throughout the Site was low and strongly associated with the boundary habitats. Common species including common pipistrelle, soprano pipistrelle and noctule are likely, given the number of calls and activity recorded, to be foraging within the site. The data collected regarding horseshoe activity, although limited, falls far below the threshold

set by the North Somerset and Mendip Bat SAC SPD for foraging activity by lesser and greater horseshoe bats. The low number of passes recorded indicate these species are likely to be using the site as part of a wider commuting network.

3.5.10 Therefore, in the absence of mitigation, it is considered that the proposed development would cause a minor impact to bat species in general, and minor/negligible impact to greater horseshoe and lesser horseshoe bats (with impacts to horseshoe bats, in turn considered to represent a minor/negligible impact upon the North Somerset and Mendip Bats SAC).

Mitigation, Compensation, Enhancement and Monitoring

3.5.11 The North Somerset and Mendip Bats SAC guidance (2018) states the following for proposed developments that would result in minor impacts:

In some circumstances, a developer may be able to clearly demonstrate (from their qualified ecologist's site visit and report) that the impacts of a proposed development are proven to be minor and can be avoided or mitigated (or do not require mitigation) without an impact on SAC bat habitat, so a full season's survey is not needed. This should be substantiated in a suitably robust statement submitted as part of the development proposals.

3.5.12 In this instance, due to the small size of the Site and the low level of usage by horseshoe bats during the surveys conducted, it is considered appropriate to apply a reduced survey scope. Given the presence of both lesser and greater horseshoe bats within the Site in low numbers, it is considered appropriate that mitigation measures are applied in line with those stipulated in the guidance. The previous bat survey report (EcoLogic 2018) calculated the replacement habitat required as being **0.163ha for greater horseshoe bats** and **0.113ha for lesser horseshoe bats** of optimum foraging habitat for these species. The calculation for the revised mitigation habitats proposed in this assessment are given in the 'habitats' section below.

Habitats

3.5.13 The Site at present contains mature hedgerows with some semi-mature hedgerow trees, which are considered to be the most valuable features for bats including lesser and greater horseshoes. These will be retained, protected and enhanced as part of the development proposals. Protection of the boundary features and hedgerows will be achieved by the use of robust fencing, the exclusion of vehicles and construction activities within the retained mitigation habitat.

3.5.14 Hedgerows will be enhanced through appropriate management (such as coppicing of laying small extents of this habitat) and planting of supplementary species to improve the diversity and structure of these habitats. This will increase their width from 2-3m to around 3.5-4m and extend the extent of hedgerow on the northern boundary, resulting in approximately 500m² of additional species-rich hedgerow in addition to the 350m of extant hedgerow. A tall boundary hedgerow will be established between the gardens and the mitigation habitat on the northern boundary of the dwellings; this will be outside of the ownership of the properties and will be managed to a height of between 2 to 3 meters with a number of hedgerow trees planted along its length. This will introduce a further 200m² of hedgerow habitat as part of the mitigation. A further hedgerow of approximately 80m in length is proposed within the gardens of the properties to the east of the Site, this being within the fenced gardens of the properties cannot count towards the bat mitigation but will nonetheless enhance the Site as a whole for bats. Both hedgerows will be planted with a mix of native appropriate woody species including hawthorn, blackthorn, field maple, dogwood, hazel, spindle *Euonymus europaeus* and wild privet *Ligustrum vulgare*.

3.5.15 Grassland will also be retained with approximately 0.11ha of grassland habitat being protected and enhanced in total. This will be achieved through the following measures, which will aim to enhance bat foraging opportunities through the creation of species-rich calcareous grassland habitat, which will support a range of invertebrate prey items for bats.

- Over-seeding of the grassland with yellow rattle *Rhinanthus minor* to reduce the dominance of certain grass species;
- Over-seeding of chalk grassland species including common knapweed *Centaurea nigra*, bird's-foot trefoil *Lotus corniculatus*, woolly thistle *Cirsium eriophorum*, common centaury *Centaurium erythraea* and oxeye daisy *Leucanthemum vulgare* to increase floristic diversity and foraging potential;

- Regular mowing in the first year, prior to seeding, of specified areas and removal of arisings to reduce stored nutrient levels;
- Cessation of fertilisation of the grassland;
- Addition of selected native shrub species; and
- Continued mowing and collection of vegetative arisings in the early spring and late autumn to reduce fertility.

3.5.16 Creation of 2 log piles within the receptor area (for reptiles and amphibians – see below) will enhance the foraging potential for bats as it is likely to encourage additional night flying invertebrates.

3.5.17 The replacement habitat calculations are provided below based on the guidance given in version 2.1 of the North Somerset and Mendip Bat SAC guidance on development. Delivery risk has been set to 'low' as the hedgerows and grassland are considered relatively easy to establish/restore. A temporal risk of 0.86 is applied to the grassland and creation of the new hedgerows as it is likely that the habitats will take around 5 years to establish to their target condition. To achieve this the new hedgerow will be established with pre-grown hedgerow at 1m grown in containers which will likely reach its target height of over 2m within 5 years. The supplementary plantings to the existing hedgerow will comprise whips as this fringe of vegetation will spread and fulfil its function to thicken the hedgerow in a relatively short period of time. The grassland will be enhanced significantly by the addition of further species through over-seeding and the mowing will begin to reduce nutrient levels and support a greater species diversity within this time. It is unlikely that the grassland will achieve an unimproved status within 5 years due to existing nutrient levels. The target for this grassland is for it to contain a range of characteristic chalk grassland species and present a similar assemblage and quality of typical calcareous grassland extents locally.

Table 8: Greater Horseshoe Habitat Evaluation Procedure Calculation

	Primary Habitat		Matrix		Formation		Management /						Spatial Risk		
Habitat	IHS Code	Score	Code	Score	Code	Score	Code	Score	HSI Score	Hectares	Delivery Risk	Temporal Risk	Development Site Band Score	Replacement Site Band Score	Equivalent Hectares
Additional hedgerow planting	LF11	6		0		1.00	LM31	1.00	6.00	0.050	1.00	0.86	1.0	1.0	0.26
Internal hedgerow (new)	LF11	6		0		1.00	LM21	0.90	5.40	0.020	1.00	0.86	1.0	1.0	0.09
Calcareous grassland with scattered scrub	GC0	6	SC2	1		1.00	GL211	1.00	6.00	0.122	1.00	0.86	1.0	1.0	0.63
		0		0		1.00		1.00	0.00	0.000	1.00	1.00	1.0	1.0	0.00
		0		0		1.00		1.00	0.00	0.000	1.00	1.00	1.0	1.0	0.00
		0		0		1.00		1.00	0.00	0.000	1.00	1.00	1.0	1.0	0.00
										0.192					
Value of Habitat Provided in Hectares															0.163

