
**LAND OFF LAVINGTON LANE,
WEST LAVINGTON, WILTSHIRE**

ECOLOGICAL APPRAISAL

On behalf of

GAIGER BROS. LTD

Internal Draft

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Prepared by



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Environmental Consulting

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1 Introduction

The client is seeking outline planning permission from Wiltshire Council for a proposed residential housing scheme and ancillary works, including woodland planting and new/enhanced parking for Dauntsey Academy Primary School, on land off Sandfield, which lies on the eastern edge of West Lavington and to the immediate south of Lavington Lane (see Appendices A and B). The western outskirts of Market Lavington are located approximately 200m to the east of the study area.

As part of the planning process an ecological survey and appraisal of the site and proposed outline development has been undertaken. This report contains appropriate ecological baseline information, and a generic appraisal of predicted, potential impacts on protected sites, protected/notable species and biodiversity in general associated with new housing on this site. Any potential adverse impacts are addressed with initial proposals for mitigation, compensation and/or enhancement.

Malford Environmental Consulting was commissioned to undertake the ecological survey and appraisal of the site and proposed development, and to provide a report to fulfil the requirements of nature conservation legislation and planning guidance. The ecological work was undertaken by Dr Stephen Dangerfield and Jonathan Adey, who have a combined 55+ years' experience, are both Chartered Environmentalists, are full members of the Chartered Institute of Ecology and Environmental Management, and hold relevant Natural England protected species survey licences.

The study area encompasses a single grassland field (ca. 3ha), which is bounded by a combination of hedgerow/scrub, woodland and fencing. Surrounding the study area is residential housing to the west, Lavington Lane and woodland to the north, woodland/stream to the east, and Dauntsey Academy Primary School and playing field to the south. The proposed residential development will include the construction of ca. fifty dwellings with associated gardens, green open space, garages & parking areas, access roads and other infrastructure. As previously mentioned, woodland planting will also be incorporated into the scheme design.

2 Methodology

2.1 Phase 1 field survey

A Phase 1 ecological survey was undertaken on 3rd April 2017 based upon the Phase 1 habitat survey methodology (JNCC, 2003) with standard habitat-type nomenclature used. The survey focused on:

- ❖ A habitat survey to determine type, quality and extent of habitats present. Botanical lists of each habitat type were recorded as far as possible. Rare/scarce and invasive plants were highlighted if found.
- ❖ A survey to determine the presence of, or the potential for the study area to support, protected and rare/scarce animals, which included looking for the following:
 - Potential/actual badger (*Meles meles*) setts, as well as latrines, tracks and other signs (foraging holes, hairs, etc);
 - Potential reptile habitat and terrestrial habitat for amphibians, particularly great crested newt (*Triturus cristatus*);
 - Waterbodies that had the potential to support great crested newt or water vole (*Arvicola amphibius*);

- Potential habitat to support or signs of dormouse (*Muscardinus avellanarius*); and
 - Potential for breeding birds to use the site.
- ❖ An assessment of any buildings/structures or mature trees within the site for the potential to support roosting bats. The survey was undertaken by a licensed bat surveyor in accordance with Bat Conservation Trust guidelines (Collins, J (ed.), 2016). The potential of buildings and mature trees to support roosting bats was established using the following scale:
1. *Negligible potential/not a roost*: no suitable features
 2. *Low potential*: one or more suitable features that could be used by individual bats opportunistically
 3. *Moderate potential*: one or more suitable features that could be used by bats, but unlikely to support a roost of high conservation status
 4. *High potential*: one or more suitable features that are suitable for use by larger numbers of bats on a regular basis
 5. *Confirmed roost*: evidence of current/recent bat occupation

The aim of an extended Phase 1 ecological survey is to identify the habitat types present and their relevance to nature conservation, based on species assemblage and structural diversity. It is also to identify the actual or likelihood of protected species inhabiting or frequenting the study area based on field signs or habitat quality/structure etc. The identification of protected, sensitive, threatened or scarce habitat or species within the development site or potentially affected by the proposed development could trigger the need for, and subsequent recommendation, for further Phase 2 surveys at an appropriate time of year.

2.2 Phase 2 field survey

Based on the findings from the desk-based review and the Phase 1 ecology survey the following detailed Phase 2 protected species survey was conducted.

