Ecological Impact Assessment

Tess Square and Butts Close
Hybrid Scheme, Marnhull

November 2023

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24/11/2023

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Contents

Non-technical Summary

An Ecological Impact Assessment (EcIA) was carried out for land off Church Hill and Butts Close, Marnhull in order to evaluate the ecological impacts of the proposed development.

The proposed development is for a commercial centre at land off Church Hill, to be known as Tess Square, and for a residential development at land off Butts Close, to be known as Butts Close. This is a part detail and part outline application.

The main findings of the EcIA are as follows:

- Without mitigation, adverse significant impacts at the district and local level have been identified with a low – moderate magnitude. Significant impacts would mostly arise through the clearance of vegetation, demolition of buildings with bat roosts, and disturbance caused by noise and lighting.
- Subject to the recommended mitigation, no adverse significant impacts are predicted once the new planting establishes. Ecological enhancements should provide new habitats to improve opportunities for local wildlife. Some beneficial effects in the short-term and long-term of the proposed development have been predicted providing enhancement measures are included.
- The mitigation and enhancement measures include:
    - Protection of retained hedgerows from dust, where required;
    - New planting to include new native hedgerows, trees, grassland, and scrub;
    - Retention of a 10m scrub buffer between development and the hedgerow in southern site area (Butts Close);
    - Clearance works outside of bird nesting season or following an ecological inspection;
    - Production and adoption of a Reptile Mitigation Strategy;
    - Demolition of buildings 2 and 3 within the northern site area (Tess Square) under a bat mitigation licence, with appropriate replacement roosts provided beforehand;
    - Production and adoption of Reasonable Avoidance Measures regarding great crested newts;
    - Precautionary approach to hedgerow clearance with regard to hazel dormice;
    - Production and adoption of an ecologically-sensitive lighting strategy; and
    - Installation of bird and bat boxes/bricks, log piles, and hibernacula.

1. Introduction

Background

1.1 Phlorum Ltd has been commissioned by Chapman Lily Planning to undertake an Ecological Impact Assessment (EcIA), to inform the potential ecological constraints of proposed future development across land off Church Hill and Butts Close, Marnhull, Sturminster Newton (together these two sites are hereafter referred to as "the site"). The land to the west of Church Hill is referred to as the "northern site area", with the development to be known as Tess Square. The land off Butts Close is referred to as the "southern site area", with the development to be known as Butts Close.

1.2 The purpose of the EcIA was:

- to identify the baseline ecological conditions at the site;
- identify any likely significant ecological effects of the proposed development, without mitigation;
- identify any cumulative impacts;
- provide ecological mitigation measures required;
- identify any residual impacts;
- identify any compensation measures required to offset residual effects; ;
- set out details of ecological enhancement measures;
- confirm how proposed mitigation, compensation and enhancement will be secured; and
- provide sufficient information to determine whether the project complies with relevant nature conservation policies, and legislation, and where appropriate, to allow the relevant local authority to propose conditions or obligations.

1.3 This report has been compiled in accordance with current guidelines (British Standard 42020:2013 Biodiversity. Code of Practice for Planning and Development, 2013 and CIEEM, 2017 and 2018).

1.4 The following principles underpin EcIA:

- **Avoidance**: seek options that avoid harm to ecological features;
- **Mitigation**: Adverse effects should be avoided or minimised through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed;

- **Compensation**: where there are significant adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures; and
- **Enhancements**: seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

Site Description

1.5 The site is situated in a rural location in the village of Marnhull, Sturminster Newton, and predominantly comprises agricultural fields. The site area is split across two locations, separated by New Street and its associated properties. The northern site area (Tess Square) includes part of the agricultural fields adjacent to Church Hill and Burton Street, as well as Marnhull Pharmacy and barns to the south of the fields. The southern site area (Butts Close) includes a single agricultural field that is enclosed by Butts Close, New Street, Schoolhouse Lane, and Chippel Lane. The surrounding area predominantly comprises agricultural land and residential properties.

1.6 The National Grid Reference for the centre of the northern site area (Tess Square) is ST 78019 18944 and for the centre of the southern site area (Butts Close) is ST 78008 18471. The total site area extends over approximately 13.5 hectares (ha).

1.7 The proposed development is for a commercial centre at land off Church Hill (Tess Square), and for a residential development at land off Butts Close (Butts Close).

EcIA

1.8 The EcIA considers the various ecological resources relevant to the application site. The subsequent sections outline the relevant planning policies associated with ecology. The methodologies for ecological surveys undertaken within the site are then described and the results of these surveys are used to assess the ecological implications of the development proposals. The EcIA is intended to provide Dorset Council with sufficient information to aid them in the planning application.

2. Planning Policy and Context

2.1 The section below provides a review of relevant European legislation, Government guidance, and local plan guidance. Legislation covering specific protected or invasive species is provided in Appendix C.

European Legislation

Habitats Directive and Birds Directive

2.2 Certain species of plants and habitats are protected under the European Union (EU) Habitats Directive (1992), which complements the EC Birds Directive (Council Directive 2009/147/EC on the Conservation of Wild Birds). At the heart of both these Directives is the creation of a network of sites called Natura 2000.

2.3 However, since the United Kingdom (UK) left the EU, the UK sites no longer form part of the EU's Natura 2000 ecological network. As a result, the UK issued, The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, referred to as the 2019 Regulations. The 2019 Regulations have made changes to the Conservation of Habitats and Species Regulations 2017 (as amended) and created a National Site Network (NSN) on land and at sea. Any references to Natura 2000 in the 2017 Regulations, and in guidance, now refers to the new NSN (DEFRA, 2021). The 2017 Regulations cover England and Wales including their inshore waters up to 12 nautical miles (nm).

2.4 The Habitat Directive requires Special Areas of Conservation (SACs) to be designated for species, and for habitats. Together with SPAs (Special Protection Areas), SACs make up the UKs NSN. The NSN includes existing SACs and SPAs, and any new SCAs or SPAs designated under these 2017 Regulations.

National Legislation

The Wildlife and Countryside Act, 1981 (as amended)

2.5 The Wildlife and Countryside Act, 1981 (as amended), remains the primary UK mechanism for statutory site designation and protection, and the protection of individual species. This Act implements the Convention on Conservation of European Wildlife and Natural Habitats (Bern Convention), Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive) and the Habitats Directive.

2.6 Through this piece of legislation, areas of regional or national conservation value can be designated as a Site of Special Scientific Interest (SSSI). The Act also contains a number of schedules affording varying levels of protection to species. The provisions of the Act are modified and in some cases replaced by subsequent legislation contained within the Countryside and Right of Ways Act 2000 (The CRoW Act) and the Conservation of Habitats and Species Regulations 2010 (as amended).

The Countryside and Rights of Way (CRoW) Act 2000

2.7 This Act strengthens the provisions of the Wildlife and Countryside Act, 1981 (as amended) both in respect of statutory sites such as SSSI's and protected species. It also places a statutory obligation on local authorities and other public bodies to further conservation of biodiversity, thus providing a statutory basis to develop the Biodiversity Action Plan (BAP). The BAP process begun with the Government's publication of the UK Biodiversity Action Plan in 1994.

The Hedgerow Regulations, 1997

2.8 The Hedgerow Regulations were made under Section 97 of the Environment Act, 1995. These regulations have been compiled to protect 'important' countryside hedgerows from damage or removal. A hedgerow is considered important if (a) has existed for 30 years or more; and (b) satisfies at least one of the criteria listed in Part II of Schedule 1 of the Regulations. Under the Regulations, it is against the law to remove or destroy certain hedgerows without permission from the local planning authority. Hedgerows covered by these regulations include those on or adjacent to common land, SSSIs (including all terrestrial SACs, National Nature Reserves (NNRs) and SPAs), LNRs, land used for agriculture or forestry, and land used for the keeping or breeding of horses, ponies or donkeys.

Natural Environment and Rural Communities (NERC) Act, 2006

2.9 The Natural Environment and Rural Communities Act 2006 (NERC) led to the development of Natural England, a statutory advisory body on nature conservation to the government. Section 40 of the Act placed a duty on public bodies to have regard to the purpose of conserving biodiversity in the exercise of their functions. The Act also makes provisions in respect of the protection of birds, pesticides harmful to wildlife and non-native invasive species.

The Badger Act 1992

2.10 This Act was introduced to provide protection to badgers and their setts. Under the Act it is an offence to: Wilfully kill injury or take a badger; cruelly ill treat a badger; dig for a badger; intentionally or recklessly damage or destroy a badger sett, or obstruct access to it, cause a dog to enter a badger sett; or disturb a badger when it is occupying a sett. There are exceptions when a licence can be obtained to enable work to progress.

National and Local Policy

Non-Statutory Designations

2.11 Local Wildlife Sites are areas of local conservation interest may be designated by local authorities. The terminology for these sites varies depending on the county. They can be called Sites of Nature Conservation Importance (SNCIs), Sites of Importance for Nature Conservation (SINCs), County Wildlife Sites (CWS), Listed Wildlife Sites (LWS), Local Nature Conservation Sites (LNCS), Sites of Biological Importance (SBIs). The designation criteria may vary between counties. Local Wildlife Sites are of material consideration when planning applications are being determined.

National Planning Policy Framework

2.12 The National Planning Policy Framework (NPPF), last updated in July 2021, sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally prepared plans for housing and other development can be produced.

2.13 Under Section 15 of the NPPF, the planning system should continue to and enhance the natural and local environment by:

- protecting and enhancing valued landscapes, biodiversity or geological sites of conservation interest and soils;
- recognising the intrinsic character of the countryside and wider benefits of ecosystem services
- maintaining the character of undeveloped coast, while improving public access;
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; and

- preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land stability.

2.14 Under Section 15 it goes on to consider habitat and biodiversity (Paragraph 179 - 182), including safeguarding wildlife rich habitats and wider ecological networks, including wildlife corridors and stepping stones connecting them. Paragraph 179 states that planning should '*identify and pursue opportunities for securing measurable net gains for biodiversity*'.

2.15 Development proposals where the primary objective is to conserve or enhance should be permitted. As well as opportunities to incorporate biodiversity in and around developments should be encouraged.

North Dorset Local Plan

2.16 The North Dorset Local Plan (Adopted 2016) includes the following Nature Conservation Policy that is relevant to the site.

Policy 4: The Natural Environment

2.17 The natural environment of North Dorset and the ecosystem services it supports will be enhanced through the protection of environmental assets and the establishment of a coherent ecological network of designated sites and stepping stone sites linked via corridor features. Where development takes place, buffers should be provided to environmental assets to improve their biodiversity value and facilitate adaptation to climate change. Where opportunities exist, new habitats should be created to enhance this network further.

2.18 Developments that offer gains in biodiversity whether through the restoration of habitats or the creation of linkages between existing sites, will be looked upon favourably in the decision-making process.

2.19 Developments are expected to respect the natural environment including the designated sites, valued landscapes and other features that make it special. Developments should be shaped by the natural environment so that the benefits it provides are enhanced and not degraded.

2.20 Development proposals which seek to conserve or enhance the natural environment should be permitted unless significant adverse social or environmental impacts are likely to arise as a result of the proposal.

Landscape Character

2.21 The landscape character of the District will be protected through retention of the features that characterise the area. Where significant impact is likely to arise as a result of a development proposal, developers will be required to clearly demonstrate that that the impact on the landscape has been mitigated and that important landscape features have been incorporated into the development scheme.

Areas of Outstanding Natural Beauty (AONB)

2.22 Within the areas designated as AONB and their setting, development will be managed in a way that conserves and enhances the natural beauty of the area. Proposals which would harm the natural beauty of the AONBs will not be permitted unless it is clearly in the public interest to do so. In such instances, effective mitigation should form an integral part of the development proposals. Developers will be expected to demonstrate how they have had regard to the objectives of the relevant AONB management plan for the area.

Internationally Important Wildlife Sites

2.23 Developers should demonstrate that their proposals will not have significant adverse effects, including cumulative effects, on internationally important wildlife sites. Where this cannot be demonstrated, appropriate mitigation measures will be required otherwise permission will be refused. Mitigation measures for specific sites will include:

- in relation to Fontmell and Melbury Downs SAC, contributions towards the effective management of the site to reduce recreational pressure;
- in relation to Rooksmoor SAC, contributions towards the establishment of the North Dorset Trailway between Sturminster Newton and Stalbridge to reduce traffic pollution on the site;
- in relation to the Dorset Heaths SAC, Dorset Heaths (Purbeck and Wareham) and Studland Dunes SAC, Dorset Heathlands SPA, and Dorset Heathlands Ramsar site, contributions from developments within 5km of the heathland designations towards the sustainable management of the heathland sites or contributions towards the provision of alternative accessible recreation space to reduce recreational pressure on the Dorset heathlands;
- in relation to the Poole Harbour SPA and Poole Harbour Ramsar site, developments within the harbour catchment will be required to be nitrogen neutral to avoid increasing nitrogen inputs into Poole harbour. A package of measures including upgrade of sewage treatment works or through the transfer of land from intensive agricultural use to less intensive grassland or woodland uses is available.

Sites of Special Scientific Interest (SSSIs)

2.24 Nationally designated wildlife sites should not be harmed by development unless it can be clearly demonstrated that the benefits of development clearly outweigh the impact on the site and the wider SSSI site network. Developers should demonstrate that their proposals will not have a negative impact, including cumulative impacts, on nationally designated wildlife sites.

2.25 Where the potential for harm is identified, effective mitigation measures will need to be put into place. Developments should seek to link sites together to contribute towards the establishment of a coherent ecological network.

Locally Designated Natural Environment Sites

2.26 Locally designated sites represent some of the most valuable local environmental sites. Development should have regard to the reasons for the designation and not harm the integrity of these sites nor connections between them and other environmental assets.

2.27 Development proposals should aim to avoid impact on local biodiversity sites however where impact is unavoidable; developers will be required to provide effective mitigation for this loss in biodiversity. As a last resort, compensation measures may be acceptable if effective mitigation cannot be provided. Such compensation measures must offer gains equivalent in magnitude to the loss resulting from the development.

Agricultural Land

2.28 The best and most versatile agricultural land will be safeguarded from permanent loss unless it can be demonstrated that there are no suitable alternative sites, or that the proposal has significant economic or social benefits that outweigh the loss of the land from agricultural uses, or that the proposal would support an existing agricultural business.