Table 9: Lesser horseshoe Habitat Evaluation Procedure Calculation

	Primary Habitat		Matrix		Formation		Management /						Spatial Risk		
Habitat	IHS Code	Score	Code	Score	Code	Score	Code	Score	HSI Score	Hectares	Delivery Risk	Temporal Risk	Development Site Band Score	Replacement Site Band Score	Equivalent Hectares
Additional hedgerow planting	LF11	6		0		1.00	LM31	1.00	6.00	0.050	1.00	0.86	1.0	1.0	0.26
Internal hedgerow (new)	LF11	6		0		1.00	LM21	0.90	5.40	0.020	1.00	0.86	1.0	1.0	0.09
Calcareous grassland with scattered scrub	GC0	3	SC2	1		1.00	GL211	1.00	4.00	0.122	1.00	0.86	1.0	1.0	0.42
		0		0		1.00		1.00	0.00	0.000	1.00	1.00	1.0	1.0	0.00
		0		0		1.00		1.00	0.00	0.000	1.00	1.00	1.0	1.0	0.00
		0		0		1.00		1.00	0.00	0.000	1.00	1.00	1.0	1.0	0.00
										0.192					
Value of Habitat Provided in Hectares															0.128

3.5.18 As illustrated in the calculations above, providing the scheme delivers the recommended mitigation habitats in terms of quality and area (ha), the foraging habitat will be provided of equivalent value to that habitat to be lost as a result of the proposed development. As such, it is considered the scheme will result in a neutral outcome for greater horseshoe bats and a minor enhancement of 0.013ha in terms of the equivalent habitat value for lesser horseshoe bats. In order for this mitigation habitat to count towards the bat mitigation habitat it must remain unlit; guidance on how this will be achieved is given in the lighting section below.

Lighting

3.5.19 Artificial lighting will be specifically positioned and designed not to illuminate any of the peripheries of the development area to the east and north of the proposed dwellings. Lighting within these areas must be controlled to under 0.5 lux in compliance with the stipulations of the North Somerset and Mendip bat SAC guidance on development. LED lamps should be utilised with a warm white spectrum. This type of lighting can be utilised more directionally and will reduce the range of light wavelengths emitted thus significantly reducing the levels of UV light which may attract increased levels of invertebrate bat prey items. Such light

should be positioned to only illuminate the required areas, limiting light spill, both horizontally and vertically beyond the site. Additionally, hoods, cowls, louvers and/or shields may be utilised to further direct any lighting.

3.5.20 To ensure this is achieved, a lux contour plan of all external and selected internal lighting will be modelled to confirm the proposed lighting does not illuminate the mitigation habitat. The use of close board fencing as a boundary treatment for the gardens will act as a barrier for internal lighting reaching the mitigation habitats. The following lighting principals will be applied:

- Any street lighting will need to be designed in consultation with a suitably qualified consultant ecologist and Local Authority Ecologist. The key ecological objective of artificial lighting will be to maintain connectivity across the site. As such, the sensitive lighting zone has been identified in Figure 5 below. Lux levels will need to be measured at 1m above ground level on a horizontal plane.
- Lighting levels within the sensitive lighting zone (resulting from external and internal lighting) will not exceed 0.5 Lux above current baseline conditions and where possible as a total maximum light level in the areas identified.
- Light from windows of domestic properties will also need to be modelled particularly where these front onto sensitive habitats such as the boundary hedgerows. If necessary the design of windows in these areas will need to reflect the sensitivity of the boundary features to artificial illumination.
- It is assumed that all luminaires on site will use LED lamps. A warm white spectrum will be selected as this will minimise the potential for adverse impacts upon wildlife.
- Consideration must be given within the design of the external lighting scheme to minimisation of glare as well as minimising light spill into the sensitive zones. This involves the avoidance of a direct line of sight between the light source and the 'target', in this case the retained tree lines and vegetation within the sensitive zones identified. To this end, lighting may need to employ cowls, baffles or screens, or use low level lighting bollards to ensure non-target areas are not unnecessarily illuminated.
- Preparation of a contour lighting plan should be made a condition of the planning permission. The above lux limits should be applied at ground level and on the vertical plane at key locations on the outside edge of the retained vegetation.

Compliance Monitoring

3.5.21 To ensure that the bat mitigation proposed fulfils its aims, monitoring of bats use of the dark corridor and hedgerows will be undertaken in years 1 and 3 after the completion of the development. This will take the form of static detector surveys over a series of at least 5 consecutive nights during the active season in June/July (to compare with data collected during the baseline survey). Further habitat monitoring will be proposed as part of the Landscape Ecological Management Plan to ensure that the proposed habitats establish and achieve their desired function.

Residual Effects

3.5.22 The removal of the majority of grassland habitat from the Site will reduce the extent of available foraging habitat for bat species. The mitigation proposed significantly enhances the retained habitat and according to the North Somerset and Mendip bat SAC guidance on development will result in a neutral outcome in terms of the value of the habitat.

3.5.23 There is potential for artificial lighting to be introduced by the private residences in the future that could illuminate the boundary habitats and reduce the effectiveness of any proposed mitigation.

Species 3- Dormice

3.5.24 The Site contains a limited number of features suitable for dormice; these include the boundary hedgerows and the dense scrub patches. There is some connectivity to woodland to the north of the Site to the boundary hedgerows around the Site. Overall it is considered unlikely dormice are regularly present on Site due to the small extent of suitable habitat which are too small to constitute the home range for a single dormouse. There is some potential for dormice to be present within the hedgerows occasionally if they are used as part of their range or to move through them as part of a wider network of interconnecting hedgerow and woodland habitats.

Potential Impacts

3.5.25 Retention and enhancement of the boundary hedgerows will ensure that impacts to dormice if present will be minor. As only discreet sections of suboptimal scrub are likely to be removed further survey or licencing for this species is considered to be inappropriate given the small scale of the likely impacts. The clearance of the dense scrub patches and the remedial management of the hedgerows has the potential, if undertaken without proper precautions, to disturb, injure or even kill dormice if present. However, it is considered unlikely that dormice are present within the hedgerows due to their limited extent and suboptimal structure. The scrub within the Site is also considered to be suboptimal for supporting this species being small in extent, having established recently and having poor connectivity. Overall the proposals will result in a minor loss of potential foraging and sheltering habitat for dormice as a result of the removal of scrub within the Site.