Based on a visual inspection and Habitat Suitability Index of a single wildlife pond located off-site (within the grounds of Dauntsey Academy Primary School), see Sections 3.3.1 and 3.3.2, a survey for great crested newt over four visits between 12th and 29th April 2017 to determine presence/absence of great crested newt.

The survey was undertaken under NE licence using bottle trapping and torch survey in accordance with best practice survey guidance (English Nature, 2001; and Langton et al, 2001). The survey visits were undertaken in good weather conditions.

2.3 Desk-based study

A review of OS maps and satellite imagery was undertaken to establish the local context within which the study area sits and to identify whether any natural features of interest, particularly standing open water / ponds, were located within 500m of the site.

The Wiltshire and Swindon Biological Records Centre (WSBRC) was contacted with a request for any records of designated sites and rare/protected species located within a 1km radius of the centre point of the study area (NGR SO 973 210). This zone allows notable and relevant habitats and species to be highlighted and taken into consideration through the ecological appraisal process.

In addition, a review of Magic map (www.magic.gov.uk) was completed to establish the presence of any European designated sites within 5km of the study area and nationally designated sites within 3km of the study area.

2.4 Impact appraisal

This ecological appraisal of the proposed development was undertaken within the framework of the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition (CIEEM, 2016). The ecological appraisal seeks to obtain the best possible biodiversity outcomes from the proposed development, by integrating the following key principles:

- ❖ Avoidance: seek options that avoid harm to ecological features (for example, by locating on an alternative site).
- ❖ 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 (for example, through a condition or planning obligation).
- ❖ Compensation: Where there are significant residual adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.
- ❖ Enhancements: Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

3 Baseline Conditions

3.1 Planning context

3.1.1 National

Section 40 of the Natural Environment and Rural Communities Act 2006 (NERC Act) requires all public bodies to have regard to biodiversity conservation when carrying out their functions.

The National Planning Policy Framework (NPPF) requires the planning system should contribute to and enhance the natural and local environment by, *inter alia*, minimising impacts on biodiversity and providing net gains in biodiversity where possible (para 109). Furthermore, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles: if significant harm resulting from a development cannot be avoided (locating onto an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused (para 118).

3.1.2 Wiltshire

The Wiltshire Core Strategy (Adopted January 2015) sets out the relevant policies relevant to biodiversity, as follows:

Core Policy 50: Biodiversity and geodiversity

Protection

Development proposals must demonstrate how they protect features of nature conservation and geological value as part of the design rationale. There is an expectation that such

features shall be retained, buffered, and managed favourably in order to maintain their ecological value, connectivity and functionality in the long-term. Where it has been demonstrated that such features cannot be retained, removal or damage shall only be acceptable in circumstances where the anticipated ecological impacts have been mitigated as far as possible and appropriate compensatory measures can be secured to ensure no net loss of the local biodiversity resource, and secure the integrity of local ecological networks and provision of ecosystem services.

All development proposals shall incorporate appropriate measures to avoid and reduce disturbance of sensitive wildlife species and habitats throughout the lifetime of the development.

Any development potentially affecting a Natura 2000 site must provide avoidance measures in accordance with the strategic plans or guidance set out in paragraph 6.70 above where possible, otherwise bespoke measures must be provided to demonstrate that the proposals would have no adverse effect upon the Natura 2000 network. Any development that would have an adverse effect on the integrity of a European nature conservation site will not be in accordance with the Core Strategy.

Biodiversity enhancement

All development should seek opportunities to enhance biodiversity. Major development in particular must include measures to deliver biodiversity gains through opportunities to restore, enhance and create valuable habitats, ecological networks and ecosystem services. Such enhancement measures will contribute to the objectives and targets of the Biodiversity Action Plan (BAP) or River Basin/Catchment Management Plan, particularly through landscape scale projects, and be relevant to the local landscape character.

Local sites

Sustainable development will avoid direct and indirect impacts upon local sites through sensitive site location and layout, and by maintaining sufficient buffers and ecological connectivity with the wider environment. Damage or disturbance to local sites will generally be unacceptable, other than in exceptional circumstances where it has been demonstrated that such impacts:

- i. Cannot reasonably be avoided
- ii. Are reduced as far as possible
- iii. Are outweighed by other planning considerations in the public interest and
- iv. Where appropriate compensation measures can be secured through planning obligations or agreements.