Species

2.29 Where there is likely to be an impact on nationally protected or locally rare or scarce species, an assessment of the impact on these species should be submitted to accompany development proposals. This should be appropriate to the scale of development and be informed initially through consultation with the local environmental records centre.

3. Assessment Methodology

Desk Study

3.1 The desktop study involved conducting database searches for statutory and non-statutory designated sites, legally protected species and features of interest within a 5km radius of a central point between the two site areas. The data search was based on available information provided by the following sources:

- Dorset Environmental Records Centre (DERC, 2023);
- Multi-Agency Geographical Information for the Countryside (MAGIC, 2023);
- Ordnance Survey mapping; and
- Aerial photography.

Habitat Survey and Assessment

3.2 Phlorum Limited carried out an ecological survey of the site on the 4th May 2023. The survey was carried out by a suitably qualified ecologist, Paul Carter (BSc (Hons), MBA and awaiting MCIEEM application), who has over 10 years' experience of undertaking ecological surveys. The survey results and assessment were reviewed by the project director Richard Schofield (BSc (Hons), MSc, CSJK, MCIEEM, MIEMA, CEnv), with over 20 years of experience in managing projects. The weather conditions during the survey were dry with sun and clouds.

3.3 The field survey comprised a walkover inspection of the land and habitats present. The survey followed standard Phase 1 survey methodology (JNCC, 2010) and covered all accessible parts of the site, including boundary features. The description of the site habitats has used the code/referencing from The UK Habitat Classification User Manual (UKHab 2020). It should be noted that Version 2.0 of this manual (UKHab 2023) was published on 31st July 2023, which was after the site survey, and after the Preliminary Ecological Appraisal (PEA) was issued. UKHab uses primary habitat codes, either on their own or followed by one or more secondary codes. Each individual code is separated by a space. Habitats were described and mapped (Figure 1: Appendix A). A list of plant species was compiled, together with an estimate of abundance made according to the DAFOR scale. The DAFOR scale provides an estimate of the relatively abundance of plant species within the Survey Area (Appendix D).

3.4 This assessment provides information on the habitats in the survey area and identifies actual or potential presence of legally protected or otherwise notable species/habitats in or immediately adjacent to the site.

3.5 Scientific names are given after the first mention of a species, thereafter, common names only are used. Nomenclature follows Stace (2010) for vascular plant species.

Potential (Bat) Roost Feature (PRF) Inspection Survey

3.6 All buildings and trees on site (both Butts Close and Tess Square) were inspected and assessed in terms of their potential to support roosting bats, with due consideration for the *Bat Survey for Professional Ecologists: Good Practice Guidelines* (*3rd edition*) (Collins, 2016). The 4th edition of these good practice guidelines was published in October 2023, which was after the PEA and bat surveys (Collins, 2023).

Protected Species Assessment

3.7 The potential for the site to provide habitat for protected species was assessed from field observations in conjunction with results of the desk study. The site was inspected for indications of the presence of protected species including:

- Habitat considered suitable to support widespread reptile species including areas with a scrub/grassland mosaic and potential hibernation sites;
- On-site ponds offering potential breeding opportunities for great crested newt (*Triturus cristatus*) and the presence of suitable terrestrial habitat including hedgerows and rough grassland;
- The presence of features in, and on trees, indicating potential for roosting bats Chiroptera, including knot and rot holes, loose bark. Secondary evidence of bats including staining, droppings and feeding remains were also looked for;
- The presence of nesting habitat for breeding birds, including mature trees, dense scrub and hedgerows and direct evidence of bird nesting including bird song, old nests etc.;
- Habitats considered suitable to support badger (*Meles meles*) setts, and evidence in the form of hair, pathways and latrines;
- Presence of woodland and or hedgerows providing suitable habitat to support hazel dormouse (*Muscardinus avellanarius*); and
- Riparian habitat supporting suitable features for water vole (*Arvicola amphibius*) and otter (*Lutra lutra*).

3.8 The potential presence for protected species is categorised as **Negligible**, **Low**, **Moderate**, **High** or **Present**, based on the findings of the field survey and on the evaluation of existing data.

3.9 The purpose of this assessment is to identify whether more comprehensive Phase 2 surveys for protected species or mitigation should be recommended.

Reptile Survey

3.10 The Preliminary Ecological Appraisal identified the site as having a **moderate** potential to support widespread reptile species, and therefore a reptile survey was carried out to assess their presence/likely absence and distribution.

3.11 The survey protocol followed accepted standards for reptile surveys as set out in Froglife (1999), Hill et al (2005) and English Nature (2004).

Presence/Absence Survey

3.12 The survey involved a combination of visually searching for reptiles (direct observation) and the use of artificial refugia.

3.1 On the 13th July 2023, artificial refugia were placed around the site (both Butts Close and Tess Square) throughout areas of suitable reptile habitat. Refugia comprised individual 0.5m^2 (approximately) sections of roofing felt. These were laid out at approximately 5m intervals around the site. Potentially suitable reptile habitat within the survey area consisted of areas of hedgerow, scrub, and ruderal vegetation. A total of 28 refugia were used at the northern site area (Tess Square), and a total of 20 refugia were used at the southern site area (Butts Close).

3.2 A total of seven survey visits were undertaken commencing 21 days after the refugia had been set out and these were completed during August and September 2023. Refugia were checked during appropriate weather conditions, that is, where temperatures ranged between 9°C and 20°C, with little rain or wind. Visits were carried out, where possible, between the hours of 08.30-11.00 or 16.00-18.30, which are the optimum times for recording reptiles, although the time of day varied slightly according to weather conditions.

Population Size Estimate

3.3 An assessment of the reptile population size is based on Froglife (1999) guidance which requires a minimum of 20 repeat survey visits. Population sizes are then assigned to one of three categories (Low, Good or Exceptional) based on the peak count of individuals for each species across all the visits.

3.4 It should be noted that only seven visits were carried out and that the population assessment for the proposed development site is only an estimate based on the current guidance (see Table 1.1). Population assessments are however typically based on a relatively low survey effort with a maximum of 10 refuge sheets per ha, in contrast to a density of 20 refuge sheets per ha as employed at the site, and therefore it is considered likely that the survey data is more robust and sufficient to enable a population estimate to be made.

Table 3.1: Population Score (Froglife, 1999) (the figures refer to the maximum number of adults seen by in any one day)

Species	Low Population	Good Population	Exceptional Population
Adder	<5	5-10	>10
Grass Snake	<5	5-10	>10
Common Lizard	<5	5-20	>20
Slow Worm	<5	5-20	>20

Bat Emergence Surveys

3.5 The Preliminary Ecological Appraisal identified the barns (buildings 2, 3, and 4, all on Tess Square) and disused well on the site as having **low** potential to support roosting bats, and therefore bat emergence surveys were carried out for these structures.

3.6 Dusk emergence surveys were carried out on the:

- 9th August 2023, 24th August 2023, and 7th September 2023 for the **barns**; and
- 14th August 2023 for the **disused well**.

3.7 A combination of Bat Box Duet heterodyne detectors and Echo Meter Touch 2 Pro detectors were used for the surveys.

3.8 Night vision aids (NVAs) were used for the second and third surveys for the barns. These comprised Sony FDR-AX53 camcorders partnered with infrared LED lights, to enable the buildings to be viewed with clarity despite low light levels. Continuous video was recorded for the duration of the surveys, allowing footage to subsequently be analysed for details. Due to the use of NVAs, which both enable surveyors to identify emergences at very low light levels and roost locations to be accurately pinpointed through review of the footage, it was considered that carrying out a series of dusk emergence surveys, as opposed to incorporating dawn re-entry surveys, would provide sufficient survey effort to reliably assess the roosting status of the buildings.

3.9 During the surveys, surveyors were strategically positioned around the barns and well to ensure coverage of all potential roosting features and/or potential routes of ingress/egress. The positions of the surveyors for each site are shown in the bat survey maps in Appendix A.

3.10 The evening surveys commenced at least 15 minutes before sunset and lasted for at least two hours after sunset. Prior to sunset, heterodyne bat detectors were tuned to below 30 kHz to listen for any potential pre-emergence social calls and noctules, which occasionally leave their roosts before sunset, tuning the detectors up to 45 kHz to pick up on general pipistrelle activity.

3.11 All surveys followed standard protocols and accepted standards (Mitchell-Jones and McLeish, 2004; Collins, 2016 – as stated above Collins, 2016 was updated in October 2023, Collins, 2023).

Roost Characterisation

3.12 Where a potential bat roosting feature or confirmed roost was identified, the surveyor assessed how these could be used by bats throughout the year, in accordance with Natural England (2015):

- day roost - where individual bats, or small groups of males, rest or shelter in the day, but rarely on summer nights;
- night roost - where bats rest or shelter at night, but rarely during the day;
- feeding roost - where bats rest at night between feeding sessions, but rarely during the day;
- hibernation roost - where bats are found during winter;
- transitional or occasional roost - where bats gather at a temporary site before and after hibernation;
- mating site - where males and females gather from late summer to early winter;
- maternity roost - where babies are born and raised until they're independent;
- satellite roost - where breeding females roost close to the main nursery colony in the breeding season; and
- swarming site - where bats gather in large numbers from late summer to autumn.

Bat Activity Surveys

3.13 The Preliminary Ecological Appraisal identified the site as having a **low** potential to support commuting and foraging bats, and therefore a series of activity transect and static detector surveys were carried out to assess how bats use the site.

3.14 A series of three dusk activity transect surveys were carried out at the site, commencing in May 2023 and completing in September 2023. The surveys were carried out seasonally during the main active season for bats (April to October inclusive). The survey dates were 17th May 2023, 27th July 2023, and 12th September 2023.

3.15 Two surveyors were used for each survey, one at the northern site area and one at the southern site area. Echometer Touch 2 Pro detectors were used for the surveys.

3.16 The transect route covered the whole site with a particular focus on boundary features (hedgerows) where bats would most likely be recorded. The route was walked at a slow, steady pace, and all bats seen and/or heard during the survey were recorded. The transect route included eight listening points for each site area, spaced at regular intervals, at which surveyors would stand for approximately 5 minutes to record bat activity. Each surveyor walked the route once, with the route including two laps of the field boundaries. The starting positions were shifted for each survey to further ensure that each part of the route was being surveyed at varying times after sunset.

3.17 The dusk activity transect surveys commenced at sunset and were completed in approximately 2 and a half hours. Surveys were carried out on nights of appropriate weather conditions for bats, that is a sunset temperature of at least 10°C and no strong wind or rain.

3.18 A series of three static detector surveys were carried out at the site, commencing in May 2023 and completing in September 2023. The surveys were carried out seasonally during the main active season for bats (April to October inclusive). For each survey, one static detector was deployed within each of the two site areas to continuously record bat activity for five consecutive nights.

3.19 Anabat Express and Chorus passive bat detectors were used for the surveys. The detectors were set to begin recording 30 minutes prior to sunset and stop recording 30 minutes after sunrise.

3.20 The static detectors were deployed on the night of the activity transect survey each month. Surveys were planned with the aim of enabling the static detector surveys to record five consecutive nights of appropriate weather conditions.

3.21 Different locations were used for the static detectors for each survey, with the aim of covering a range of different locations on the site across the three surveys, providing it was deemed safe to leave a detector out. Detectors were not deployed within the cereal crop in the centre of both sites.

EcIA Assessment

Predict the Ecological Impact and Effect

3.22 The initial stage of the EcIA is to predict the Ecological impact and effect. In an attempt to avoid confusion in these terms these are defined below:

- Ecological impact - actions resulting in change to an ecological feature. E.g. loss of pond/hedgerow or trees, during to the construction plans/activities.
- Ecological effect – this is the outcome of the ecological impact on an ecological feature. E.g. effect on newts from loss of ponds, effect on dormouse of loss of hedge, effect on birds/bats due to loss of trees.

Establishing Likely Zone of Influence

3.23 For the purpose of the assessment, the Site is considered to be inside the following 'zone of influence' of:

- Internationally designations (e.g. Special Protection Area (SPA), potential SPA sites (pSPA), Special Areas of Conservation (SAC), candidate SAC sites (cSAC), and RAMSAR sites), within **10km** of the Site boundary;
- Nationally important designations (e.g. Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Marine Nature Reserves (MNR), Local Nature Reserves (LNR)) within **5km** of the Site boundary;
- Regional or County non-statutory designations within **2km** of the Site boundary; and
- Locally Important sites within **1km** of the Site boundary.

Magnitude of Impact

3.24 A number of factors may influence the magnitude of an effect or impact, listed below, as listed in the CIEEM guidance:

- Positive or negative: does the change improve or reduce the quality of the environment. E.g. increasing species/ decreasing species, extending habitat/reducing habitat;
- Magnitude: "size" or "amount" of impact, determined on a quantitative basis where possible, e.g. the numbers of a species that are influenced;
- Extent: The area over which the impact occurs;
- Duration: The time over which the impact is expected to last prior to recovery or replacement of the resource or feature (short, medium or long term);

- Reversibility: whether recovery is possible within a reasonable timescale; and
- Timing and Frequency: Whether impacts coincide with critical life changes or seasons (e.g. breeding bird season) and how frequent the impacts are likely to be.

3.25 Impacts in combination may have a cumulative effect that is greater than when the same changes act in isolation. Cumulative impacts may entail the assessment of all the effects of the Scheme upon a feature (e.g. impacts at the construction and operation stage), or the combined impacts of a number of Schemes that will affect the same area.

Cumulative Impacts and Effects

3.26 Impacts in combination may have a cumulative effect that is greater than when the same changes act in isolation. Cumulative impacts may entail the assessment of all the effects of the Scheme upon a feature (e.g. impacts at the construction and operation stage), or the combined impacts of a number of Schemes that will affect the same area.

Residual Impacts and Effects

3.27 After the ecological avoidance and mitigation measures are finalised, an assessment of the residual impacts needs to be undertaken to determine the significance of their effects on ecological features.

Caveats

Data Search Constraints

3.28 It is important to note that, even where data is held, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest; the area may be simply under-recorded.