Mitigation, Compensation and Enhancement

3.5.26 The enhancement of the hedgerows and the inclusion of scattered shrub and trees within the retained grassland will mitigate for the loss of bramble and grey poplar scrub, which will be lost as part of the proposals (this represents suboptimal foraging and sheltering habitat for dormice). Additional hedgerow plantings as part of the mitigation corridor and as part of the boundary treatment of gardens will provide additional dormouse habitat extent and is likely to enhance the site for this species, if present. A precautionary approach to the removal of dense scrub will be applied, with a Reasonable Avoidance Method Statement (RAMS) prepared. RAMS for dormouse will be detailed in the CEMP and will include the inspection of the vegetation by an Ecological Clerk of Works (ECoW) prior to removal, timing of the operation to coincide where possible with the end of the nesting bird season but prior to the dormouse hibernation season.

3.5.27 Residual management of the loose and defunct hedgerow sections will be undertaken in winter when it is likely to be most effective, with any dense scrub removed ahead of this. Given the poor structure of the hedgerows at these locations it is assumed dormice will be absent and no impacts from these temporary measures on dormice are anticipated.

Residual Effects

3.5.28 No residual effects on dormice are anticipated

Species 4- Birds

3.5.29 The Site contains extents of hedgerow and dense scrub, which are likely to support nesting birds.

Potential Impacts

3.5.30 The removal of dense scrub patches as part of the Site clearance have the potential to disturb, injure or kill nesting birds if undertaken during the nesting bird season. This will also result in a minor reduction in available foraging and nesting habitat for a range of common species.

Mitigation, Compensation and Enhancement

3.5.31 To ensure nesting birds are not harmed or disturbed during the clearance of small areas of dense scrub habitat, removal of this habitat will either be undertaken outside of the bird nesting season (which runs from March to August inclusive) or will be preceded by a nesting bird check by a competent ecologist within 48 hours of the removal of such features to confirm the absence of active nests. If nesting birds are encountered, a suitable exclusion zone will be put in place around the nest to ensure nesting birds are not disturbed by ongoing works. Further checks will then be carried out by the ecologist to ascertain when the chicks have fledged (no longer dependant on the nest site); the remainder of the vegetation can then be removed.

3.5.32 The removal of dense scrub from the interior of the Site will be mitigated fully by the provision of an additional hedgerow and the enhancement of the existing hedgerow on Site. The enhancement of the grassland will also address the loss of grassland foraging habitat by enhancing the value of the retained grassland. This will result in a neutral outcome for birds associated with the site.

3.5.33 To enhance the site for nesting birds 6 Schwegler 1B bird boxes (or similar) will be installed within the boundary hedgerows to create additional nesting opportunities for common bird species.

Species 5- Great Crested Newt

3.5.34 The Site sits within 250m of up to three small man-made ponds. The data search and other background information indicate absence of great crested newt in the local area. Survey of the three surrounding ponds has not been possible due to their private ownership and the limited season survey work can be undertaken for this species although given the evidence available it is considered highly unlikely this species is present within the Site.

Potential Impacts

3.5.35 Removal of approximately 0.5ha of semi-improved grassland, tall ruderal, ephemeral and scrub habitat introduces the potential for great crested newt if present on Site to be disturbed, injured, or killed as part of the site clearance activities and ongoing construction of the Site. This is considered unlikely as the species is likely to be absent in the local area.

Mitigation, Compensation and Enhancement

3.5.36 To ensure great crested newts are not harmed as part of the works clearance of the various habitats on Site will be undertaken using a destructive search methodology. A translocation exercise for reptiles will be undertaken ahead of this and this process will also address the, albeit very low/negligible, potential for great crested newts to be present within the site. The reptile mitigation strategy is detailed below.

3.5.37 In the highly unlikely event that during the reptile translocation or subsequent destructive search great crested newt are encountered, all works must stop and a licence sought from Natural England prior to work on Site continuing.

Residual Effects

3.5.38 Due to the likely absence of great crested newt on Site, no residual effects are anticipated in relation to this species.

Species 6-Reptiles

3.5.39 Previous survey of the Site has identified a low numbers of slow worms present within the Site, A peak count of 4 adult and 10 sub-adult slow worms were recorded. At present the majority of habitat present on Site is considered suitable for this species. This habitat has developed recently due to the cessation of management with previous farming having reduced the suitability of the grassland habitat for this species.

Potential Impacts

3.5.40 Without mitigation Site clearance and construction activities are likely to cause disturbance, injury or death of slow worms present. The removal of 0.5ha of suitable grassland, tall ruderal, ephemeral and scrub habitat will reduce the extent of habitat available to this species within the Site.

Mitigation, Compensation, Enhancement and Monitoring

3.5.41 To ensure that slow worms are protected and accommodated within the development a number of measures are proposed, as detailed below.

Habitat Creation

3.5.42 To ensure that the slow worms currently present on Site have suitable habitat to persist throughout the construction phase a number of enhancements are proposed along the eastern and northern boundaries. These include management of the grassland to encourage a mosaic of short and tussocky areas at the margins and enhancement of the grassland to increase value as foraging habitat. An indicative layout for this feature is shown in Figure 5 below, this area will form the receptor area proposed mitigation habitat for this species.

3.5.43 Grassland enhancement within this mitigation habitat will apply the following measures:

- Over-seeding of the grassland with yellow rattle *Rhinanthus minor* to reduce the dominance of certain grass species;
- Over-seeding of chalk grassland species including common knapweed *Centaurea nigra*, bird's-foot trefoil *Lotus corniculatus*, wooley thistle *Cirsium eriophorum*, common centaury *Centaurium erythraea* and oxeye daisy *Leucanthemum vulgare* to increase floristic diversity and foraging potential;

- Regular mowing of specified areas and removal of arisings to reduce nutrient levels;
- Cessation of fertilisation of the grassland.

3.5.44 In addition to the specific grassland restoration measures a number of reptile enhancements are proposed including the provision of 2 x log piles and at least 1 hibernaculum. These will need to be created to allow reptiles to shelter and hibernate within this mitigation habitat. Logpiles and hibernaculum will measure a minimum of 1m x 1m x 2m, with hibernaculum being constructed of a mix of stone rubble, hardwood and softwood logs. These features will be buried up to 50cm into the ground to provide insulation, hibernaculum will be capped with topsoil and stripped turf to insulate them further from winter weather conditions. Log piles will be constructed using a mix of soft and hardwood logs of varying sizes to create additional refuge opportunities.