Development proposals affecting local sites must make a reasonable contribution to their favourable management in the long-term.

3.2 Desk-based review

A review of the OS maps and satellite imagery reveals that the study area, which comprises a single grassland field, is set within a semi-rural area being located on the eastern edge of West Lavington and ca. 200m west of Market Lavington. The western and southern sides of the study area are bordered by residential housing and a school/amenity playing field, the northern boundary is delineated by Lavington Lane with woodland beyond, and a small wooded stream flows to the north and east of the study area. The study area sits in a landscape comprising settlements (West Lavington, Market Lavington and Littleton Panell), mixed farmland (pasture and arable) and woodland.

There are no ponds within the study area, and there are no standing open water ponds shown on the 1:25,000 OS map within 500m of the study area. There is one pond ca. 90m to the east and ca. 330m to the north, but these are both on-line ponds and as such likely to support fish and unsuitable for breeding great crested newt. These ponds are not discussed further in this report.

WSBRC and Magic map provided information on designated sites. There is no European, national or local nature conservation designation covering the study area.

There is no European or nationally designated nature conservation site located within 1km of the study area.

The following European sites are located within 5km of the study area:

- ❖ Salisbury Plain Special Area of Conservation (SAC). Covering 21,466ha this site lies to the east and south of the study area. The nearest parts of the SAC are ca. 1.8km to the east and 3.4km to the south. Annex I Habitats that are a primary reason for site selection include:
 - *Juniperus communis* formations on heaths or calcareous grasslands. The best remaining example of lowland juniper scrub on chalk in the UK.
 - Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuca-Brometalia*) (* important orchid sites). The largest surviving semi-natural dry grassland within the EU, and is therefore the most important site in the UK.

Annex II species that are a primary reason for selection of this site include:

- Marsh fritillary butterfly (*Euphydryas* [*Eurodryas*, *Hypodryas*] *aurinia*). Cluster of large sub-populations breeding on dry calcareous grassland.
- ❖ Salisbury Plain Special Protection Area (SPA). Covering 19,716ha this site lies to the east and south of the study area. The nearest parts of the SPA are ca. 1.8km to the east and 3.4km to the south.

Reasons for qualification under Article 4.1 (79/409/EEC) include: during the breeding season the area regularly supports stone curlew (*Burhinus oedicnemus*) (14.5% of the GB breeding population) and over winter the area regularly supports hen harrier (*Circus cyaneus*) (0.7% of the GB population).

Reasons for qualification under Article 4.2 (79/409/EEC) include: during the breeding season the area regularly supports quail (*Coturnix coturnix*) (20% of the population in GB) and hobby (*Falco subbuteo*) (1.2% of the population in GB).

The following national sites are located within 3km of the study area:

- ❖ Salisbury Plain Site of Special Scientific Interest (SSSI). Covering 19,690ha this site lies to the east and south of the study area. The nearest parts of the SSSI are ca. 1.8km to the east and 3.4km to the south. Covering Salisbury Plain supports the largest known expanse of unimproved chalk downland in north west Europe, and represents 41% of Britain's remaining area of this rich wildlife habitat. There is 12,933ha of chalk downland remaining, which supports 13 species of nationally rare and scarce plants, 67 species of rare and scarce invertebrates and forms a site of international importance for birds (see above). In addition to chalk downland, this site supports scrub and woodland habitats, temporary and permanent pools and the Nine Mile River winterbourne. An assessment of the status of the SSSI establishes that 41% of site is in favourable condition, while 57% is unfavourable-recovering and 2% is either destroyed or not assessed.
- ❖ Great Cheverell Hill SSSI. Covering 33.2ha the nearest part of the SSSI is located ca. 1.2km south-west of the study area. Great Cheverell Hill is an area of botanically rich

chalk grassland on the northern edge of Salisbury Plain. The regularly grazed sward is particularly diverse and has over 40 plant species per square metre in some areas. The site supports 3 nationally restricted plant species and several uncommon butterflies. An assessment of the status of the SSSI establishes that 68.5% of site is in favourable condition, while 31.5% is unfavourable-recovering.

The following locally designated sites are located within 1km of the study area:

- ❖ Manor House Wood Local Wildlife Site (File code SU05.026). A complex ancient woodland site with areas of dry and wet woodland covering 17.5ha. This site is located 10m north of the study area (immediately north of Lavington Lane).