Habitat Survey Constraints and Limitations

3.29 Ecological surveys are limited by factors that affect presence of plants and animals such as seasonality. Whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation of the environment. The appraisal does not constitute a full botanical survey, which was not deemed necessary for the site given the widespread nature of the onsite habitats.

3.30 This appraisal also does not constitute as a full invasive species survey, which was not deemed necessary for the site due to a lack of evidence of any invasive species being present. All surveys are subject to the conditions on site at the time of the survey. Site surveys are non-intrusive and rely on the visual identification of aboveground growth. If parts of a site are inaccessible then these areas can often not be surveyed, unless they can be viewed from other areas. If any aboveground growth is being managed or has been disturbed or covered, or the below ground growth is dormant, then it may be impossible for us to identify invasive plants in these areas during our non-intrusive survey.

Reptile Survey Constraints

3.31 Reptile surveys can be undertaken between March to October, in the active period for reptiles, in suitable weather conditions; however, the optimum months for survey are April, May and September (Froglife, 1999).

The survey was carried out within the recommended survey period, including during an optimum month, in suitable weather conditions and was considered sufficiently rigorous to determine the presence/likely absence and distribution of reptiles within the proposed development site at that time.

Bat Survey Constraints

3.32 Bats are mobile animals which can move roost sites throughout the year. It is possible that emergence surveys carried out in August and September may miss roosts not occupied until later in the year. However, where undisturbed, it is generally possible to find secondary evidence of bats throughout the year.

3.33 Bats can cover a large area within any one night and may travel over different locations on different nights. The recordings from the activity transect surveys reflect a snapshot of bat activity from the survey area only.

3.34 The static detector surveys enable a much longer period of bat activity to be recorded and are therefore more likely to identify all species that typically pass over the location of the detector. However, since only bats within close proximity to the detector will be recorded, the results reflect bat activity within a small part of the site only, and bats using other parts of the site may be missed. Data from static detector surveys is also limited since there is no observational context to the recordings.

3.35 Bat activity is inherently variable from night to night and is linked to several factors including weather. As such, any given night of survey may not always be representative of average bat activity levels.

3.36 However, it is considered that the surveys carried out were sufficiently thorough to assess how the site is typically used by roosting, commuting, and foraging bats.

4. Baseline Conditions

Aerial Photography and OS Maps

4.1 Aerial photographs and OS maps show the site to predominantly comprise agricultural land, with hedgerows and a small number of trees. There are also four buildings within the northern site area (Tess Square) and one building in the southern site area (Butts Close). The fields that make up the site are bound by roads and residential properties. The surrounding area mostly comprises a combination of residential properties and agricultural land. There appear to be six ponds and two drainage ditches within 500m of the site.

Statutory and Non-Statutory Designated Sites

Internationally Designated Sites (Statutory Sites)

4.2 There are two internationally designated sites within 10km of the site.

4.3 The closest internationally designated site is Rooksmoor Special Area of Conservation (SAC), located 5.95km to the southwest at its closest point. The SAC is designated for the habitat *Molinia* meadows, which are fen meadows and mire, and for the species marsh fritillary (*Euphydryas aurinia*).

4.4 The second internationally designated site is Fontmell and Melbury Downs SAC, located 8.9km to the east at its closest point. The SAC is designated for *Festuco-Brometalia* grasslands and the species early gentian (*Gentianella anglica*).

4.5 The site does not contain any supporting habitat for these internationally designated sites. Given this and their considerable distance from the site, these internationally designated sites are not considered relevant to the site and no impacts from the proposed development would be expected. Therefore, no internationally designated sites are taken through to the impact assessment.

Nationally Designated Sites (Statutory Sites)

4.6 The only statutory designated site within 5km is Butts Pond Meadows, Sturminster Newton Local Nature Reserve (LNR), which is located 3.6km to the south of the site at their closest points.

4.7 The LNR is 1.62ha in size and contains species-rich damp chalk grassland bordered by industrial estate and housing estates. Ditches and a pond on the site support three species of newt including the protected great crested newt.

4.8 Butts Pond Meadows, Sturminster Newton LNR is not situated adjacent to or within very close proximity of the site, nor does the site does not contain any supporting habitat for the LNR. Great crested newts breeding in the LNR would not travel as far as the site to commute or forage, and the site contains no breeding habitat for great crested newts. This nationally designated site is therefore not considered relevant to the site and no impacts from the proposed development would be expected. Therefore, no nationally designated sites are taken through to the impact assessment.

Locally Designated Sites (Non-Statutory Sites)

4.9 There are two non-statutory sites, designated for nature conservation, within 2km of the site.

4.10 The closest is Todber Copse Site of Nature Conservation Interest (SNCI), a 3.15ha lowland mixed deciduous woodland located 1.5km to the northeast of the site at their closest points.

4.11 The second locally designated site is Spar/Meatyard's Coppice SNCI, a 2.22ha deciduous and plantation woodland located 1.8km to the southeast of the site at their closest points.

4.12 There are no locally designated sites adjacent to or within very close proximity to the site. The site does not contain any supporting habitat for the two locally designated sites identified within 2km of the site. These locally designated sites are not considered relevant to the site and no impacts from the proposed development would be expected. Therefore, no locally designated sites are taken through to the impact assessment.

Ancient Woodland

4.13 There is no ancient woodland covering any part of the site or immediately adjacent to the site. No trees on or adjacent to the site are listed on the Woodland Trusts' Ancient Tree Inventory.

4.14 The closest area of ancient woodland is situated 1.56km to the southeast.

4.15 The closest ancient tree is situated 660m to the northwest.

4.16 Given these distances, no ancient woodland or ancient trees are considered relevant to the site and no impacts from the proposed development would be expected. Therefore, no ancient woodland or ancient trees are taken through to the impact assessment.

Site Summary

4.17 The main habitats recorded within the site are described below. Additional details are shown on the habitat survey plans in Appendix B.

4.18 The site is split between two areas - the northern site area (Tess Square) and southern site area (Butts Close) - and these are described separately.

4.19 The site comprised buildings (u1b5), developed land; sealed surface (u1b), cereal crop (c1c), modified grassland (g4), ruderal/ephemeral (c 17 and s 17), fen marsh and swamp (f2), hedgerow (h2a), hedgerow with trees (h2a 190), scattered trees (c 11 and g 11), other rivers and streams (r2b), and bramble scrub (h3d).

4.20 The main habitats recorded within the site are described below. The UKHab code is shown in the bracket after the habitat type (UKHab 2020). Additional photographs are provided in Appendix A.

Northern Site Area (Tess Square)

Buildings (u1b5)

4.21 There were four buildings within the northern site area. The buildings are discussed below in relation to bats. Other than their value for roosting bats, the buildings were all assessed to be of negligible ecological importance and therefore are not considered further in this assessment.

Building 1 (B1)

4.22 In the northeast of this site area was a modern building in use as a pharmacy. It was inspected externally but not internally. It was of modern brick construction and no broken tiles or gaps were visible in the building. It is understood that this building will be unaffected by the proposed development.

Buildings 2, 3 & 4 (B2, B3 & B4)

4.23 There were three large barns to the south that had historically been used as chicken sheds. They were in a state of disrepair and composed of wood and concrete. These were accessed internally and found to contain a wire mesh across the floors. Each was on concrete block foundation that was raised off ground level. It is understood that these barns will be demolished as part of the proposed development.

Developed Land; Sealed Surface (u1b)

4.24 The area around the barns in the south of the site area was concrete hardstanding. There were some materials stored here.

4.25 In the southeast of the site area was a short section of a hard surfaced access track.

4.26 The area around the pharmacy in the north was a hard surfaced car park and provided access to Church Hill.

4.27 This habitat was assessed to be of negligible ecological importance and therefore is not considered further in this assessment.

Cereal Crop (c1c)

4.28 The majority of the site area was dominated by a large arable field. At the time of the survey this contained a crop understood to be wheat (*Triticum aestivum*).

4.29 This habitat was assessed to be of negligible ecological importance and therefore is not considered further in this assessment.

Modified Grassland (g4)

4.30 Around the car park servicing the pharmacy, in the northeast of this site area, was an area of managed grassland. This was relatively species poor and dominated by perennial rye (*Lolium perenne*). Daisy (*Bellis perennis*), dandelion (*Taraxacum vulgare* agg.), and self-heal (*Prunella vulgaris*) were also noted to be present.

4.31 This habitat was assessed to be of negligible ecological importance and therefore is not considered further in this assessment.

Ruderal/Ephemeral (c 17 & s 17)

Ruderal/Ephemeral on Cropland (c 17)

4.32 The arable field margins were made up of ruderal vegetation including nettle (*Urtica dioica*), common hogweed (*Heracleum spondylium*), cow parsley (*Anthriscus sylvestris*) and dock (*Rumex* sp.).

4.33 This habitat was assessed to have ecological importance at the site level only, and therefore is not considered further in this assessment.

Ruderal/Ephemeral on Sparsely Vegetated Land (s 17)

4.34 Surrounding the barns in the south of this site area was ruderal vegetation on sparsely vegetated land, including recently felled ash tree trunks (*Fraxinus excelsior*) and conifer brash.

4.35 This habitat was assessed to be of negligible ecological importance and therefore is not considered further in this assessment.

Fen Marsh and Swamp (f2)

4.36 In the north of this site area was a small area of marshy grassland that appeared to be subject to seasonal flooding. At the time of the survey it was dry. Dominant species seen included sedge (*Carex* sp.) and rush (*Juncus* sp.). Reed canary grass (*Phalaris arundinacea*) was also seen.

4.37 This habitat was assessed to have ecological importance at the site level only, and therefore is not considered further in this assessment.

Native Hedgerow (h2a) – Priority Habitat

4.38 Around the northern and eastern borders of the arable fields were sections of well-established native hedgerow. This was in good condition and contained a number of woody species including field maple (*Acer campestre*), ash, hawthorn (*Crataegus monogyna*), blackthorn *(Prunus spinosa*), elm (*Ulmus* sp.) and elder (*Sambucus nigra*). Within the field layer was red campion (*Silene dioica*), comfrey (*Symphytum* sp.), hemlock (*Conium maculatum*), and garlic mustard (*Alliaria petiolata*).

4.39 Due to the diversity of woody species present, it is considered that this hedgerow would meet the criteria of a significant Dorset hedgerow.

4.40 The onsite hedgerows were assessed to have ecological importance at the district level.

Scattered Trees (c 11 & g 11)

Scattered Trees on Cropland (c 11)

4.41 Within the main arable field was an isolated stand of alder trees (*Alnus* sp).

4.42 To the west of the pharmacy was a large ash tree of significant age (TN1). It is understood that this tree will not be impacted by the proposed development.

4.43 These trees were assessed to have ecological importance at the site level only, and therefore are not considered further in this assessment.

Scattered Trees on Grassland (g 11)

4.44 Surrounding the pharmacy, in the northeast, was an area of relatively young trees including Scots pine (*Pinus sylvestris*), silver birch (*Betula pendula*), whitebeam (*Sorbus aria*) and field maple. Below these were also tightly trimmed holly (*Ilex aquifolium*) and box (*Buxus sempervirens*).

4.45 In the north of the site near the marshy grassland was an area of willow (*Salix* sp.) and alder. Around this was bramble (*Rubus fructicosus* agg.) and willowherb growth (*Epilobium* sp.). There were also a number of standing dead ash trees.

4.46 These trees were assessed to have ecological importance at the site level only, and therefore are not considered further in this assessment.

Other Rivers and Streams (r2b)

4.47 To the north of the hedge in the northern part of the site area was a channel of shallow fast-flowing water.

4.48 This habitat was assessed to have ecological importance at the site level only, and therefore is not considered further in this assessment.

Southern Site Area (Butts Close)

Building (u1b5)

4.49 Within the eastern portion of the field was part of a historic, derelict building (B5), within which was a disused well (TN2). The building and well are discussed below in relation to bats. Other than their value for roosting bats, these features were assessed to be of negligible ecological importance and therefore are not considered further in this assessment.

Cereal Crop (c1c)

4.50 The majority of the site area was dominated by arable cropland. At the time of the survey this contained a crop understood to be wheat.

4.51 This habitat was assessed to be of negligible ecological importance and therefore is not considered further in this assessment.

Ruderal/Ephemeral on Cropland (c 17)

4.52 Along the northern field margin was a strip of ruderal vegetation, including cow parsley and nettle.

4.53 This habitat was assessed to have ecological importance at the site level only, and therefore is not considered further in this assessment.

Bramble Scrub (h3d)

4.54 On the northern boundary of the field was a small area of scrub, dominated by bramble.

4.55 This habitat was assessed to have ecological importance at the site level only, and therefore is not considered further in this assessment.

Native Hedgerow (h2a) – Priority Habitat

4.56 The field was bound by a native hedgerow, except for along the northern boundary. This hedge contained hazel (*Corylus avellana*) elm, hawthorn, sloe, and sycamore (*Acer pseudoplatanus*) and had a field layer containing harts tongue fern (*Asplenium scolopendrium*), dog's mercury (*Mercurialis perennis*), and lords and ladies (*Arum maculatum*).

4.57 Due to the diversity of woody species present, it is considered that this hedgerow would meet the criteria of a significant Dorset hedgerow.

4.58 The onsite hedgerows were assessed to have ecological importance at the district level.

Hedgerow with Trees (h2a 190) – Priority Habitat

4.59 One section of the boundary hedgerow, approximately 150m in length, contained trees including field maple and sycamore.

4.60 Due to the diversity of woody species present, it is considered that this hedgerow would meet the criteria of a significant Dorset hedgerow.

4.61 The onsite hedgerows were assessed to have ecological importance at the district level.

Individual Tree on Cropland (c 11)

4.62 There was a single sycamore tree adjacent to the derelict building that contained the well.

4.63 The tree was assessed to have ecological importance at the site level only, and therefore is not considered further in this assessment.

Fauna

Birds

4.64 Breeding birds receive protection under the Wildlife & Countryside Act, 1981 (as amended) which affords protection to all birds, their nests and eggs. Certain rare species receive additional special protection under Schedule 1 of the Act and Annex 1 of the European Community Directive on the Conservation of Wild Birds (2009/147/EC).