3.5.45 It is considered that if the habitats retained are successfully enhanced in line with these recommendations that the impacts to slow worms will be significantly reduced and the area of habitat will be able to support a higher density of this species.

Reptile Translocation

3.5.46 Due to the numbers of slow worms present and the size of the area to be cleared a translocation exercise is proposed as displacement is likely to be ineffective.

3.5.47 To prevent reptiles from entering the construction zone, reptile-proof fencing will be installed surrounding the mitigation habitat. This will act as a barrier to any individuals placed in the receptor area from the construction site and will be left in place throughout the construction period. This area will not be fenced to the rear so slow worms can disperse into the surrounding small holding and allotment habitats.

3.5.48 Approximately 100 reptile mats or refugia at least 10% of these being corrugate metal sheet will be placed on site and allowed to bed in for a period of two weeks prior to the start of the translocation. Around 20 carpet tiles will also be used to increase the likelihood of capturing widespread amphibians that are likely to use the site. Once the two week 'bedding in' period has elapsed translocation visits will aim to be undertaken daily during the morning or late afternoon when temperatures are between 10˚-18˚C. These are the conditions when reptiles are most likely to use the refugia on site to aid their thermoregulation.

3.5.49 Translocation of reptiles must take place during the active reptile season from April to mid-October and will last for a period of 30 days and until a period of over 3 translocation days where no slow worms are captured providing these translocation visits are undertaken during optimal survey conditions.

3.5.50 Management of the grassland within the translocation area will occur in the weeks preceding the translocation reducing the grassland height to approximately 10cm and removing the arisings. This management will be undertaken with hand tools to reduce the likelihood of reptiles being injured.

3.5.51 During the translocation any habitat features such as log piles, soil bunds, stone piles or brash piles will be hand searched and these shelter providing features disassembled and potentially used to bolster the hibernaculum or log piles that have been created.

3.5.52 Once the translocation is complete a fingertip search will be carried out by the ECoW followed by a destructive search of the habitats within the translocation area. This will be overseen by the ECoW and undertaken using an excavator with a toothed bucket. Turf stripping will be undertaken using the excavator in a systematic manner with the grass sod and the top layer of soil being removed. Once the site has been cleared construction within the reptile exclusion zone can begin without the risk of injuring reptiles.

3.5.53 The reptile fence will require maintenance throughout the construction phase to ensure it remains functional. Monitoring of the condition of this fencing will be reviewed weekly by a site appointed 'Biodiversity Champion' to ensure that no tears or breaks in the fence occur as a result of construction activities. The 'Biodiversity Champion' will be a long term member of the construction team who will be given the responsibility of ensuring certain key ecological features are protected from construction activities. A toolbox talk covering the responsibilities Biodiversity Champion will be delivered by the ecologist at the outset of construction. Measures to ensure protection of valuable ecological features will be enforced with quarterly checks by the ECoW during construction who will ensure that the biodiversity protection measures remain in place and the ecological mitigation area is appropriately managed and fulfilling its function.

3.5.54 Once construction is complete the reptile fence will be removed in the presence of the ECoW who will undertake a fingertip search of the fence line to ensure no reptiles are within this feature. The trench created by the fence will them be filled in by hand. This will allow the retained slow worms to access and colonise the back gardens of the new dwellings.

Residual Effects

3.5.55 The introduction of pets from the creation of the new dwellings will introduce a number of additional cats and dogs. Cats in particular are known to predate this species and the introduction of a number of cats may result in a reduction of the slow worm population.

3.6 Summary of Assessment of Effects

3.6.1 The assessment of effects is summarised in Table 10 overleaf, which also outlines the proposed method to secure any relevant mitigation associated with reducing impacts.

Table 10: Summary of Assessment of Effects

Feature	Importance	Mitigation/Compensation Proposed	Residual Effect and Significance	Proposed Mechanism to Secure	Monitoring Required?
Designated Sites					
Statutory designated sites	National to International	Direct damage to these sites from construction activities will be controlled through a number of measures outlined in the Construction Environmental Management Plan (CEMP) to limit the potential for pollution and other detrimental effects. There is potential for the bats associated with the North Somerset and Mendip SAC to be affected by the proposals in the absence of mitigation (measures to address this are included in the bat heading under the Assessment of Effects Section).	There is the potential for minor residual effects on from increased recreational pressure from new residents on the closer SSSI sites including Purn Hill SSSI and Bleadon Hill SSSI.	No measures for the minor residual impacts are proposed.	N/A
Non-statutory designated sites	Local	Direct damage to these sites from construction activities will be controlled through a number of measures outlined in the CEMP to limit the potential for pollution and other detrimental effects.	There is the potential for minor residual effects on from increased recreational pressure from new residents placed on the closer wildlife sites including Bleadon Hill Fields, Purn Hill, Hellenge Hill to Loxton Wood Complex and South Hill Bleadon.	No measures for the minor residual impacts are proposed.	N/A
Habitats					
Hedgerows	Local	The hedgerows will be protected throughout construction by the installation of tree protection fencing. In addition a significant buffer from the hedgerow to the construction site of a minimum of 4 meters will be put in place formed by the ecological mitigation habitat. These will be enhanced through appropriate management and additional planting of native species to extent the hedgerows length and width. All protection measures will be detailed in the CEMP for the site.	Providing the measures outlined in the CEMP are adhered to it is not anticipated that the hedgerows on site will experience any negative residual effects from the development.	CEMP	At quarterly intervals throughout construction whilst checks of the reptile mitigation are undertaken. Checks in years 1, 3 and 5 for

Feature	Importance	Mitigation/Compensation Proposed	Residual Effect and Significance	Proposed Mechanism to Secure	Monitoring Required?
					condition post construction.
Species					
Badger	Site	Badger check prior to the commencement of works on site. Enhancement of retained grassland to support greater badger foraging.	Minor loss of poor quality grassland locally. Negligible significance	Planning condition recommended for a pre commencement badger survey.	N/A
Bats	County	Mitigation put in place in line with the guidance stipulated in the North Somerset and Mendip Bat SAC Guidance on development. Creation of mitigation habitat suitable for foraging by horseshoe bats. Assessment of lighting impacts and creation of a dark zone with lighting controlled to 0.5 lux above baseline conditions.	The proposals will result in a minor loss of grassland extent locally, enhancement of the boundary habitats will reduce this to a neutral outcome for these species. Commuting function of the site will be maintained through control of lighting and provision of dark corridors. Negligible significance	Landscape Ecological Management Plan (LEMP), Lux contour plan and monitoring.	Static detector survey in years 1 and 3. Lighting assessment in first year after completion. Habitat assessment in year 5
Dormice	Local	Checks of cleared vegetation as part of a RAMS for dormice laid out in the CEMP, with precautionary checks undertaken by a suitably licenced ecologist.	With the proposed mitigation measures no residual effects on local dormice population (if present) are anticipated.	CEMP.	N/A
Nesting Birds	Site	Dense scrub vegetation should be cleared outside of the nesting bird season (September to February) where possible. Where dense scrub removal is required outside of this window its removal will be preceded by an inspection for nesting birds by a competent ecologist no more than 48 hours prior to the removal of habitat. Additional hedgerow planting will fully mitigate for the removal of dense scrub.	With the mitigation measures proposed no residual effects are anticipated.	Planning condition recommended to secure Nesting Bird Survey.	N/A