WSBRC provided information on protected/notable species, and relevant records from the last twenty-five years (194 records covering 49 species) are presented here.

- ❖ Bats: twenty-eights records covering seven bat species including lesser horseshoe (*Rhinolophus hipposideros*), western barbastelle (*Barbastella barbastellus*), serotine (*Eptesicus serotinus*), whiskered/Myotis species (*Myotis mystacinus*, *Myotis sp*), noctule (*Nyctalus noctula*), common pipistrelle (*Pipistrellus pipistrellus*) and brown long-eared (*Plecotus auritus*).
- ❖ Other mammals: fifteen records for badger (*Meles meles*), seven records for hedgehog (*Erinaceus europaeus*), three records for polecat (*Mustela putorius*), one record for brown hare (*Lepus europaeus*) and one record for water shrew (*Neomys fodiens*). An active badger sett was recorded by the authors in 2008 located approximately 100m south-west of the study area.
- ❖ Birds: seventy-nine records relate to fifteen species of birds, with the vast majority of these records associated with chalk grassland located over 1km to the south and south-west of the study area. Birds recorded around 'the Lavingtons' include the following high conservation (Red List, nationally protected and/or UK BAP) species: lapwing (*Vanellus vanellus*), grey wagtail (*Motacilla cinerea*), redwing (*Turdus iliacus*) and fieldfare (*Turdus pilaris*). Other potentially relevant birds recorded in the wider landscape include grey partridge (*Perdix perdix*), skylark (*Alauda arvensis*), barn owl (*Tyto alba*), house sparrow (*Passer domesticus*) and yellowhammer (*Emberiza citrinella*).
- ❖ Reptiles: there is a single record for slow worm (*Anguis fragilis*), common lizard (*Zootoca vivipara*) and grass snake (*Natrix natrix*) from Littleton Panell, ca. 400m north-west of the study area. The only reptile recorded at West Lavington is grass snake.
- ❖ Amphibians: there are no records for great crested newt (*Triturus cristatus*) or other notable amphibians within 1km of the study area.
- ❖ Invertebrates: fifteen records of five butterflies including wall (*Lasiommata megera*), small heath (*Coenonympha pamphilus*), chalk hill blue (*Polyommatus coridon*) and Adonis blue (*Polyommatus bellargus*), all lower risk near threatened species, and marsh fritillary (*Euphydryas aurinia*), which is a nationally protected and nationally vulnerable species. There is a single record of a shaded broad-bar (*Scotopteryx chenopodiata*) moth, a nationally notable species.
- ❖ Plants: twenty records covering thirteen plants. Grassland/meadow species include quaking-grass (*Briza media*), narrow-leaved meadow-grass (*Poa angustifolia*), hoary plantain (*Plantago media*), sainfoin (*Onobrychis vicifolia*), harebell (*Campanula rotundifolia*), common valerian (*Valeriana officinalis*), marsh valerian (*Valeriana dioica*), field scabious (*Knautia arvensis*) and Devil's-bit scabious (*Succisa pratensis*). Other species are associated with woodlands or arable including butcher's-broom (*Ruscus aculeatus*), wood sorrel (*Oxalis acetosella*), corn spurrey (*Spergula arvensis*) and stinking chamomile (*Anthemis cotula*).

3.3 Ecological survey

The main findings from the Phase 1 and Phase 2 ecological surveys are described below. Information related to habitats, botany and/or protected species are discussed under the following headings:

- ❖ Habitats and botany; and
- ❖ Wildlife

A Phase 1 Habitat plan of the study area with ecological target notes is provided in Appendix B, great crested newt survey data is presented in Appendix C, while photographs of the study area are presented in Appendix D.

3.3.1 Habitats and botany

Field

The field comprises an improved (nutrient enriched) grassland that supports a botanical assemblage of common and widespread grasses and flowering plants of restricted diversity. The grassland appears to be only occasionally topped, as the grassland is starting to develop a tussocky sward, but was recently cut prior to survey. Patches of scrub and tall herbs occur within the centre of the field, most of which has been cut. Some planted sapling trees also occur within the field.