4.65 Several Red or Amber listed Birds of Conservation Concern[1] (BoCC), and notable[2] bird species were returned by the data search that may utilise habitats within the site. Species include song thrush *(Turdus philomelos),* cuckoo *(Cuculus canorus),* and swift (*Apus apus*).

4.66 No bird's nests were observed on the site, however it was noted that the onsite trees, hedgerows, scrub, and barns provided suitable habitat for a range of nesting birds. In addition, the arable land may provide suitable nesting habitat for ground-nesting species such as skylark (*Alauda arvensis*).

4.67 It is considered that the site (both Butts Close and Tess Square) may have importance for nesting birds at the local level.

[1] Birds of Conservation Concern status is prioritised into high concern (Red), medium concern (Amber) and low concern (Green) (Eaton et al, 2009). Red-list species are those that are globally threatened according to the IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and have not shown a substantial recent recovery. Amber-list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations. Green-list species are those that fulfil none of the criteria.

[2] Notable Birds are based on a list of birds that are particularly scarce or vulnerable either at national or a regional level. The majority of these bird species are designated as Schedule 1 species, under the Wildlife and Countryside Act 1981 (as amended), or listed as red or amber-listed BoCC.

Reptiles

4.68 All UK reptiles are afforded varying levels of protection under the Wildlife & Countryside Act, 1981 (as amended). Rarer species including sand lizard *(Lacerta agilis*) and smooth snake (*Coronella austriaca*) receive additional protection under The Conservation of Habitats and Species Regulations 2010 (as amended).

4.69 The data search returned records of common lizard *(Zootoca vivipara)*, slow worm (*Anguis fragilis*), adder (*Vipera berus*), and grass snake *(Natrix helvetica)* within 5km of the site within the past 15 years.

4.70 It was considered that the site contained suitable habitat in the field boundaries to support widespread reptile species. This included hedgerows, scrub, and ruderal vegetation. The arable land, which covered most of the site, was considered to be unsuitable for reptiles.

4.71 The reptile survey that was carried out between August and September 2023 confirmed that reptiles were present in both site areas. In the northern site area (Tess Square), a low population of slow worms was found. In the southern site area (Butts Close), a good population of slow worms and low population of grass snakes were found. Reptiles were found in the field boundaries only.

4.72 It is considered that the site (both Butts Close and Tess Square) has importance for widespread reptile species at the local level.

Bats

4.73 All species of British bat are protected under The Conservation of Habitats and Species Regulations 2010 (as amended) and the Wildlife and Countryside Act 1981 (as amended).

4.74 The data search returned records of bats from the genera pipistrelle (*Pipistrellus*), long-eared (*Plecotus*), myotis (*Myotis*), horseshoe (*Rhinolophus*), serotine (*Eptesicus*), and noctule/Leisler's (*Nyctalus*) occurring within the 5km search area in the past 15 years.

4.75 Two of the buildings onsite – building 1 (Pharmacy – Tess Square) and building 5 (part of a derelict building surrounding a well – Butts Close) - and the trees around the site (with the exception of the large ash tree near the pharmacy – Tess Square) were assessed as having negligible potential to support roosting bats, due to a complete absence of potential roosting features. No further bat surveys were carried out for these features.

4.76 The large ash tree near the pharmacy (Tess Square) was assessed as having low potential to support roosting bats, however it is understood that this tree is to be unimpacted by the proposed development. No further bat surveys were carried out for this tree.

4.77 The three large barns in the south of the northern site area (Tess Square - buildings 2, 3, and 4) and the disused well associated with building 5 in the southern site area (Butts Close) were considered to have low potential to support roosting bats. Therefore, dusk emergence surveys were carried out for these features.

4.78 Due to an absence of bat emergences or re-entries during the surveys, it was concluded that roosting bats were likely absent from building 4 and the disused well.

4.79 It was concluded that building 2 (Tess Square) supported a likely day roost used by low numbers of common pipistrelles (*Pipistrellus pipistrellus*) and soprano pipistrelles (*Pipistrellus pygmaeus*).

4.80 It was concluded that building 3 (Tess Square) supported a likely day roost used by low numbers of common pipistrelles and brown long-eared bats (*Plecotus auritus*).

4.81 The bat activity transect and static detector surveys revealed an overall low level of bat activity within both site areas. Bat activity was typically associated with boundary and edge features. A total of seven different species were recorded within the northern site area (Tess Square) and six different species were recorded within the southern site area (Butts Close).

4.82 Common pipistrelles dominated the bat activity across all surveys and in all locations on the site, typically making up over 70% of the recorded bat passes collectively. This species is common and they are habitat generalists, so this is not an unexpected result. Myotis species, soprano pipistrelle, brown long-eared bat, serotine, Leisler's bat, and noctule were regularly recorded during the surveys but at low densities only. These species were found across a range of locations and habitat types at the site.

4.83 No Annex II bat species were confirmed to be present on the site. Although due to the complexity of analysing myotis calls these were not broken down to species level.

4.84 It is considered that the site has importance for roosting, foraging, and commuting bats at the local level. The features of importance were found to be buildings 2 and 3 (Tess Square), and the boundary hedgerows and associated vegetation on site (both Tess Square and Butts Close).

Great Crested Newts

4.85 Great crested newts receive protection under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended).

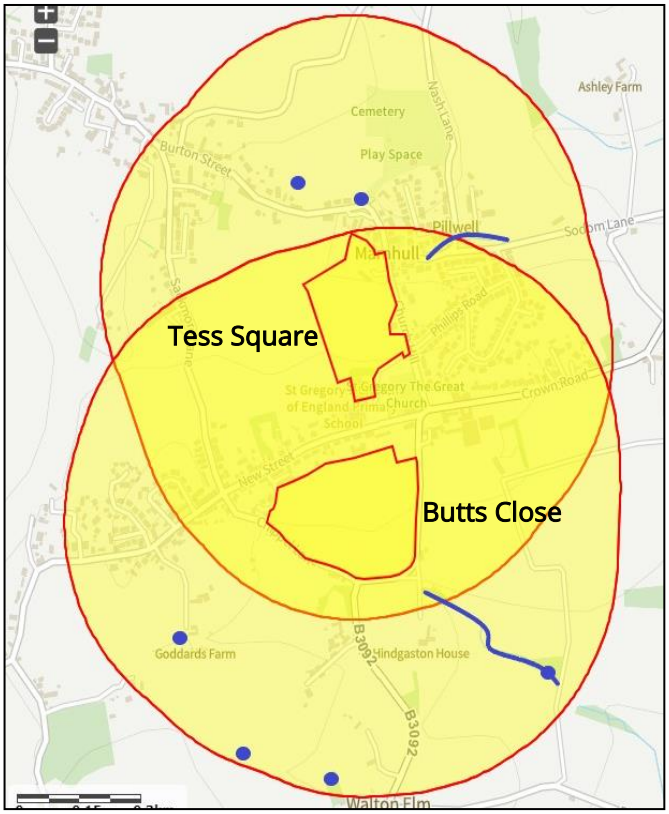
4.86 The data search returned over 50 records of great crested newt within 5km of the site within the past 15 years. There were no records within 500m. Aerial photographs and maps show six ponds and two drainage ditches within 500m of the site (see Drawing 1 below). Only two ponds (to the north of the northern site area) and the two drainage ditches fall within 250m of the site.

4.87 The majority of the site falls within a 'green' GCN risk zone, with the northern-most portion of the northern site area (Tess Square) falling within an 'amber' GCN risk zone.

4.88 The stream in the north of the site was considered unsuitable for great crested newts due to the fast flowing and shallow nature of the water it held.

4.89 The terrestrial habitat does however contain features in the field boundaries that could support foraging and commuting newts. These include hedgerows, scrub, and ruderal vegetation. The arable land that covers most of the site is unsuitable for great crested newts.

4.90 It is considered that the onsite field boundaries may have importance for foraging and commuting great crested newts at the local level, if there are breeding ponds in close proximity to the site.



Drawing 1: Ponds and drainage ditches within 500m of the site.

Hazel Dormice

4.91 The hazel dormouse is protected under the Conservation of Habitats and Species Regulations 2010 (as amended) and the Wildlife and Countryside Act 1981 (as amended).

4.92 The data search showed no records of dormice within 5km of the site within the past 15 years.

4.93 No dormice or secondary signs of dormice, such as nests or the shells of eaten hazel nuts, were found on-site. Whilst the hedgerows on-site could be suitable dormouse habitat, the lack of connectivity to a wider network of hedgerows or woodland, due to the site being enclosed by roads, makes it unlikely that dormice would utilise the site.

4.94 Whilst it is considered that dormice are likely absent from the site (both Butts Close and Tess Square), this has not been confirmed through surveys. Therefore, taking a worst-case scenario approach, the site could have importance for dormice at the local level.

Badger

4.95 Badgers (*Meles meles*) and their setts are protected under the Protection of Badgers Act (1992), which consolidated and added to the previous Badger Acts of 1973 and 1991.

4.96 The data search showed records of badger within 5km of the site within the past 15 years.

4.97 No evidence of badgers was seen during the survey therefore it was considered badger setts were unlikely to be present on or adjacent to the site at the time of the survey. The habitats onsite are however suitable for sett-building and foraging.

4.98 Due to badger setts being likely absent from the site (both Butts Close and Tess Square), this species is not considered further in this assessment.

Water Voles

4.99 Water voles are protected under the Conservation of Habitats and Species Regulations 2010 (as amended) and the Wildlife and Countryside Act 1981 (as amended).

4.100 The data search showed one record of water vole within the 5km search area in the past 15 years.

4.101 The majority of the site was completely unsuitable for water vole. There was however a narrow channel of shallow, flowing water in the north of the site (Tess Square). Whilst sub-optimal and unlikely to support water vole, there is a small possibility that this feature could be used by this species.

4.102 Whilst it is considered that water voles are likely absent from the site (both Butts Close and Tess Square), this has not been confirmed through surveys. Taking a worst-case scenario approach, the site could have importance for water voles at the site level only for Tess Square. Therefore, this species is not considered further in this assessment.

Other Mammals

4.103 The data search returned recent records for otter and hedgehog (*Erinaceus europaeus*).

4.104 Due to the unsuitability of the narrow channel of flowing water on the site, and lack of other suitable habitat, the site has negligible potential to support otters.

4.105 The short grassland, hedgerows, and scrub on the site could provide suitable habitat for hedgehogs, a BAP priority species. It is considered that the site has importance for hedgehogs at the site level only, therefore this species is not considered further in this assessment.

Invertebrates

4.106 Several notable butterfly species were returned by the data search.

4.107 It was considered that the onsite habitats had negligible potential to support any notable, priority, or protected invertebrates. The onsite habitats were of a common and widespread nature and had been modified by human activity. The vegetation was species-poor and no features suitable for supporting notable, priority, or protected invertebrates were seen.

4.108 Due to notable, priority, or protected invertebrates being likely absent from the site (both Butts Close and Tess Square), these species are not considered further in this assessment.

Invasive Plants

4.109 The data search showed records of giant hogweed *(Heracleum mantegazzianum)* and Canadian waterweed (*Elodea canadensis*) occurring within the 5km search area in the past 15 years. These species are listed as invasive in Schedule 9 of the Wildlife and Countryside Act (1981 amended).

4.110 No specimens of plant species that are listed in Schedule 9 of the Wildlife and Countryside Act (1981 amended) have been seen on the site. It should be noted that a full invasive species survey has not been carried out. However, the site is relatively small in size and has been visited by ecologists on several occasions at different times of year for protected species surveys. Invasive plants are therefore likely absent.

4.111 Due to invasive plants being likely absent from the site (both Butts Close and Tess Square), they are not considered further in this assessment.

Summary of Ecological Features

4.112 A summary of the ecological features relevant to the site, with a scale of importance at the local level or above, is provided in Table 4.2.

Table 4.2: Summary of the Ecological Features

Ecological Resource / Feature	Highest Geographic Level of Importance
Native hedgerow & hedgerow with trees	District
Breeding birds	Local
Reptiles	Local
Bats	Local
Great crested newts	Local
Hazel dormice	Local

5. Assessment of Impacts and Effects

Description of the Development Proposals

5.1 Clearance works to facilitate the development will include:

- Removal of all onsite buildings except for building 1 (the Surgery);
- removal of the cropland in it's entirety;
- removal of small areas of ruderal vegetation and bramble scrub in the field boundaries;
- removal of four short sections of hedgerow for the new access roads; and
- removal of a small number of trees.

5.2 Construction works will include:

- Construction of approximately 120 new dwellings in the southern site area (Butts Close), each with private areas of hard and soft landscaping;
- construction of a small number of commercial buildings in the northern site area (Tess Square), surrounded by hard and soft landscaping;
- construction of new access roads within both site areas;
- construction of new car parking areas in the northern site area (Tess Square);
- creation of Sustainable Urban Drainage Systems (SuDS) within both site areas; and
- creation of temporary construction and/or storage compounds within both site areas, which may use temporary lighting.

5.3 Ecological mitigation/enhancements that have been incorporated into the site layout include:

- Creation of areas of wildflower grassland, wetland meadow, mixed native scrub, species-rich grass, amenity/lawn grass, shrubs, herbaceous, and bulb planting (Tess Square);
- creation of a 10m scrub buffer around the boundary hedgerow in the southern site area (Butts Close);
- planting of new native hedgerows totalling 559m, including a species-rich hedgerow (Tess Square);
- planting of 98 new native trees and 68 new ornamental trees (Tess Square);
- creation of SuDS features with value for wildlife in both site areas;

- installation of log piles and hibernacula in both site areas; and
- installation of bird and bat boxes on the new buildings in both site areas.

Types of Impact

5.4 Development activities may have a range of positive and negative effects upon ecological features during the construction and operational phases and a distinction is often made between direct and indirect impacts. Direct impacts occur where the changes to an ecological feature are directly attributable to an action such as the loss of grassland for the construction of new buildings. Indirect impacts arise as a 'knock-on' effect, such as disturbance of bat activity as a result of a change in human use of the site.

5.5 Direct and indirect effects can then be sub-divided into temporary or permanent impacts i.e. loss of land in contrast to the temporary use of land for storage of materials). These impacts may also be either temporary or long lasting. Effects may also be cumulative.

5.6 Impacts have been divided into construction and operation stages and the following sections are based on the assessment of the magnitude and significance of impacts before mitigation.