Feature	Importance	Mitigation/Compensation Proposed	Residual Effect and Significance	Proposed Mechanism to Secure	Monitoring Required?
Great Crested Newt	Local	No specific mitigation is proposed for this species due to its likely absence. However in the unlikely event GCN are encountered during the course of the reptile translocation or site clearance all works will stop and a licence for this species will be applied for from Natural England.	No residual effects are anticipated.	N/A	N/A
Reptiles	Local	Reptiles on site will be subject to a translocation exercise with an enhanced receptor area being created for this species.	There is potential for the introduction of additional domestic cats to increase the predation of slow worms present on site.	Planning condition recommended for reptile translocation exercise.	N/A

3.7 Cumulative Effects

3.7.1 A brief assessment has been undertaken of the cumulative effect of the development in conjunction with other proposed and recently built sites within 1km. This assessment is made primarily to assess the loss of grassland habitat in relation to the locally designated sites in proximity to the development.

3.7.2 A review of the planning portal has identified a large number of refused and withdrawn applications since the year 2009. A number of minor applications for small domestic extensions, single dwellings and variation of existing commercial sites were omitted from this assessment as these generally apply to land that has previously been developed or whose ecological impacts are likely to be Negligible.

3.7.3 The following three developments were identified within 1km of the Site since 2009.

- ID: 14/P/0687/O- outline planning permission for up to 42 dwellings approved with conditions granted in 2016. This site is located 560m to the south east, additional ecological survey work is requested prior to the commencement of development to ensure ecological mitigation is carried out to the required standard. The total site area is approximately 2.5ha.

- ID: 17/P/0302/MOD- Modification of a preapproved section 106 agreement for a large scale major application for leisure complex together with an Environmental Impact Assessment with change of use from agricultural lakes to tourist facility providing a water-park for cable-tow water sports. Extensive ecological mitigation is proposed to protect a range of protected species and to protect valuable ditch features within and surrounding the site. This development is 750m to the south west of the application site. This site has a red line boundary of 26.2ha although a small proportion of the development will be taken up by buildings and hard surfaces with the majority being semi-natural habitats and man-made lakes. A buffer is provided allowing a 500m separation of the site from Purn Hill SSSI to the north east.

- ID: 18/P/3466/RM – reserved matters application for 50 dwellings approved subject to a legal agreement. This development is within close proximity Oldmixon to Upper Canada Scarp WS. Ecological mitigation measures have been put in place to protect the adjacent wildlife site and to enhance extents of grassland, the hedgerow network and provide significant buffers to the adjacent sites. These buffers are designed to provide suitable for foraging and commuting habitats bats associated with the North Somerset and Mendip bat SAC. This development will be constructed to 800m to the North West of the site and total red line boundary is 2.6ha although a large proportion of this is mitigation habitat.

3.7.4 The search for other major developments locally has resulted in a low number of applications. Ecological mitigation is proposed or will be secured through planning conditions to ensure impacts to locally designated sites are controlled as far as possible in relation to all of the sites listed above. The extent of habitat affected by the proposals is quite extensive primarily due to the approval of the extensive leisure centre complex; however, this is situated on land previously used for arable production and will not result in the destruction of locally valuable chalk grassland habitats. The outline application for 42 dwellings is ref: 14/P/0687/O is located on previously developed land used for concrete production and storage of building materials as such the proposals are unlikely to have significant ecological impacts. The reserved matters application ref: 18/P/3466/RM is likely to have the largest ecological impact due to its proximity to wildlife sites. However, the ecological mitigation on that site is extensive and is considered to lessen the impact on surrounding sites due to the generous buffer of mitigation habitat proposed.

3.7.5 Overall the sites are considered unlikely to significantly impact the extent of valuable ecological habitat locally and none of these will directly impact local BAP habitats. The approved developments will reduce the availability of agricultural land (some of which has the potential to be restored to valuable grassland) in the vicinity.

3.7.6 The schemes all seek to protect local statutory and non-statutory designated sites. Those that have been brought forward recently will also provide bat mitigation in line with the recommendations of the North Somerset and Mendip Bat SAC guidance on development which will result in a neutral to positive outcome for horseshoe bats associated with the SAC.

3.7.7 It is considered that in combination with the application Site the proposals would result in up to 108 new dwellings in the local area. As identified in the assessment of impacts on local designated sites these features are likely to suffer from increased recreation pressure from new residents and pets. Provision of public open space within the housing developments and the inclusion of semi-natural habitats within the leisure centre complex are likely to reduce recreational pressure from these developments; however, it is considered that a minor adverse impact on local designated sites will result from these additional local residents as a result of increased visitation.

4 CONCLUSIONS

4.1.1 The assessment has identified several potential adverse impacts upon a number of ecological receptors ranging from International to Site importance. The proposals will result in the removal of approximately 0.5ha of semi-improved grassland, tall ruderal, ephemeral, along with loose and dense scrub habitats. The construction of 16 dwellings will remove this habitat permanently and replace it with a number of dwellings and associated infrastructure including gardens and parking.

4.1.2 Avoidance and mitigation measures have been proposed to ensure that these adverse impacts are reduced as far as possible. These include the production of a CEMP to ensure construction does not negatively impact local statutory and non-statutory designated sites. Other measures include the retention and protection of the valuable ecological features on site including the hedgerows and hedgerow trees. Other valuable features present on Site include a low population of slow worms will be retained and protected by undertaking a translocation. Other species including nesting birds, badgers and potentially dormice are adequately protected through appropriate mitigation measures. Bats associated with the SAC will also be protected by establishing a valuable buffer of mitigation habitat designed specifically to maintain the commuting and foraging value of the Site to these species. This will include significant enhancement of the hedgerows, grassland and creation of a number of other ecologically valuable features. All of the mitigation habitats will remain unlit and this will be achieved through careful design, screening and production of a lux contour plan as a condition of planning. Measures to achieve a reduction in the impact of the proposed habitat removal will include over-seeding of the existing grassland, planting of additional native shrubs, ongoing management and monitoring of mitigation outcomes. Ecological enhancements include provision of 6 bird boxes along with measures to enhance the structure and extent of the existing hedgerows and retained grassland.