Common grasses are dominated by false oat grass (*Arrhenatherum elatius*), cock's-foot (*Dactylus glomerata*), red fescue (*Festuca rubra*), meadow-grasses (*Poa* spp) and Yorkshire fog (*Holcus lanatus*).

Grassland forb species are generally restricted to very common herbs and ruderal species typical of nutrient-enriched lowland grassland including nettle (*Urtica dioica*), creeping buttercup (*Ranunculus repens*), dandelion (*Taraxacum officinale* agg), cow parsley (*Anthriscus sylvestris*), hogweed (*Heracleum sphondylium*), cleavers (*Galium aparine*), lesser celandine (*Ranunculus ficaria*), ribwort plantain (*Plantago lanceolata*) and common vetch (*Vicia sativa*). Within the field interior small patches of rosebay willowherb (*Chamerion angustifolium*) occur.

In shadier areas associated with the boundary hedges and fringing woodland/scrub, species such as ivy (*Hedera helix*), angelica (*Angelica sylvestris*), white dead nettle (*Lamium album*), cuckoo pint (*Arum maculatum*), ground elder (*Aegopodium podagraria*), wood avens (*Geum urbanum*), hedge garlic (*Alliaria petiolata*), bluebell (*Hyacinthoides non-scripta*), broad-leaved dock (*Rumex obtusifolius*) and soft rush (*Juncus effusus*) occur. Male fern (*Dryopteris filix-mas*) and hart's-tongue fern (*Asplenium scolopendrium*) occur on shaded slopes along the northern and eastern boundaries. In addition, garden escapes occur, especially along the western boundary, including snowdrop (*Galanthus nivalis*), grape-hyacinth (*Muscari neglectum*) and ice plant (*Hylotelephium spectabile*).

Along the western, northern and eastern edges of the field patches of bramble (*Rubus fruticosus* agg) occurred, but have now been cut. In the south-west corner a single hawthorn (*Crataegus monogyna*) shrub and six sapling oaks (*Quercus robur*) have been planted. Within the field interior another four oak and a single grey willow (*Salix cinerea*) have been planted.

Overhead cables run along the western and northern edges of the field. The field is much used by local people to walk dogs, and cats were also observed on-site.

Boundaries (retained)

The southern boundary separates the site from Dauntsey Academy Primary School. The majority of the boundary is a chain-link fence with recently planted shrubs behind (off-site) comprising mainly oak (*Quercus robur*), hawthorn (*Crataegus monogyna*) and dogwood (*Cornus sanguinea*) with blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*), crab apple (*Malus sylvestris*) and holly (*Ilex aquifolium*). The western end comprises post and rail fence fronting a road.

The western boundary separates the site from residential housing. The southern third comprises a recently planted and managed species-poor hedge (only hawthorn), which is maintained at approximately 2m high. Street lighting is associated with this area. The remainder of the boundary comprises close-boarded timber garden fencing with a mix of native (e.g. hawthorn) and ornamental/introduced shrubs including burnet rose (*Rosa pimpinellifolia*), box (*Buxus sempervirens*), shrub honeysuckle (*Lonicera nitida*), buddleia (*Buddleja davidii*), flowering blackcurrant (*Ribes sanguineum*) and holly (*Ilex* sp).

The northern boundary comprises a grassland slope leading down to Lavington Lane that supports trees/shrubs at either end. The western end supports ash (*Fraxinus excelsior*), English elm (*Ulmus procera*), cherry (*Prunus avium*), sycamore (*Acer pseudoplatanus*), osier (*Salix viminalis*) and bramble. At the eastern end hazel (*Corylus avellana*), cherry and bramble occur. The slope supports improved grassland with shade-tolerant species as described above under 'Field' section.

The western boundary comprises a tree line at the top of a bank, which slopes down to a sunken trackway. Both native and non-native species are present including cherry, weeping willow (*Salix babylonica*), sycamore, ash, English elm, c.f. whitebeam (*Sorbus* sp), false acacia (*Robinia pseudoacacia*), beech (*Fagus sylvatica*) and cypress (*Cupressus* sp) with hazel, dogwood and cherry laurel (*Prunus laurocerasus*). Hornbeam (*Carpinus betulus*) line the bank on the opposite side of the track.

Adjacent (off-site) habitats

Immediately north of the development site lies Manor House Wood, which is an ancient woodland site with areas of dry and wet woodland. This is designated as a Local Wildlife Site recognising its importance in a county context.