Impacts and Effects of Site Construction

5.7 Impacts related to the site preparation and construction will be limited due to the nature and scale of the proposals. However, impacts will include discrete clearance of habitat, including cropland, ruderal vegetation, bramble scrub, hedgerow, and trees. As a result, a range of impacts, with potential adverse ecological effects, are associated with construction works. These are listed in Table 5.1 below.

Table 5.1: Construction Impacts and Effects

Construction Impacts	Nature of Impact
Landtake	Habitat loss – a direct impact. The severity of this effect is directly related to the relative amount of habitat lost, the conservation value of that habitat, whether it is a temporary or permanent loss, and whether the habitat can be restored or recreated. The proposed development will involve loss of discrete areas of terrestrial habitat, and both permanent and temporary effects are anticipated.

Construction Impacts	Nature of Impact
Noise	Noise associated with construction impacting sensitive species (e.g. breeding birds). The impacts will be seasonally dependent and this would be a temporary indirect impact.
Dust	Dust arising from construction activities leading to damage to vegetation. This would be a temporary direct impact.
Lighting	Construction lighting - an indirect impact. The effect of this light could lead to behavioural changes in sensitive species including birds and bats and dormice, if present in adjacent trees. The impacts will be seasonally dependent. This would be a temporary indirect impact.
Injury or killing of protected species	Construction works can pose a risk of any protected species present on the site being injured or killed. This could result from clearance works in their resting places or foraging habitat, or through interaction between construction materials/features, for example entrapment in trenches. This would be a temporary direct impact.

Impacts and Effects of Operation

5.8 Potential adverse ecological effects/impacts involved with the operational phase of the proposals are outlined in Table 5.2 below.

Table 5.2: Operation Impacts and Effects

Operation Impacts	Nature of Impact
Noise	Noise associated with human activities impacting sensitive species (e.g. breeding birds, bats, badger). The impacts will be seasonally dependent and this would be a temporary indirect impact.
Lighting	On-site lighting could lead to behavioural changes in sensitive species including birds and bats and dormice, if present in adjacent woodland. The impacts will be seasonally dependent. This would be a permanent indirect impact.

Evaluation of Impacts on Ecological Features

Onsite Native Hedgerows and Hedgerow with Trees

Potential Impact

Construction

5.9 To facilitate the new access roads, it will be necessary to remove four short lengths of native hedgerow from the site, two from each site area. It is expected that each removal will be a 10-15m length of hedgerow. The remainder of the onsite hedgerows are to be retained.

5.10 The loss of habitat is assessed as being direct and permanent and the magnitude is assessed as being **low** in impact.

5.11 The retained native hedgerows and hedgerow with trees could be impacted by dust generated by the construction works, where works are carried out in close proximity to these habitat features. Dust deposition could cause damage the vegetation, resulting in a reduction in health and quality of this habitat.

5.12 The potential damage to vegetation resulting from dust is assessed as being direct and temporary and the magnitude is assessed as being **low** in impact.

Operation

5.13 The operational phase is not likely to impact on the existing native hedgerows or hedgerow with trees on the site. The magnitude of impact has been assessed as **negligible**.

Mitigation Measures

5.14 The proposed development will include considerable new hedgerow planting to mitigate for the loss of small sections of hedgerow. Within the northern site area (Tess Square), there will be 207m of new species-rich native hedgerow with trees along the site's western boundary, and 352m of new single-species native hedgerow planted.

5.15 Measures to reduce dust generation should be adopted as far as possible, and where possible dust generating activities should be carried out in the central site areas away from the hedgerows. Where a high volume of dust is to be generated in close proximity to the retained hedgerows, it is recommended that this habitat is protected from damage through the temporary erection of protective screens.

Residual Effects

5.16 Subject to the creation of new native hedgerows and protection of retained hedgerows from dust, the magnitude of impact on onsite native hedgerows has been assessed as **negligible**.

Breeding Birds

Potential Impact

5.17 It is considered likely breeding birds are using on-site habitats. The most suitable habitat is the hedgerow and trees on the site. Ground-nesting birds, such as skylark, could use the cropland. The barns (buildings 2, 3 and 4 – Tess Square) could also support nesting birds.

Construction

5.18 The removal of vegetation or demolition of a barn where birds could be nesting poses a direct risk of killing, injury, or destruction of a nest.

5.19 This risk to nesting birds through clearance works is assessed as direct and temporary with a **moderate** magnitude.

5.20 The removal of hedgerow, trees, cropland, and the barns will result in the permanent loss of a small amount of nesting habitat for breeding birds.

5.21 The habitat loss associated with landtake is a direct and permanent impact with a **low** magnitude.

5.22 Construction works could also lead to disturbance to birds, caused by increased noise levels and vehicle movements during the construction phase. The potential number of birds disturbed will be relatively low in terms of the wider populations of any affected species, and it is also noted that the site is currently impacted by agricultural machinery activities.

5.23 Any impacts on breeding birds due to disturbance will be indirect and temporary with a **low** magnitude.

Operation

5.24 Disturbance during the operational phase is a possibility due to increased human activity at the site which may lead to an increase in noise levels. In addition, increased lighting levels as a result of the development may have the potential to disturb birds. Due to the nature of the site, lighting levels are likely to be low and restricted to central areas which should be diffused from boundary habitat.

5.25 Overall, any increase in disturbance caused by operational noise and/or lighting will be indirect and permanent and of **low** magnitude.

Mitigation Measures

5.26 The clearance of the hedgerows, trees, cropland, or barns should be undertaken outside of the main bird nesting season which runs from March to August inclusive[3], with clearance works possible between September and February. Where this is not possible, an ecologist would need to carry out an inspection for active nests. In the event that a nest is found, an exclusion zone around the nest would be established and works would cease within this buffer area until the young birds have fledged.

5.27 It is recommended that an ecologically sensitive lighting scheme is adopted whereby light spill onto boundary habitats, including hedgerows and trees, is minimised.

5.28 New planting will include a high number of new trees and lengths of new native hedgerow, providing a considerable amount of new foraging and nesting habitat once established. Other new planting, such as the areas of wildflower grassland and scrub, will provide foraging habitat for birds.

5.29 The inclusion of a 10m scrub buffer between the development and the boundary hedgerow in the southern site area (Butts Close) should reduce the impact of operational disturbance on breeding birds, since sheltered habitat that is inaccessible to humans and some distance from the new dwellings will be provided.

Enhancement Measures

5.30 Bird boxes and/or bricks are installed on the new buildings to provide additional nesting opportunities. This should include swift boxes or bricks. It is recommended that, where possible, one box/brick is installed per unit within the southern site area (Butts Close). Recommendations of bird box designs are provided in Appendix F.

5.31 Bird boxes should be located out of prevailing wind, rain, and strong sunlight, ideally with a clear flight path to the entrance. Ideally, they should be installed at least two metres from the ground facing north or north-east. Swift boxes should be installed at least 5 metres from the ground.

Residual Effects

5.32 Subject to any clearance of nesting habitat outside the bird breeding season or a pre-commencement nesting bird inspection, an ecologically sensitive lighting strategy, and the provision of a new habitats, the magnitude of impact on breeding birds has been assessed as **negligible**.

[3] It should be noted that this is the main breeding period. Breeding activity may occur outside this period (depending on the particular species and geographical location of the site) and thus due care and attention should be given when undertaking potentially disturbing works at any time of year.

5.33 Provision of bird boxes/bricks would enhance the nesting potential of the site and would result in a **positive effect in the short term.**

Reptiles

5.34 Reptiles have been confirmed as present within the field margins on the site. A low population of slow worms was found at the northern site area (Tess Square), and a good population of slow worms and low population of grass snakes was found at the northern site area (Butts Close). The main development footprint, which is currently cropland, is unsuitable for reptiles.

Potential Impact

Construction

5.35 Construction works within suitable habitat for reptiles in the field margins on the site could pose a risk of injury or killing. It is noted that only small areas of field margins are to be included in the working area, reducing the risk to reptiles.

5.36 The potential injury or killing of reptiles would be a direct and temporary impact with a **moderate** magnitude.

5.37 The removal of hedgerow, ruderal vegetation, and bramble scrub will result in the permanent loss of a small amount of suitable habitat for reptiles.

5.38 The habitat loss associated with landtake is a direct and permanent impact with a **low** magnitude.

Operation

5.39 There is a small direct risk to reptiles associated with the risk of predation by cats that may be brought onto the site as part of the residential development within the southern site area (Butts Close).

5.40 The impacts upon reptiles during the operational period resulting from predation are direct and permanent and assessed as **low** magnitude.

Mitigation Measure

5.41 It will be necessary to move reptiles out of the proposed working area, prior to work commencing, to prevent injury or killing occurring. The method for this should be set out in a Reptile Mitigation Strategy, which should be produced pre-commencement. The Mitigation Strategy should include a method of controlled vegetation clearance under an ecological watching brief. It may also be necessary to temporarily install reptile exclusion fencing, to keep reptiles from entering the working area.

5.42 New planting, including areas of high-quality grassland, scrub, and native hedgerows, will provide new habitat suitable for supporting reptiles, to mitigate for the loss of existing habitat. It is expected that, once the planting establishes, the site will have higher suitability for reptiles post-development than it does currently.

5.43 The inclusion of a 10m scrub buffer between the development and the boundary hedgerow in the southern site area (Butts Close) should reduce the impact of predation on reptiles. The dense scrub will provide sheltered habitat for reptiles that is largely inaccessible to cats.

5.44 Log piles and hibernacula are to be installed in strategic locations around the site (both Butts Close and Tess Square). These will provide new habitat for reptiles to shelter and hibernate.

Residual Effects

5.45 Subject to the production and adoption of a Reptile Mitigation Strategy and the provision of a new habitats, including a scrub buffer, log piles, and hibernacula, the magnitude of impact on reptiles has been assessed as **negligible**.

5.46 It is expected that the new habitat creation, which will provide improved reptile habitat, will result in a **positive effect in the long term**.

Bats

Potential Impact

5.47 Bat roosts have been identified in two of the barns in the south of the northern site area (Tess Square). Building 2 was found to support a likely day roost used by low numbers of common pipistrelles and soprano pipistrelles and building 3 was found to support a likely day roost used by low numbers of common pipistrelles and brown long-eared bats. These were considered to be roosts of low conservation importance.

5.48 Overall, a low level of general bat activity was recorded on the site. No Annexe II species were confirmed as present. Bat activity was typically associated with boundary features, such as the hedgerows and trees.

Construction

5.49 The proposed development works will involve the demolition of buildings 2 and 3 (Tess Square). Therefore, both existing bat roosts onsite will be lost.

5.50 The impact on roosting bats is direct and permanent with a **moderate** magnitude.

5.51 Boundary features that have value to bats will largely be retained. However, there will be a temporary reduction in foraging and commuting habitat during construction following the clearance of areas of vegetation, such as ruderal vegetation, bramble scrub, trees, and sections of hedgerow, for the new development.

5.52 The impact of habitat loss on any foraging and commuting bats will be direct and temporary and has been assessed as **low** magnitude.

Operation

5.53 Increased lighting levels during the operational phase of the proposed development are likely due to increased human activity at the site, which has the potential to negatively impact bat foraging and commuting behaviour. There is currently no artificial lighting on the site. Due to the site layout, lighting is likely to be concentrated on central areas in the southern site area (Butts Close), which may be diffused from boundary habitat, and in the northeast corner of the northern site area (Tess Square) where there is existing development. The hedgerows and field margins around the site boundaries have the highest value for foraging and commuting bats, therefore the lighting of these would have the most significant impact. Central areas of existing cropland are sub-optimal, therefore new lighting here would have less of a significant impact on bats. It is noted that, from the results of the bat activity surveys, the site does not appear to be particularly important for foraging and commuting bats.

5.54 Overall, the impact of any increase in disturbance through increased lighting will be indirect and permanent with a low magnitude.

Mitigation Measures

5.55 The demolition of buildings 2 and 3 (Tess Square) must be carried out under an appropriate bat mitigation licence. A Method Statement, produced pre-commencement as part of the licence, will set out the method to minimise the risk to bats during the demolition, and detail appropriate mitigation.

5.56 The loss of the bat roosts will be mitigated for through the provision of new roost spaces in the new buildings in the northern site area (Tess Square). A roost space suitable for brown long-eared bats will be provided in the loft void of the proposed office building. Four bat boxes suitable for pipistrelles will be installed on the southeast facing gable end of the proposed first floor flats. These new roost spaces will be completed prior to the demolition of buildings 2 and 3.

5.57 The proposed development includes the creation of new native hedgerows on the site, including along the western boundary of the northern site area, providing improved habitat connectivity for foraging and commuting bats. Proposed new habitat creation, such as the new trees, wildflower grassland, and the SuDS features within the site, will create new foraging opportunities for a range of bat species. There is expected to be a greater diversity of habitats onsite post-development.

5.58 The inclusion of a 10m scrub buffer between the development and the boundary hedgerow in the southern site area (Butts Close) should ensure this hedgerow remains suitable for use by foraging and commuting bats.

5.59 It is recommended that a lighting strategy is produced pre-commencement, and this should include dark corridors along the hedgerows to prevent disturbance to foraging and commuting bats, including light-sensitive species, during the operational phase. The lighting plan should seek to keep artificial lighting within the site to a minimum and avoid directly illuminating semi-natural vegetation.

Enhancement Measures

5.60 Bat boxes and/or bricks are to be installed on the new dwellings in the southern site area (Butts Close). It is recommended that, where possible, one box/brick is installed per unit. Bat boxes could also be installed on remaining mature trees.

5.61 Boxes could include the Schwegler 2F, or other makes of a similar design, such as Chavenage Bat box. There are a range of bat boxes/bricks available, and these can be selected to suit the development and bat species in the locality. Further details of the bat boxes are provided in Appendix F.

5.62 Bat boxes should be installed at appropriate locations ideally with south-east, south, or south-west facing aspects at least 3m from ground level. Ideally, they need to be exposed to 6-8 hours of direct sunlight but sheltered from strong winds. If installed on the buildings, these should ideally be positioned directly below the eaves.