4.1.3 Overall it is considered the mitigation and enhancement measures proposed will result in a reduction in habitat extent but a significant increase in the quality of habitat available on site for a range of species. This is considered to represent a neutral outcome in terms of habitat provision on site in accordance with the NPPF. Measures put in place are considered compliant with the North Somerset and Mendip Bat SAC to ensure that horseshoe bats associated with the SAC will have habitat of equivalent value for foraging and will result in a neutral to minor gain for these species. Reptiles will also have a reduced area of habitat available but the mitigation habitat proposed will result in a minor enhancement for this species. As such the scheme is compliant with both CS4 and CS9 of the 'North Somerset Local Plan Core Strategy' (2017), seeking to maximise benefits to biodiversity avoiding a net loss of biodiversity value, maintaining wildlife connectivity and biodiversity value of local green infrastructure.

APPENDIX A: WILDLIFE LEGISLATION & SPECIES INFORMATION

BADGERS

Badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended) against damage or destruction of a sett, or disturbance, death or injury to the badgers. The Act defines a sett as "any structure or place which displays signs indicating current use by a badger". The definition of current use is subject to considerable debate. Natural England have produced guidance on the definition of current use. (*Badgers and Development – A guide to best practice and development. Natural England 2011*). Given the ambiguity surrounding the definition in all circumstances we would recommend an assessment of current use is always undertaken by a qualified ecologist. Natural Resources Wales (NRW) have a slightly different definition of current use. Please see the NRW website for further information. Penalties for offences against badgers or their setts include fines of up to £5,000 and/or up to six months in prison.

Disturbance of badgers could be caused by any digging activity or scrub clearance within 30 metres of an occupied sett and therefore every case needs to be assessed individually. Felling of trees close to a badger sett may also cause disturbance in some situations. Some activities such as pile driving may cause disturbance at even greater distances, and should be discussed with Natural England or NRW.

Licences are issued by Natural England (or NRW in Wales) to allow the disturbance of badgers, and the destruction of their setts in certain circumstances, in relation to development. Full planning permission must be obtained before a licence application will be considered. Although licences can be applied for at any time of year, disturbance of badgers or exclusion of badgers from a sett can only take place between 1 July and 30 November, to avoid the breeding season when dependant young may be underground. This restriction may be relaxed in some cases where a sett is seasonal and badgers can be shown to be absent from a sett at that time of year.

This report contains information of a confidential nature relating to the location of badger setts. Public access to this data should be restricted to those who have a legitimate need to assess the information and to know the exact situation of the setts rather than simply that badgers are present.

BATS

All 17 species of bat known to breed in England and Wales, and their roost sites, are protected under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a bat, or to deliberately disturb a bat such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place. Intentional or reckless disturbance of bats in their resting places, and damage to or obstruction of resting places are also offences under the Wildlife and Countryside Act 1981 (as amended). Under UK law a bat roost is "any structure or place which any wild [bat]...uses for shelter or protection". As bats tend to reuse the same roosts, legal opinion is that the roost is protected whether or not the bats are present at the time. Penalties for offences against bats or their roosts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of or alteration to roost sites, or which could result in killing of or injury to bats, need to take place under licence. Works which could disturb bats may also be licensable, though this needs to be assessed on a case by case basis, as bats' sensitivity to disturbance varies depending on normal background levels, and the definition of disturbance offences under the Habitats Regulations is complex. In practice this means that works involving modification or loss of roosts (typically in buildings, trees or underground sites) or significant disturbance to bats in roosts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of bats in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

DORMICE

Dormice and their nests are protected in England and Wales under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a dormouse, or to deliberately disturb a dormouse such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place. Intentional or reckless disturbance of dormice in their nests, and damage to or obstruction of nests are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against dormice or their nests include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of nest sites, or which could result in killing of or injury to dormice, need to take place under licence. Works which could disturb dormice may also be licensable, though this is rarely the case unless loss of dormouse habitat is also proposed, and should be assessed on a case by case basis. In practice this means that works involving any removal of habitat (typically woodland, hedgerows, and scrub) supporting dormice are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of dormice in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

AMPHIBIANS

Great Britain supports seven native amphibian species. The four most widespread species; smooth and palmate newts, common frog, and common toad, receive partial protection under the Wildlife and Countryside Act 1981 (as amended) which prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy. The great crested newt, pool frog and natterjack toad are also fully protected in England and Wales under the Conservation of Habitats and Species Regulations 2017. Penalties for offences against amphibian species include fines of up to £5,000 and/or up to six months in prison.

Four amphibian species (great crested newt, pool frog, common toad, natterjack toad) are listed as priority species under the UK Biodiversity Action Plan, and are therefore considered to be Species of Principal Importance in England and Wales (excluding the pool frog, which does not occur in Wales) under the Natural Environment and Rural Communities (NERC) Act 2006. All public bodies including local and regional authorities have a duty under this legislation to have regard for the conservation of biodiversity.

GREAT CRESTED NEWTS

Great crested newts are protected in England and Wales under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a great crested newt, or to deliberately disturb a great crested newt such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place for great crested newts. Intentional or reckless disturbance of great crested newts in places of shelter (ponds or terrestrial refuges), and damage to or obstruction of places of shelter are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against great crested newts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of ponds or terrestrial habitat, or which could result in killing of or injury to great crested newts, need to take place under licence. Works which could disturb great crested newts may also be licensable, though this is rarely the case unless loss of great crested newt habitat is also proposed, and should be assessed on a case by case basis. In practice this means that works involving any removal of or significant modification to ponds or terrestrial habitats (typically rough grassland, scrub, hedgerow bases and woodland) supporting great crested newts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of great crested newts in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

REPTILES

All six native reptile species receive protection under the Wildlife and Countryside Act 1981 (as amended). The four more common species (common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, adder *Vipera berus* and grass snake *Natrix natrix*) receive partial protection which makes it an offence to intentionally kill or injure a reptile. The two other reptile species (smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis*), both of which are rare with very restricted UK ranges receive full protection under the Conservation of Habitats and Species Regulations 2017. Penalties for offences against reptile species include fines of up to £5,000 and/or up to six months in prison.