Flowing adjacent to the northern boundary (associated with Manor House Wood on other side of Lavington Lane) and the eastern boundary (ca. 40m away) is a small flowing stream. This stream flows in a north-westerly direction and forms an upper tributary of Mill Race at Worton, which eventually flows into Semington Brook at Seend. The stream has a sand/gravel bed and supports aquatic/emergent vegetation including stream water-crowfoot (*Ranunculus penicillatus* subsp. *pseudofluitans*), river moss (*Fontinalis antipyretica*), watercress (*Rorippa nasturtium-aquaticum*), hemlock water-dropwort (*Oenanthe crocata*) and greater pond sedge (*Carex riparia*).

Immediately adjacent to south-eastern corner of the site is a small wildlife pond located within the grounds of Dauntsey Academy Primary School (off-site). This is a small pond, approximately 3m by 5m, constructed as a wildlife dipping/education pond. The pond is permanent (being lined) with an abundance of aquatic/emergence vegetation and an absence of fish/waterfowl.

Notable habitats or plants

No habitats occurring within the proposed development site are legally protected or nationally/locally notable. The boundaries are tree-lines or a recent species-poor hedgerow, and all planting will be retained. All plants recorded are common/widespread species,

although bluebell is nationally protected. The grassland or any individual plant is not a constraint for the proposed development. No notifiable invasive plant species were recorded.

The most important habitats are located off-site including Manor House Wood and the stream, which are both locally important and BAP priority habitats.

3.3.2 Wildlife

Bats

There are no structures within the study area. All trees bordering the field were visually inspected for the potential to support roosting bats. Most trees are classed as having 'no potential' for roosting bats (Category 1) given their age, size and structure. The BCT guidelines (Collins (ed.), 2016) state that Category 1 trees can be felled without the need for bat mitigation.

There are seven trees with potential roosting features (PRF) due to ivy-cladding located along the northern and eastern boundaries, which are classed as having low roost potential (Category 2). These include:

- ❖ Northern boundary: 2 x ash and 1 x sycamore; and
- ❖ Eastern boundary: 1 x sycamore (high pollard) and 3 x c.f. whitebeam (*Sorbus* sp)

BCT guidelines (Collins (ed.), 2016) state that Category 2 trees can be felled taking reasonable precautionary measures (e.g. winter felling, section felling) without the need for a Natural England licence under the provisions of the Conservation of Habitats and Species Regulations 2010. However, these trees are not scheduled for removal as part of the proposed development.

The vast majority of boundary vegetation, including all mature trees along the northern and eastern boundaries, will be retained. No other properties or trees outwith the development site will be adversely affected by the development proposals. As such any other roost that may be present will not be damaged, disturbed or adversely affected to prevent bats from accessing or using it.

The grassland field supports a low botanical species diversity, which will have a correspondingly low invertebrate faunal diversity, the proposed development site is considered to provide sub-optimal foraging habitat for bats. Based on experience of surveying similar habitats it is considered highly likely that the majority of bat activity will be restricted to species using boundary and off-site habitat, especially the trees, woodland and stream associated with the northern and eastern boundaries of the site. This conclusion is supported by observing a common pipistrelle bat foraging along the eastern boundary and over the school pond during the night-time great crested newt surveys in late April. All boundary habitat will be retained and protected.

Given the fact that the development footprint affects grassland of low ecological value that is adjacent to existing residential/school development and that all boundary habitats including trees, woodland and stream corridor will remain unaffected, specific bat transect surveys are not considered necessary, which is in accordance with BCT guidelines.

Other mammals

There was no evidence of other protected or notable mammal species found on-site during the survey.

Although there are records of badger in the local landscape, no badger setts are present within or on the boundary of the study area and no signs of badger foraging were observed during the survey.

The site boundary vegetation will not support dormice having a very open structure with a sparse ground flora. There are no records of dormice within 1km of the site, but if there are present they will be associated with Manor House Wood. Polecat if present locally would also be associated with Manor House Wood.

Hedgehog could frequent the study area, especially associated with the boundary trees and shrubs.

Water vole, otter and water shrew could all be associated with the adjacent stream.