Residual Effects

5.63 Subject to buildings 2 and 3 (Tess Square) being demolished under a bat mitigation licence with appropriate mitigation delivered beforehand, the creation of new vegetated habitats, and the production of a bat-sensitive lighting strategy, the magnitude of impact on bats has been assessed as **negligible**.

5.64 Provision of bat boxes/bricks will enhance the roosting potential of the site and would result in a **positive effect in the short term.**

Great Crested Newts

5.65 The site does not contain any aquatic habitat suitable for breeding great crested newts, however the field margins and hedgerows could be used by foraging and commuting newts, if present in the local area. No surveys have been carried out to confirm the presence or likely absence of great crested newts, so taking a worst-case scenario approach it is considered that they may be present. However, it is noted that the site mostly falls within a 'green' GCN risk zone and there are only two ponds within 250m of the site, with these both being within 250m of the northern site area (Tess Square) only.

5.66 Excluding the cropland, which is unsuitable for great crested newts, up to 0.076ha of potentially suitable habitat within 100-250m of a pond may be lost or damaged. Less than 1ha of potentially suitable habitat at a distance greater than 250m of a pond will be lost or damaged. No potentially suitable habitat within 100m of a pond will be lost or damaged, and no ponds are to be directly impacted.

Potential Impact

Construction

5.67 Construction works within suitable habitat for great crested newts in the field margins on the site could pose a risk of injury or killing. It is noted that only small areas of field margins are to be included in the working area, reducing the risk to newts.

5.68 The potential injury or killing of great crested newts would be a direct and temporary impact with a **moderate** magnitude.

5.69 The removal of hedgerow, ruderal vegetation, and bramble scrub will result in the permanent loss of a small amount of suitable habitat for great crested newts.

5.70 The habitat loss associated with landtake is a direct and permanent impact with a **low** magnitude.

Operation

5.71 There is a small direct risk to great crested newts associated with the risk of predation by cats that may be brought onto the site as part of the residential development within the southern site area (Butts Close).

5.72 The impacts upon great crested newts during the operational period resulting from predation are direct and permanent and assessed as **low** magnitude.

Mitigation Measures

5.73 Using Natural England's risk assessment tool (see Table 5.3), the loss of land associated with the proposed development is considered highly unlikely in itself to result in an offence relating to great crested newts occurring. Therefore, it is advised that a mitigation licence or district licence regarding great crested newts is not required for the proposed development, providing disturbance to individual newts can be avoided through the works.

Table 5.3: Risk Assessment Tool for Great Crested Newts

Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	0.01 - 0.1 ha lost or damaged	0.01
Land >250m from any breeding pond(s)	0.5 - 1 ha lost or damaged	0.03
Individual great crested newts	No effect	0
	Maximum:	0.03
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

5.74 It will be necessary to adopt a series of Reasonable Avoidance Measures (RAMs) throughout construction works, to minimise the risk to any great crested newts that may be present. These should be set out in detail in a Method Statement produced pre-commencement. The RAMs should include:

- An Ecological Clerk of Works (ECoW) will give a tool-box talk to onsite contractors prior to starting;
- Clearance works within suitable habitat will be supervised and guided by the ECoW, with pre-clearance checks of the vegetation and any surrounding features carried out;
- Controlled and phased vegetation reduction will be carried out using hand strimmers, supervised and guided by the ECoW;
- Any trenches must be covered at night or include an escape route for newts;
- Any trenches and any excavated material to be used as infill must be checked for great crested newts prior to backfilling the trenches;
- No potential hibernation sites will be disturbed during hibernation period;
- Machinery movements should be kept to a minimum; and
- Should a great crested newt be found during the works, work must cease immediately, and a suitably qualified ecologist consulted. The ecologist will advise on the appropriate actions, including applying for a licence, if required.

5.75 New planting, including areas of high-quality grassland, scrub, and native hedgerows, will provide new habitat suitable for supporting great crested newts, to mitigate for the loss of existing habitat. It is expected that, once the planting establishes, the site will have higher suitability for newts post-development than it does currently.

5.76 The creation of SUDs features may also provide suitable habitat for breeding great crested newts post-development.

5.77 The inclusion of a 10m scrub buffer between the development and the boundary hedgerow in the southern site area (Butts Close) should reduce the impact of predation on great crested newts. The dense scrub will provide sheltered habitat for newts that is largely inaccessible to cats.

5.78 Log piles and hibernacula are to be installed in strategic locations around the site (both Butts Close and Tess Square). These will provide new habitat for newts to shelter and hibernate.

Residual Effects

5.79 Subject to the production and adoption of a Method Statement detailing Reasonable Avoidance Measures, and the provision of a new habitats, including a scrub buffer, log piles, and hibernacula, the magnitude of impact on great crested newts has been assessed as **negligible**.

5.80 It is expected that the new habitat creation, which will provide improved amphibian habitat, will result in a **positive effect in the long term**.

Hazel Dormice

Potential Impact

5.81 Based on the site and surrounding area, dormice are considered to be likely absent, however this has not been confirmed through surveys. Taking a worst-case scenario approach therefore, it is considered that they could be present within the boundary hedgerows.

Construction

5.82 It is understood that four sections of hedgerow are to be removed for access roads as part of the proposed development. This work could pose a risk of disturbance and/or harm to any dormice or dormouse nests present in the hedgerow at the time of the clearance works.

5.83 The risk to dormice during hedgerow clearance would be a direct and temporary impact, with a **low** magnitude.

5.84 The removal of hedgerow will result in a small reduction in suitable habitat for hazel dormice, and habitat fragmentation due to a loss of connectivity.

5.85 The loss of habitat and connectivity would be a direct and permanent impact, with a **low** magnitude.

Operation

5.86 Increased lighting levels during the operational phase are likely as a result of the development. Light spill onto the boundary hedgerows could negatively impact dormice.

5.87 This impact would be indirect and permanent, and the magnitude has been assessed as **low**.

Mitigation Measure

5.88 It is recommended that a precautionary approach to hedgerow clearance is adopted to safeguard hazel dormice. The above ground hedgerow clearance should preferably be carried out between December and February inclusive, to avoid both the bird nesting season and the active period for dormice when they may be found in nests above ground. This should be carried out by hand or with hand-held machinery, avoiding disturbance to the base of the hedgerow.

5.89 Should it be necessary to undertake the hedgerow clearance during the active period for dormice (April to November inclusive), this should be carried out under the supervision of a suitably qualified ecologist who will guide the schedule of works. Prior to any clearance, a search for nests should be carried out by the ecologist. Hand tools or hand-held machinery should be used, and clearance should be carried out gradually and in a directional manner. Only a small length of vegetation should be cut at a time. The optimum months for summer clearance are May, September, and October, when there are least likely to be young in nests.

5.90 The root system of the hedgerows should be removed between May and October inclusive, when dormice are least likely to be hibernating.

5.91 Should a dormouse be encountered during any of the works, work should stop, and advice sought from a suitably qualified ecologist. It may be necessary to obtain a mitigation licence prior to proceeding with the works.

5.92 It is recommended that an ecologically sensitive lighting scheme is adopted whereby light spill onto boundary habitats is minimised. The hedgerows should not be directly illuminated by artificial lighting.

5.93 New native hedgerows are to be created on the site, including a species-rich hedgerow along the western boundary of the northern site area (Tess Square), which will provide new habitat and improved habitat connectivity for dormice. The inclusion of a 10m scrub buffer around the hedgerow in the southern site area (Butts Close) will also provide enhanced habitat for dormice. It is recommended that the new and existing hedgerows are managed in a way that provides suitable habitat for hazel dormice, with minimal cutting back.

Residual Effects

5.94 Subject to the precautionary approach to hedgerow clearance being adopted, an ecologically-sensitive lighting plan, and creation of new hedgerows, the magnitude of impact on hazel dormice has been assessed as **negligible**.

Summary

5.95 A summary of the significance of the impacts on the ecological habitats and protected species without mitigation is provided in Table 5.4.

Table 5.4: Significance of Impacts without Mitigation

Receptor	Value	Potential Impact (without mitigation)	Magnitude of Impact
Onsite Native Hedgerows and Hedgerow with Trees	District	Construction: Loss of four sections of hedgerow. Potential vegetation damage through dust.	Low
		Operation: No impacts anticipated.	Negligible
Breeding Birds	Local	Construction: Killing/injury/nest destruction during clearance. Loss of nesting habitat. Disturbance through noise and vehicle movements.	Low/Moderate
		Operation: Noise and light disturbance.	Low

Reptiles	Local	Construction: Killing/injury during works in suitable habitat. Loss of suitable habitat.	Low/Moderate
		Operation: Predation by cats.	Low
Bats	Local	Construction: Loss of bat roosts. Loss of foraging and commuting habitat.	Low/Moderate
		Operation: Light disturbance.	Low
Great Crested Newts	Local	Construction: Killing/injury during works in suitable habitat. Loss of suitable habitat.	Low/Moderate
		Operation: Predation by cats.	Low
Hazel Dormice	Local	Construction: Disturbance/harm during hedgerow clearance. Loss of suitable habitat.	Low
		Operation: Light disturbance.	Low

5.96 The summary of the main residual effects after mitigation is shown in Table 5.5.

Table 5.5: Significance of the Main Residual Effects

Important Ecological Feature	Potential Impact (before mitigation) and/or legal implication	Mitigation / compensation measures	Mechanism by which mitigation is secured	Residual effects (after mitigation)
Onsite Native Hedgerows and Hedgerow with Trees	Adverse effect on habitat significant at the district level (loss and damage of habitat).	New hedgerow creation. Retained hedgerows buffered from dust through appropriate protective fencing, as necessary.	Landscape design & planning condition.	Negligible.
Breeding	Adverse effect	Vegetation clearance	Landscape	Negligible

Birds	on protected species (killing, injury, disturbance, habitat loss).	and barn demolition to be carried out outside of the bird nesting season, or with an ecological inspection. Ecologically sensitive lighting strategy. New planting to provide foraging and nesting opportunities. Install bird boxes/bricks on the new buildings for further enhancement.	design & planning condition.	impact & beneficial effect (short term).
Reptiles	Adverse effect on protected species (killing, injury, habitat loss).	Production and adoption of a Reptile Mitigation Strategy that safely moves reptiles out of the working area. New habitat creation. 10m scrub buffer between development and hedgerow in southern site area. Install log piles and hibernacula.	Landscape design & planning condition.	Negligible impact & beneficial effect (long term).
Bats	Adverse effect on protected species (disturbance, habitat loss).	Demolition of buildings 2 and 3 to be carried out under a mitigation licence, with a Method Statement produced. New roost provision to replace lost roosts. Production and adoption of a bat-sensitive lighting strategy that minimises light spill onto edge habitats/boundary features. New planting to provide foraging habitats. 10m scrub buffer between development and	Landscape design & planning condition	Negligible impact & beneficial effect (short term)

		hedgerow in southern site area. Install bat boxes/bricks on the new dwellings for further enhancement.		
Great Crested Newts	Adverse effect on protected species (killing, injury, habitat loss).	Production and adoption of a Method Statement detailing Reasonable Avoidance Measures. New habitat creation. 10m scrub buffer between development and hedgerow in southern site area. Install log piles and hibernacula.	Landscape design & planning condition.	Negligible impact & beneficial effect (long term).
Hazel Dormice	Adverse effect on protected species (disturbance, harm, habitat loss).	Precautionary approach to hedgerow clearance. Ecologically sensitive lighting strategy. New hedgerow creation. 10m scrub buffer between development and hedgerow in southern site area.	Landscape design & planning condition.	Negligible

Cumulative Effects

5.97 The proposed development will result in a change in land use at the site, however with a series of mitigation and enhancement measures incorporated into the design, the development is considered to have negligible negative ecological effects, as well as some beneficial effects on the ecological value at the site.

5.98 A search of recent planning applications for Marnhull displayed online by Dorset Council was made in November 2023, in order to assess potential cumulative effects of other proposed developments. No planning applications were identified adjacent to or in very close proximity to the site. Most planning applications were for minor works, such as tree removals and dwelling extensions or alterations, which were not considered to contribute to any cumulative effects.

6. Conclusions

Conclusions

6.1 This report described and evaluated the ecological impacts of the proposed development in line with current guidance (CIEEM, 2018) and legislation and policy frameworks. The ecological surveys entailed a Preliminary Ecological Appraisal (PEA), reptile survey, bat emergence surveys, and bat activity surveys.

6.2 The site is located at land off Church Hill and Butts Close, Marnhull. The site area extends over approximately 13.5 hectares (ha).

6.3 The proposed development is for the construction of a commercial centre and a residential development.

6.4 The site comprises buildings (u1b5), developed land; sealed surface (u1b), cereal crop (c1c), modified grassland (g4), ruderal/ephemeral (c 17 and s 17), fen marsh and swamp (f2), hedgerow (h2a), hedgerow with trees (h2a 190), scattered trees (c 11 and g 11), other rivers and streams (r2b), and bramble scrub (h3d).

6.5 The site (both Butts Close and Tess Square) is not subject to any statutory or non-statutory site designations.

6.6 It is not considered that any further ecological surveys, beyond those already undertaken, are required.

6.7 The proposed development will involve the demolition of some of the onsite buildings, removal of vegetation, removal of a small number of trees, and construction of new commercial buildings and residential dwellings with associated hard and soft landscaping.

6.8 Mitigation measures will be required to minimise the potential negative effects arising from noise and general disturbance during construction, clearance of vegetation, demolition of buildings with bat roosts, and changes in lighting levels together with permanent habitat loss arising from the proposed development.

6.9 Overall, in the absence of mitigation, the development has the potential to have adverse effects at the district and local level.

6.10 After mitigation, no adverse significant effects are predicted once the new planting establishes.

6.11 Ecological enhancement measures are to be delivered as part of the proposed development to improve opportunities for local wildlife, including new opportunities for nesting birds and bats, and the provision of new native planting to create enhanced habitats.

6.12 Based on successful implementation of mitigation, compensation and enhancement measures, the scheme is considered to accord with relevant nature conservation legislation, as well as national and local planning policy. The measures set out herein can be secured through appropriate conditions imposed on any consent required.

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Appendix A

Photographs

Photographs

Photo No.	Feature	Photograph of Feature
1	Building B1 – the Pharmacy (Tess square).	
2	The barns in the south of the northern site area (B2-B4) (Tess Square).	