Works such as site clearance or topsoil stripping which could result in killing or injury of reptiles could be considered result in an offence unless measures are taken to minimise the risk of this occurring. Any inadvertent impacts on common reptile species despite these mitigation measures being in place would be considered an 'incidental result of an otherwise lawful operation' which 'could not reasonably have been avoided' and therefore not an offence. Works which could affect smooth snakes or sand lizards, or their habitats, would need to take place under licence from Natural England or Natural Resources Wales. However sites supporting smooth snakes or sand lizards are very rarely affected by development proposals.

In practice, mitigation for impacts of development on common reptiles generally comprise one or more of the following techniques: displacement, in which reptiles are encouraged to move to suitable retained habitat by changing the management of areas affected by development; exclusion, where reptile-resistant fencing is provided between a development site and suitable retained habitat allowing reptiles to be trapped from the development footprint and released elsewhere on the site; and translocation, where animals are trapped from a development site and released on another suitable site nearby. Reptile mitigation proposals, particularly those involving translocation of animals, should be agreed in advance with the local planning authority.

BIRDS

All British birds, their nests and eggs (with certain exceptions) are protected under the Wildlife & Countryside Act 1981 (as amended) which makes it an offence to: intentionally kill, injure or take a wild bird; intentionally take, damage or destroy nests which are in use or being built; intentionally take or destroy birds' eggs; or possess live or dead wild birds or eggs. A number of species receive additional protection through inclusion on Schedule 1 of the Wildlife and Countryside Act; for these it is also an offence to intentionally or recklessly disturb birds while nest building, or at a nest containing eggs or young, or to disturb the dependant young of such a bird. Penalties for offences against bird species include fines of up to £5,000 and/or up to six months in prison.

General licences for control of some bird species are issued by Natural England and Natural Resources Wales in order to prevent damage or disease, or to preserve public health or public safety, but it is not possible to obtain a licence for control of birds or removal of eggs/nests for development purposes. Consequently if nesting birds are present on a development site when works are programmed to start it is usually necessary to delay works, at least in the areas supporting nests, until any chicks have fledged and left the nest. It is usually possible, once chicks have hatched, for an experienced ecologist to predict approximately when they are likely to fledge, in order to inform programming of works on site.

PLANNING POLICY IN RELATION TO BIODIVERSITY - ENGLAND

The National Planning Policy Framework (NPPF), was published in March 2012 and revised in July 2018. Additional guidance can be found online at http://planningguidance.planningportal.gov.uk/blog/guidance/. The NPPF simplifies and collates a number of previous planning documents and outlines the government's objective towards biodiversity.

The NPPF identifies ways in which the planning system should contribute to and enhance the natural and local environment (Paragraph 170), including:

- (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;
- (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;
- (e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- (f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. protecting and enhancing valued landscapes, geological conservation interests and soils;

It also emphasises the importance of conserving biodiversity and areas covered by landscape designations (Paragraph 172):

Great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The conservation of wildlife and cultural heritage are important considerations in all these areas, and should be given great weight in National Parks and the Broads.

When determining planning applications, the NPPF states that local planning authorities should aim to conserve and enhance biodiversity (Paragraph 175) by applying principles including:

- (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[6] 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.

The following should be given the same protection as habitats sites:

- (a) potential Special Protection Areas and possible Special Areas of Conservation;
- (b) listed or proposed Ramsar sites7; and
- (c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

There is a general presumption in favour of sustainable development within the NPPF. It is noted in Paragraph 177 that this presumption does not apply where the plan or project is likely to have a significant effect on a habitat 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.

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them".

ECOLOGICAL ENHANCEMENTS

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity can include restoring or enhancing a population or habitat"".

In England, the National Planning Policy Framework (NPPF), issued in July 2018, states that the planning system should contribute to "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*. It also states that "*opportunities to incorporate biodiversity in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity*".

UK BIODIVERSITY ACTION PLANS

The UK Biodiversity Action Plan (UK BAP) 2011 is a policy first published in 1994 to protect biodiversity and stems from the 1992 Rio Biodiversity Earth Summit. The policy is continuously revised to combine new and existing conservation initiatives to conserve and enhance species and habitats, promote public awareness and contribute to international conservation efforts. Each plan details the status, threats and unique conservation strategies for the species or habitat concerned, to encourage spread and promote population numbers.

Species or habitats identified as priorities under the UK Biodiversity Action Plan receive some status in the planning process through their identification as Species/Habitats of Principal Importance in England and Wales, under the Natural Environment and Rural Communities (NERC) Act 2006 (as amended).

Current planning guidance in England, the National Planning Policy Framework, does not specifically refer to Species or Habitats of Principal Importance, though it includes guidance for conservation of biodiversity in general. Supplementary guidance is available online at http://planningguidance.planningportal.gov.uk/blog/guidance/ and this guidance indicates that it is '*useful to consider*' the potential effects of a development on the habitats or species on the Natural Environment and Rural Communities Act 2006 section 41 list.

THE HEDGEROWS REGULATIONS

In England and Wales the Hedgerows Regulations (1997) as amended confer a level of protection on hedgerows (though hedgerows within or bordering domestic gardens are excluded), particularly those hedgerows classified as 'Important' under the legislation. The Regulations require those wishing to remove hedgerows to submit a Hedgerow Removal Notice to the Local Planning Authority (LPA), which will then determine whether the hedgerow affected is classified as 'Important' under the Regulations. If it is, the LPA will either approve the proposed hedgerow removal, or issue a retention notice. It is an offence to remove or destroy a hedgerow which is subject to a retention notice, or to remove one without a removal notice.

Routine management of hedgerows, removal of hedgerows for development which has been granted planning consent, and certain other situations are allowed under the Regulations, which also specifically exclude hedgerows within or bordering domestic gardens. Determination of whether a hedgerow should be classified as 'Important' is based on a number of criteria including assessment of its likely historic value (e.g. old parish boundary or part of an ancient monument), ecological value (e.g. presence of protected species, and/or diversity of tree/shrub species in the hedgerow), and landscape value (e.g. associated with a public footpath, or being associated with hedgebanks, ditches, hedgerow trees etc).

Ancient and species-rich hedgerows are listed as a priority habitat in the UK Biodiversity Action Plan (2011)

APPENDIX B: PHOTOGRAPHS OF SITE FEATURES

Figure A1: The Site from the top of the track looing north towards the northern boundary. Photo incudes grassland with patches of tall ruderal and loose developing scrub.

Figure A2: View from North East corner of the site looking towards the South West through fringe of scrub and tall ruderals across the grassland towards the mature *Leylandii* outside of the site on the South West Corner.