Birds

Observations of birds recorded during the survey established common garden/woodland birds associated with the adjacent residential property and boundary trees/hedgerow, including blackbird (*Turdus merula*), robin (*Erithacus rubecula*), chiffchaff (*Phylloscopus collybita*), great tit (*Parus major*), house sparrow (*Passer domesticus*), wood pigeon (*Columba palumbus*), jackdaw (*Corvus monedula*) and magpie (*Pica pica*). Buzzard (*Buteo buteo*) and red kite (*Milvus milvus*) were observed over the site.

In relation to the WSBRC records, it is also likely that small numbers of winter visiting birds, such as fieldfare and redwing, could use the study area for foraging. Barn owl and other raptors could hunt over the grassland at certain times of year. Summer visitors including house martin (*Delichon urbica*), swallow (*Hirundo rustica*) and swift (*Apus apus*) could forage over the grassland, especially if nesting nearby.

The site is unsuitable for ground nesting species, such as skylark and lapwing, being relatively small, enclosed and abutting existing development with associated disturbance (dog walking, noise, artificial lighting). The boundary trees and overhead power lines will provide perches for raptors, while cats also frequent the site. These predators will also deter ground-nesting birds. No ground nesting species were observed in April 2017.

Common birds are likely to nest within the boundary tree, shrub and hedgerow habitats and adjacent buildings. All wild birds, their nests and eggs are protected under the Wildlife and Countryside Act, 1981 as amended. This act makes it an offence to:

- ❖ Intentionally, or recklessly, kill, injure or take any wild bird
- ❖ Take, damage or destroy the nest of any wild bird while it is in use or being built
- ❖ Take or destroy the egg of any wild bird

Reptiles

There are records of common reptiles within 1km of the study area. However, the cropped, improved grassland has limited potential to support reptiles and provides no diurnal or seasonal refugia.

If slow worm is present locally they will be restricted to the site edges, especially the northern and eastern boundaries, while grass snake is likely to be associated with the off-site stream corridor and wet woodland areas. Both species could potentially forage through the interior grassland in the spring-summer months, but the suitability of the grassland will be much reduced with cropping as this exposes reptiles to predation.

These common reptiles are protected under the Wildlife and Countryside Act, 1981 (as amended) against intentional killing and injuring, and are included in the UK BAP as priority species. However, it is concluded that there is no need for further reptile survey to define appropriate mitigation to protect reptiles.

Amphibians

The proposed development site does not contain any ponds, no potentially suitable ponds were shown on the 1:25,000 OS map and there are no records of great crested newt within 1km of the study area. The field survey identified one pond located immediately outside the development site (school pond). This pond has a habitat suitability score and associated classification of suitability to support breeding great crested newt (see Appendix C for full H.S.I data) as 0.51 (Below Average). This is a wildlife dipping pond which has abundant aquatic and emergent vegetation suitable for newts to use for breeding. The HSI score is reduced not because of the pond habitats being unsuitable, but instead because of the small size of the pond combined with a lack of other ponds in the local landscape.

Therefore, a great crested newt survey was conducted on this pond. Surveys were conducted over four visits between 12th April and 29th April 2017 to determine presence/absence of great crested newt, see Appendix C for full survey data.

No evidence of great crested newt was found. Smooth newt (*Lissotriton vulgaris*) was recorded in the pond, with an adult peak count of 6 and evidence of breeding, as well as toad (*Bufo bufo*) tadpoles. The pond holds a 'small population' of smooth newt.

Invertebrates

The grassland field is a habitat type that will not support a notable invertebrate community. The only butterflies observed during April 2017 were small tortoiseshell (*Aglais urticae*), which is a wider countryside species (Peterken, 2013). Given the habitats on-site, especially within the proposed development footprint, it is expected that only common species that are resilient and use a broad range of widely distributed habitats will frequent the site. The site does not provide optimum habitat for the species identified in the WSBRC data other than small heath (*Coenonympha pamphilus*) that is one of the most common grassland species in the UK.

4 Important Ecological Receptors

The proposed development site is not covered by any statutory or non-statutory nature conservation designations, and there are no statutory designations within 1km, with the nearest national and European sites located between 1.2 and 3.4km away. There is a single locally (non-statutory) designated woodland located immediately north of the study area.