3	Inside the barns (B2-B4) (Tess Square).	
4	Cereal crop, which covered most of both site areas. Viewed here at Butts Close.	
5	Modified grassland and scattered trees, near the Pharmacy (Tess Square).	

6	Ruderal/ephemeral vegetation at Tess Square.	
7	Fen marsh and swamp area in the northeast of the northern site area (Tess Square).	
8	Hedgerow at Butts Close.	

9	Hedgerow with trees at Butts Close.	
10	Other streams and rivers (flowing stream) (Tess Square)	

Appendix B

Habitat Maps

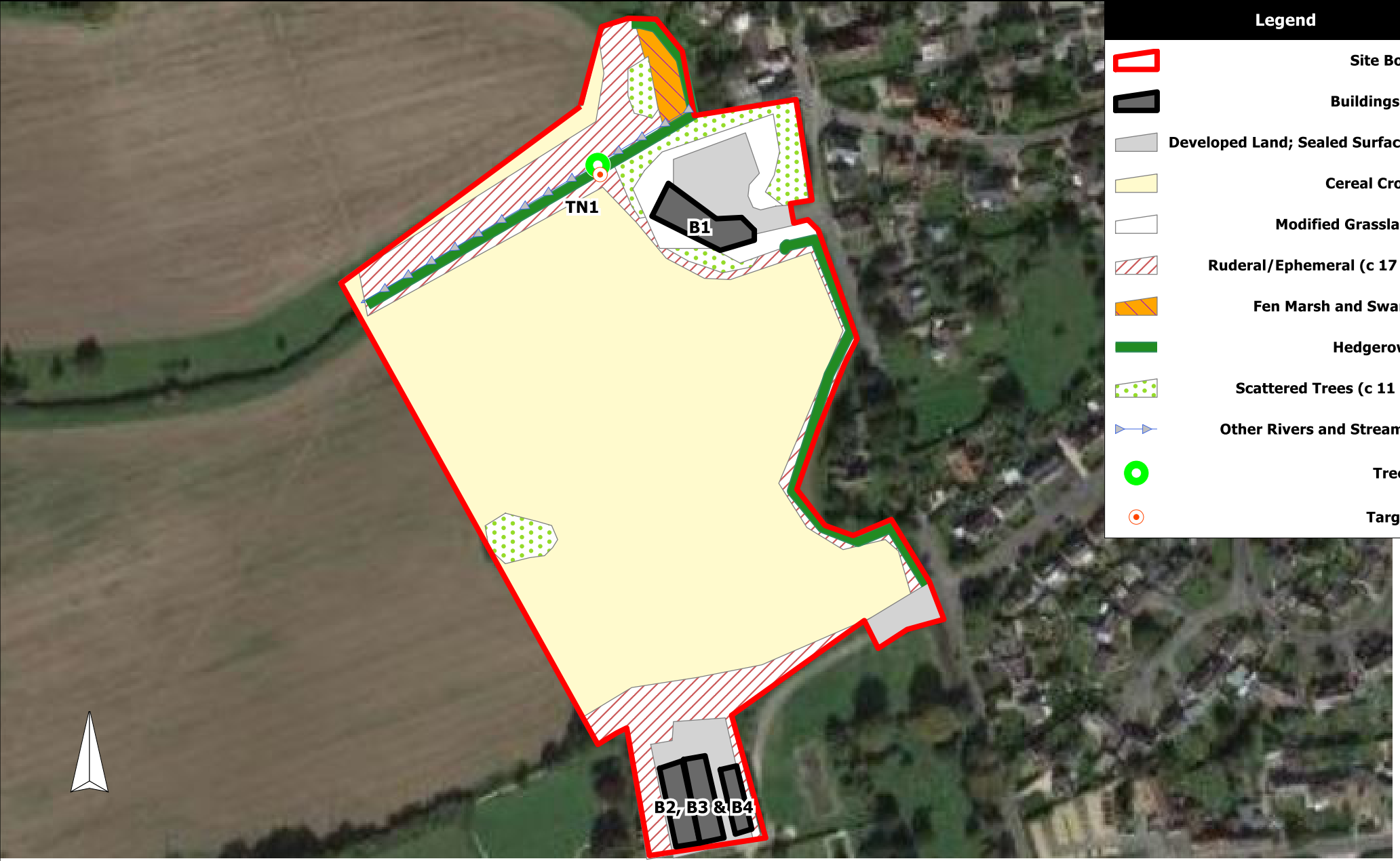

Figure 1: Marnhull Northern Site Area (Tess Square)

Drawn by: PC
On the: 04.07.23
Not to Scale
Ref: 11424

Phlorum Limited, 12 Hunns Mere Way,
Woodingdean, Brighton, East Sussex,
BN2 6AH
Tel: +44(0)1273 307167
Web: www.phlorum.com
Email: info@phlorum.com

Figure 2: Marnhull Southern Site Area (Butts Close)

Drawn by: PC
On the: 07.07.23
Not to Scale
Ref: 10424

Phlorum Limited, 12 Hunns Mere Way,
Woodingdean, Brighton, East Sussex,
BN2 6AH
Tel: +44(0)1273 307167
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Figure 3: Site Location Map

Drawn by: NA
On the: 23/11/2023
Not to Scale
Ref: 11424

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Appendix C

Legislation - protected species and invasive plant species

Legislation

This section contains information pertaining to the legislation and planning policy applicable in Britain. This information is not applicable to Northern Ireland, the Republic of Ireland the Isle of Man or the Channel Islands. Information contained in the following appendix is provided for guidance only.

Species

The objective of the EC Habitats Directive[4] is to conserve plants and animals which are considered to be rare across Europe. The Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2010 (as amended) (formerly The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended).

The Wildlife and Countryside Act 1981 (as amended) implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and also implements the obligations set out for species protection from the Council Directive 2009/147/EC (formerly 79/409/EEC) on the Conservation of Wild Birds (EC Birds Directive) in Great Britain.

Various amendments have been made since the Wildlife & Countryside Act came into force in 1981. Further details pertaining to alterations of the Act can be found on the following website: www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CRoW) Act (2000) and Nature Conservation (Scotland) Act 2004.

There are a number of other legislative Acts affording protection to species and habitats. These include:

- Countryside and Rights of Way (CRoW) Act 2000;
- Deer Act 1991;
- Natural Environment & Rural Communities (NERC) Act 2006;
- Protection of Badgers Act 1992; and
- Wild Mammals (Protection) Act 1996.

Badger

Badgers and their setts are protected under the Protection of Badgers Act (1992), which consolidated and added to the previous Badger Acts of 1973 and 1991. Under this legislation it is an offence to:

[4] Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.

- cruelly ill-treat a badger, including use of tongs and digging;
- intentionally or recklessly cause a dog to enter a badger sett;
- intentionally or recklessly damage, destroy or obstruct access to a badger sett[5] or any part thereof;
- intentionally or recklessly disturb[6] a badger when it is occupying a badger sett;
- possess or control a dead badger or any part of a badger;
- sell or offers for sale, possesses or has under his control, a live badger; and
- wilfully kill, injure, take, or attempt to kill, injure or take a badger.

A Development Licence will be required from Natural England for any development works affecting an active badger sett, or to disturb badgers while individuals are occupying the sett. Depending on the nature of the works and the specifics of the sett, badgers could be disturbed by work near the sett even if there is no direct interference or damage to the sett itself. Natural England has issued guidelines on what constitutes a licensable activity. There is no provision in law for the capture of badgers for development purposes and therefore it is not possible to obtain a licence to translocate badgers from one area to another.

Bats

Bats are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). This act protects individuals from:

- intentional or reckless disturbance (at any level);
- intentional or reckless obstruction of access to any place of shelter or protection; and
- selling, offering or exposing for sale, possession or transporting for purpose of sale.

In addition, all species of bat are fully protected under The Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- deliberate killing, injuring or capturing of Schedule 2 species (all bats);
- deliberate disturbance of bat species as to impair their ability:

  (i) to survive, breed, or reproduce, or to rear or nurture young; and

[5] A badger sett is defined in the legislation as *"any structure or place which displays signs indicating current use by a badger"*. This includes seasonally used setts. Natural England (2009) have issued guidance on what is likely to constitute current use of a badger sett: www.naturalengland.org.uk/Images/WMLG17_tcm6-11815.pdf

[6] For guidance on what constitutes disturbance and other licensing queries, see Natural England (2007) Badgers & Development: A Guide to Best Practice and Licensing. www.naturalengland.org.uk/Images/badgers-dev-guidance_tcm6-4057.pdf, Natural England (2009) Interpretation of 'Disturbance' in relation to badgers occupying a sett www.naturalengland.org.uk/Images/WMLG16_tcm6-11814.pdf, Scottish Natural Heritage (2002) Badgers & Development. www.snh.org.uk/publications/online/wildlife/badgersanddevelopment/default.asp and Countryside Council for Wales (undated) Badgers: A Guide for Developers. www.ccw.gov.uk.

(ii) to hibernate or migrate.

- deliberate disturbance of bat species as to affect significantly the local distribution or abundance of the species;
- damage or destruction of a breeding site or resting place; and
- keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

A European Protected Species Mitigation (EPSM) Licence issued by Natural England will be required for works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake activities listed above. A licence is required to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and monitored.

Breeding Birds

Under the Wildlife & Countryside Act, 1981 (as amended), a wild bird is defined as any bird of a species that is resident in or is a visitor to the European Territory of any member state in a wild state. Game birds, however, are not included in this definition (except for limited parts of the Act). They are covered by the Games Acts, which fully protect them during the closed season.

Under the Wildlife & Countryside Act, 1981 (as amended), all birds, their nests and eggs are protected under Sections 1-8 of the Act and it is an offence, with certain exceptions, to:

- intentionally (or recklessly in Scotland) kill, injure or take any wild bird;
- intentionally (or recklessly in Scotland) take, damage or destroy (or, in Scotland, otherwise interfere with) the nest of any wild bird while it is in use or being built;
- intentionally take or destroy the egg of any wild bird;
- have in one's possession or control any wild bird, dead or alive, or any part of a wild bird, which has been taken in contravention of the Act;
- have in one's possession or control any egg or part of an egg which has been taken in contravention of the Act;
- use traps or similar items to kill, injure or take wild birds;
- have in one's possession or control any bird (dead or alive) unless registered, and in most cases ringed, in accordance with the Secretary of State's regulations; and
- in Scotland only, intentionally or recklessly obstruct or prevent any wild bird from using its nest.

Certain rare species receive additional special protection under Schedule 1 of the Act and Annex 1 of the European Community Directive on the Conservation of Wild Birds (2009/147/EC). This affords them protection against:

- intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young;
- intentional or reckless disturbance of dependent young of such a bird;
- in Scotland only, intentional or reckless disturbance whilst lekking; and
- in Scotland only, intentional or reckless harassment.

The British Trust for Ornithology (BTO) has a list of birds that are Species of Conservation Concern. These birds are not legally protected but where they are found on site they should be given planning consideration. The criteria for birds listed as amber (medium conservation concern) include:

- historical population decline during 1800-1995, but recovering: population has more than doubled over last 25 years;
- moderate (25-49%) decline in UK breeding population over last 25 years;
- moderate (25-49%) contraction of UK breeding range over last 25 years;
- moderate (25-49%) decline in UK non-breeding population over last 25 years;
- species with unfavourable conservation status in Europe (Species of conservation Concern);
- five year mean of breeding pairs in the UK;
- ≥50% of UK breeding population in 10 or fewer sites;
- ≥50% of UK non-breeding population in 10 or fewer sites;
- ≥20% of European breeding population in UK; and
- ≥20% of NW European (wildfowl), East Atlantic Flyway (waders) or European (others) non breeding populations in UK.

Hazel Dormouse

The hazel dormouse (*Muscardinus avellanarius*) is fully protected under The Conservation of Habitats and Species Regulations 2010 through its inclusion on Schedule 2. Regulation 41 prohibits:

- deliberate killing, injuring or capturing;
- deliberate disturbance as to impair its ability:

  (i) to survive, breed, or reproduce, or to rear or nurture young; and

  (ii) to hibernate or migrate.
- deliberate disturbance as to affect significantly the local distribution or abundance of the species;
- damage or destruction of a breeding site or resting place; and
- keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part of this species.

The hazel dormouse is also currently protected under the Wildlife and Countryside Act 1981 (as amended) through its inclusion on Schedule 5. Under this Act, this species is additionally protected from:

- intentional or reckless disturbance;
- intentional or reckless obstruction of access to any place of shelter or protection; and
- selling, offering or exposing for sale, possession or transporting for purpose of sale.

A European Protected Species Mitigation (EPSM) Licence issued by Natural England will be required for works liable to affect dormouse breeding or resting places (N.B. this is usually taken to mean dormouse 'habitat') or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above. The licence will allow derogation from the relevant legislation but will also to enable appropriate mitigation measures to be put in place and monitored.

Herpetofauna (Reptiles and Amphibians)

The following species receive full protection under the Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2.

- sand lizard (*Lacerta agilis*);
- smooth snake (*Coronella austriaca*);
- natterjack toad (*Epidalea calamita*);
- great crested newt (*Triturus cristatus*); and
- pool frog (*Pelophylax lessonae*).

Under this legislation, Regulation 41 prohibits:

- deliberate killing, injuring or capturing of species listed on Schedule 2;
- deliberate disturbance of any Schedule 2 species as to impair their ability:

  (i) to survive, breed, or reproduce, or to rear or nurture young; and

  (ii) to hibernate or migrate.
- deliberate disturbance of any Schedule 2 species as to affect significantly the local distribution or abundance of the species;
- deliberate taking or destroying of the eggs of a Schedule 2 species;
- damage or destruction of a breeding site or resting place; and
- keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part of a species.

With the exception of the pool frog, these species are also currently listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this Act, they are additionally protected from:

- intentional or reckless disturbance (at any level);
- intentional or reckless obstruction of access to any place of shelter or protection; and
- selling, offering or exposing for sale, possession or transporting for purpose of sale.

Other native species of herpetofauna are protected solely under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). These species include:

- adder (*Vipera berus*);
- grass snake (*Natrix natrix*);
- common lizard (*Zootoca vivipara*); and
- slow-worm (*Anguis fragilis*).