Figure A3: View from dense scrub to vegetated soil bund.

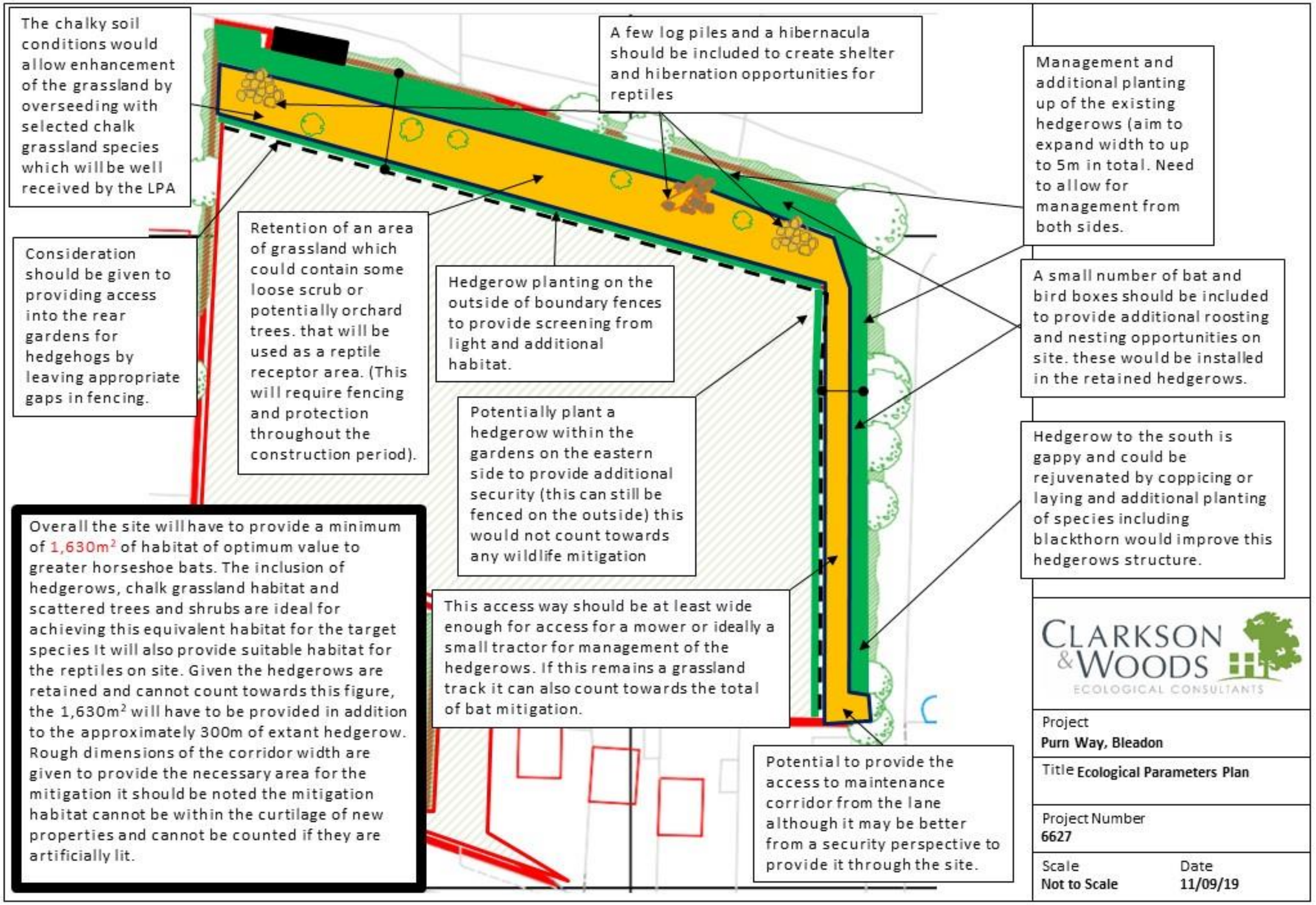
Figure A4: View of ephemeral vegetation on track substrate and developing white poplar scrub on southern boundary.

Figure A5: 'The Mendip Way' footpath along the access track outside of the site on its eastern boundary, H2 is present on the LHS of the track.

Figure A6: Building 1 outside of the site to the North West. Picture of the northern elevation of this structure from outside of the site on 'The Mendip Way'.

Figure A7: Loose scrub in the centre of the semi improved grassland habitat, beyond this the bonfire can be seen and the junction of H1 and H2.

Figure A8: Dense scrub patch on the southern boundary.


The chalky soil conditions would allow enhancement of the grassland by overseeding with selected chalk grassland species which will be well received by the LPA
A few log piles and a hibernacula should be included to create shelter and hibernation opportunities for reptiles
Management and additional planting up of the existing hedgerows (aim to expand width to up to 5m in total. Need to allow for management from both sides.
Consideration should be given to providing access into the rear gardens for hedgehogs by leaving appropriate gaps in fencing.
Retention of an area of grassland which could contain some loose scrub or potentially orchard trees. that will be used as a reptile receptor area. (This will require fencing and protection throughout the construction period).
Hedgerow planting on the outside of boundary fences to provide screening from light and additional habitat.
A small number of bat and bird boxes should be included to provide additional roosting and nesting opportunities on site. these would be installed in the retained hedgerows.
Potentially plant a hedgerow within the gardens on the eastern side to provide additional security (this can still be fenced on the outside) this would not count towards any wildlife mitigation
Hedgerow to the south is gappy and could be rejuvenated by coppicing or laying and additional planting of species including blackthorn would improve this hedgerows structure.
Overall the site will have to provide a minimum of 1,630m² of habitat of optimum value to greater horseshoe bats. The inclusion of hedgerows, chalk grassland habitat and scattered trees and shrubs are ideal for achieving this equivalent habitat for the target species It will also provide suitable habitat for the reptiles on site. Given the hedgerows are retained and cannot count towards this figure, the 1,630m² will have to be provided in addition to the approximately 300m of extant hedgerow. Rough dimensions of the corridor width are given to provide the necessary area for the mitigation it should be noted the mitigation habitat cannot be within the curtilage of new properties and cannot be counted if they are artificially lit.
This access way should be at least wide enough for access for a mower or ideally a small tractor for management of the hedgerows. If this remains a grassland track it can also count towards the total of bat mitigation.
Potential to provide the access to maintenance corridor from the lane although it may be better from a security perspective to provide it through the site.
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS
Project
Purn Way, Bleadon
Title Ecological Parameters Plan
Project Number
6627
Scale
Not to Scale
Date
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