Under this legislation, for these species it is prohibited under Section 9(1) & (5) to:

- intentionally (or recklessly in Scotland) kill or injure these species; or
- sell, offer or expose for sale, possess or transport for purpose of sale these species, or any part thereof.

The following species are listed in respect to Section 9(5) of Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) which only affords them protection against sale, offering or exposing for sale, possession or transport for the purpose of sale:

- common frog (*Rana temporaria*);
- common toad (*Bufo bufo*);
- smooth newt (*Lissotriton vulgaris*); and
- palmate newt (*L. helveticus*).

Water Vole

The water vole (*Arvicola amphibius*) (=*terrestris*) is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- intentionally kill, injure or take (capture) this species;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection;
- intentionally or recklessly disturb water voles while they are occupying a structure or place used for shelter or protection; and
- sell, offer or expose for sale, or have in his possession or transport for the purpose of sale, any live or dead water vole or part of this species.

Where development works are liable to affect habitats known to support water voles, Natural England must be consulted. All alternative design options must have been explored and communicated to Natural England in order to demonstrate that works have tried to avoid contravening the legislation e.g. the use of alternative sites,

appropriate timing of works to avoid times of the year in which water voles are most vulnerable etc. Conservation licences for the capture and translocation of water voles may be issued by Natural England for the purpose of development activities if it can be shown that the activity has been properly planned and executed and thereby contributes to the conservation of the population.

Otter

Otters (*Lutra lutra*) are fully protected under The Conservation of Habitats and Species Regulations 2010 through their inclusion on Schedule 2. Regulation 41 prohibits:

- deliberate killing, injuring or capturing of otters;
- deliberate disturbance as to impair their ability:

  (i) to survive, breed, or reproduce, or to rear or nurture young; and

  (ii) to hibernate or migrate.
- deliberate disturbance as to affect significantly the local distribution or abundance of the species;
- damage or destruction of a breeding site or resting place; and
- keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part of this species.

Otters also receive protection under the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- intentional or reckless disturbance (at any level);
- intentional or reckless obstruction of access to any place of shelter or protection; and
- selling, offering or exposing for sale, possession or transporting for purpose of sale.

A European Protected Species Mitigation (EPSM) Licence issued by Natural England will be required for works liable to affect breeding or resting places or for activities likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above. The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and monitored.

Red Squirrel

The red squirrel (*Sciurus vulgaris*) is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- intentionally (or recklessly in Scotland) kill, injure or take (capture) red squirrels;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection;

- intentionally or recklessly disturb this species while they are occupying a structure or place used for shelter; and
- sell, offer or expose for sale, or have in his possession or transport for the purpose of sale, any live or dead red squirrel or part of this species.

White Clawed Crayfish

The white clawed crayfish (*Austropotamobius pallipes*) receives partial protection under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). This species is protected under Sections 9(1) and 9(5), making it an offence to:

- intentionally take/capture white-clawed crayfish; and
- sell, offer or expose for sale, have in possession or transport for the purpose of sale, any live or dead white clawed crayfish or part of this species.

A conservation licence for the capture and translocation of crayfish may be issued for the purpose of development activities if it can be demonstrated that the activity has been carefully planned and this species considered. The activity must also demonstrate that it contributes to the conservation of the population.

Wild Mammals

All wild mammals are protected against intentional acts of cruelty under the Wild Mammals (Protection) Act 1996. Under this legislation it is an offence to:

- mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

To avoid possible contravention of this legislation, due care and attention should be taken when carrying out works that have the potential to impact any wild mammal as described above.

Plants

Wild plants are protected under the Wildlife and Countryside Act 1981 (as amended) which makes it an offence for an 'unauthorised' person to intentionally (or recklessly in Scotland) uproot wild plants. An authorised person can be the owner of the land on which the action is taken, or anybody authorised by them.

Some rare plant species also receive full protection under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). This prohibits:

- intentionally (or recklessly in Scotland) picking, uprooting or destruction of any wild Schedule 8 species (or seed or spore attached to any such wild plant in Scotland only); and
- selling, offering or exposing for sale, or possessing or transporting for the purpose of sale, any wild live or dead Schedule 8 plant species or parts.

In addition to the legislation outlined above, several plant species are fully protected under Schedule 5 of The Conservation of Habitats and Species Regulations 2010. Regulation 45 makes it an offence to:

- deliberately pick, collect or destroy a wild Schedule 5 species; and
- be in possession of, or control, transport, sell or exchange any wild live or dead Schedule 5 species or anything derived from it.

A European Protected Species Mitigation (EPSM) Licence issued by Natural England will be required for works liable to affect species of plant listed under The Conservation of Habitat and Species Regulations 2010.

Invasive Plant Species

Certain plants are listed on Part II of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) in respect to Section 14(2). Species include:

- Japanese knotweed (*Fallopia japonica*);
- giant hogweed (*Heracleum mantegazzianum*);
- Himalayan balsam (*Impatiens glandulifera*);
- certain species of rhododendron (*Rhododendron* sp.); and
- certain species of cotoneaster (*Cotoneaster* sp.).

Species listed are non-natives whose establishment or spread in the wild may be detrimental to native wildlife. Inclusion on Part II of Schedule 9 therefore makes it an offence to:

- plant or otherwise cause these species to grow in the wild.

This legislation makes it is an offence to cause species listed to grow in the wild. Therefore, if they are present on site and development activities have the potential to cause the further spread of these species to new areas; it will be necessary to ensure appropriate measures are in place to prevent this.

Appendix D

Plant Species List

Plant Species List

Scientific nomenclature follows Stace (2010) for vascular plant species and British Bryological Society (BBS) Special Volume No. 5 *English Names for British* Bryophytes for bryophyte species. Vascular plant common names follow the Botanical Society of the British Isles 2003 list, published on its web site, www.bsbi.org.uk. The plant species list was generated as part of a Phase 1 Habitat survey and does not constitute a full botanical survey.

Abundance was estimated using the DAFOR scale as follows:

D = dominant, A = abundant, F = frequent, O = occasional, R = rare, L = locally

Key to qualifiers: c=clumped, e=edge only, g=garden origin, p=planted, y = young, s=seedling or sucker, t=tree, h=hedge, w=water = identification uncertain.

Scientific Name	Common Name	Abundance	Qualifier
Acer campestre	Field maple	O	H, T
Alliaria petiolata	Garlic mustard	O	
Alnus sp	Alder	O	T
Anthriscus sylvestris	Cow parsley	O	
Bellis perennis	Common daisy	R	
Betula pendula	Silver birch	O	T
Buxus sempervirens	Box	R	P
Carex sp.	Sedge	R	
Conium maculatum	Hemlock	R	
Crataegus monogyna	Hawthorn	O	H
Epilobium	Willowherb	R	
Fraxinus excelsior	Ash	O	T, H
Heracleum spondylium	Common hogweed	O	
Ilex aquifolium	Holly	R	P

Juncus sp.	Rush	R	
Lolium perenne	Perennial rye grass	O	
Phalaris arundinacea	Reed canary grass	R	
Pinus sylvestris	Scots pine	R	T
Prunella vulgaris	Self-heal	R	
Prunus spinosa	Blackthorn	O	H
Rubus fructicosus agg.	Bramble	O	
Rumex sp.	Dock	O	
Salix sp.	Willow	O	
Sambucus nigra	Elder	R	H
Silene dioica	Red campion	R	
Sorbus aria	Whitebeam	R	T
Symphytum sp.	Comfrey	R	
Taraxacum vulgare agg.	Dandelion	R	
Triticum aestivum	Wheat	D	P
Ulmus sp.	Elm	R	H
Urtica dioica	Common nettle	A	

Appendix E

Suggested Compensatory Planting

Suggested Compensatory Planting

This section provides a list of plants which are of proven value to wildlife. The list is not exhaustive and merely provides a guide for suggested planting for wildlife value. Planting should be tailored on a site by site basis. The list includes some native and ornamental species however the emphasis should always be on the use of predominantly native species.

N = Native, NN = Non-native.

This list includes species that may be harmful if handled or ingested. Schedule 9 (Part 2) of the Wildlife and Countryside Act, 1981 (as amended) includes a list of invasive plants, including aquatic species, that should always be avoided in planting schemes.

Large Shrubs

Hedge veronica/Hebe (*Veronica* spp.) NN

Hawthorn (*Crataegus monogyna*) N

Blackthorn (*Prunus spinosa*) N

Rose: dog rose (*Rosa canina*), field rose (*R. arvensis*), burnet rose (R*. pimpinellifolia*) N

California lilac (*Ceanothus* spp.), (*C. arborea*) NN

Wild privet (*Ligustrum vulgare*) N

Common holly (*Ilex aquifolium*) N

Barberry (*Berberis* spp.) (*B. darwinii*), (*B. thunbergii*), (*B. x stenophylla*) NN

Daisy Bush (*Olearia* spp.), (*O. x hastii*), (*O. macrodonta*) and (*O. traversii*) NN

Firethorn (*Pyracantha coccinea*) NN

Hazel (*Corylus avellana*) N (*C. maxima*) NN

Viburnum (*Viburnum* spp.), wayfaring tree (*V. lantana*) N, guelder rose (*V. opulus*) N, laurustinus (*V. tinus*) E Note: V. lantana can become invasive in more open habitats.

Dogwood (*Cornus sanguinea*) N

Broom (*Cytisus scoparius*) N

Escallonia (*Escallonia macrantha*) NN

Hardy fuchsia (*Fuchsia magellanica*) NN

Buckthorn (*Rhamnus cathartica*) N

Spindle (*Euonymus europaeus*) N

Tutsan (*Hypericum androsaemum*) N

Yew (*Taxus baccata*) N

Trees

Cherry (*Prunus* spp.), wild cherry (*P. avium*), bird cherry (*P. padus*), domestic plum (*P. domestica*) N or cherry plum (*P. cerasifera*) NN

Ash (*Fraxinus excelsior*) N

Apple (*Malus* spp.), edible apple (*M. domestica*), crab apple (*M. sylvestris*) N

Pear (*Pyrus* spp.), edible pear (*P. communis*) NN

Small-leaved lime (*Tilia cordata*) N

Silver birch (*Betula pendula*) N

Yew (*Taxus baccata*) N

Black poplar (*Populus nigra*) N

Foxglove tree (*Paulownia tomentosa*) NN

Beech (*Fagus sylvatica*) N

Climbers

Jasmine (*Jasminum* spp.), summer jasmine (*J. officinale*), winter jasmine (*J. nodiflorum*) NN

Ivy (*Hedera helix*) N

Climbing hydrangea (*Hydrangea anomala* ssp. *petiolaris*) NN

Honeysuckle (*Lonicera* spp.) (*L. periclymenum*) N

Clematis (*Clematis* spp.) NN

Firethorn (*Pyracantha atalantioides*) NN

Nasturtium (*Tropaeolum majus*) NN

Bulbs

English bluebell (*Hyacinthoides non-scripta*) N

Squill species (*Scilla* spp.) N/NN

Snowdrop (*Galanthus nivalis*) N

Winter aconite (*Eranthis hyemalis*) E

Crocus species (*Crocus* spp.) NN

Wild Daffodil (*Narcissus pseudonarcissus*) N

Onion species (*Allium* spp.) N/NN. N.B. *Allium triquetrum* (three cornered leek) and *Allium paradoxum* (few-flowered leek) are Schedule 9 invasive plant species.

Wood anemone (*Anemone nemorosa*) N

Lesser celandine (*Ficaria verna*) N

Appendix F

Bat and Bird Box Designs

Bat and Bird Box Designs

Bat Boxes

Example	Type	Dimension D x W x H (cm)	Target Species	Location
	**2F Schwegler Bat Box (General Purpose) with or without Double Front Panel**	16 x 16 x 33	Without panel: Particularly successful with brown long-eared bat. Also used by noctule. With panel: Ideal for crevice-dwelling species: pipistrelles, Myotis species (particularly Daubenton's), Leisler's and serotine.	On trees or buildings and at a height of 3 to 6m. In open sunny positions and in groups of 3 to 5 facing different directions. Please note that once bats have inhabited a roost site they may only be disturbed by licensed bat workers.
	**Chavenage Bat Box**	10 x 18 x 38	Small crevice-dwelling bats e.g. pipistrelles.	On trees in gardens or woodland and also on house walls. 2.5 - 5m high on a building, mature tree or vegetation line (trees/tall hedge) or on a feeding/flight route in partial daytime sun. Please note that once bats have inhabited a roost site they may only be disturbed by licensed bat workers.

Bird Boxes

Example	Type	Dimension D x W x H (cm)	Target Species	Location
	**Schwegler Nest Box 1B** Hole-fronted 26mm entrance hole	16 x 16 x 23	Multi-purpose, including: blue-, marsh-, coal and crested tit and possibly wren. All other species are prevented from using the nest box due to the smaller entrance hole.	Suitable walls or semi-mature/mature trees and shrubs; attached to a tree trunk or hung from branches. Ideal points include discrete areas away from predators, such as against walls, plant and metal supports.
	**Schwegler Bird House** 32mm entrance hole	15 x 21 x 33	Multi-purpose, including: great-, blue-, marsh- and coal tit, redstart, nuthatch, pied flycatcher and sparrows.	Fixed to a semi-mature/mature tree trunk, wall or fence using the hanging bracket on the back. Between 1.5 m and 3 m high, and should be sited higher if your area has a particularly high cat population.
	**Schwegler Sparrow Terrace 1SP**	20 x 43 x 24.5	House sparrow. It may also occasionally attract tits, redstarts and spotted flycatchers.	In an elevated position such as on post/platform within dense shrub/tree planting or on top of lighting columns. Alternatively, they could be attached to the side of a building. The terrace can be fixed on to the surface of a suitable wall or incorporated into the wall. It is

Example	Type	Dimension D x W x H (cm)	Target Species	Location
				suitable for all types of houses in built-up areas, and on industrial and agricultural buildings such as barns, sheds and factories. Due to its weight (15kg), it is not suitable for fences or garden sheds. Ideally place the terrace two metres or more above the ground. Either install on the surface of the wall using the plugs and screws provided, or install directly into the wall Cleaning is not necessary. The front panel can be removed by turning the screw hook.

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