The study area comprises a single field of nutrient-enriched (improved) grassland, which appears to be occasionally cropped and supports common plant species of restricted diversity. Boundary habitat includes species-poor hedgerow, tree-lines and shrubs including a mix of native and non-native species. These habitats are not scarce, threatened or sensitive, and all plants recorded on site are common and widespread.

There are no protected mammals on-site, although hedgehog could be using boundary vegetation. Common birds are likely to nest within boundary habitats, but the grassland is unsuitable for ground-nesting species. The grassland could support low numbers of foraging common reptiles at certain times, but grassland cutting will deter these species. The adjacent pond or the development site does not support great crested newt.

It is considered that the integrity of any surrounding habitats, communities or species will have low reliance upon the habitats and ecology contained within the development footprint. There are significant amounts of alternative habitat available outwith the development site for species to inhabit, and use for breeding, foraging and migration.

Based on the ecological surveys and desk-based review the following are considered to be important ecological receptors. All receptors will require an assessment of impacts.

- ❖ European designated sites outside the study area. Important in a European context;
- ❖ Nationally designated sites outside the study area. Important in a National context;
- ❖ Locally designated site outside the study area. Important in a County context;
- ❖ Stream outside study area. Important in a Local context;
- ❖ Boundary tree-lines. Important in a Local context;
- ❖ Bats. Important in a Local context;
- ❖ Hedgehog. Important in a Local context;
- ❖ Breeding birds within boundary habitats. Important in a Local context; and
- ❖ Reptiles. Important in a Local context.

5 Predicted Impacts and Significance

5.1 Introduction

In accordance with national and local biodiversity planning policy and CIEEM best practice ecological impact assessment guidelines, adverse ecological impacts have been removed or reduced by:

- ❖ Appropriately siting the proposed housing development scheme within improved grassland of low ecological value;
- ❖ Avoiding and protecting key habitats on the boundary of, or adjacent to, the development site including: trees (including all PRF trees), shrubs and hedge; the Manor House Wood; and the stream corridor; and
- ❖ Avoiding adverse impacts on sites designated for nature conservation in the local landscape.

This protects and minimises adverse impacts on protected/notable species inhabiting or using these habitats for breeding, foraging or migration. Habitats directly affected and permanently lost are of low ecological value, and this impact is not significant. The proposed development includes appropriate habitat creation available for wildlife to use.

The predicted potential impacts of the proposed scheme on biodiversity identified in the following sections take into consideration proposed scheme design and site working methods, which include:

- ❖ Scheme layout: protecting boundary vegetation with appropriately sized buffer zones;
- ❖ Surface water drainage strategy: protecting surface water quantity/quality of the adjacent watercourse;
- ❖ Construction management strategy: protecting local air quality particularly through management/suppression of dust and other particulate matter emissions; and

- ❖ Lighting strategy: protecting bat migration/foraging routes by maintaining dark corridors along the northern and eastern wooded boundaries and not adversely affecting proposed new bat roosting features.

To be confirmed for final submission

5.2 European designated sites outside the study area

5.2.1 Special Area of Conservation

Salisbury Plain SAC, which is located ca 1.8km to the east and 3.4km to the south of the study area, is designated for the Annex I Habitats 'Juniperus communis formations on heaths or calcareous grasslands' and 'semi-natural dry grasslands and scrubland facies on calcareous substrates' and Annex II Species 'marsh fritillary butterfly'.

The SAC Conservation Objectives (Natural England, 2014a) are to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

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

Identified threats to the SAC conservation objectives (JNCC, 2016a) are as follows:

- ❖ Changes in biotic conditions.
- ❖ Interspecific floral relations.
- ❖ Grazing.

Predicted impact on biotic conditions. The proposed residential development will not alter existing biotic conditions associated with the SAC. For example, there will be no impact upon interspecific floral relations (see below) or interspecific faunal relations (e.g. no change in existing levels of competition, predation, parasitism or disease, and no effect relating to introduction of exotic/invasive/damaging species). The proposed development will not have any impact on the qualifying habitat or species of the SAC.

Predicted impact on interspecific floral relations. The proposed residential development will not alter interspecific floral relations associated with the SAC, for example, there will be no impact upon existing levels of parasitism, pollination, disease or physical damage. The proposed development will not have any impact on the qualifying habitat or species of the SAC.

Predicted impact on grazing. The proposed residential development will not affect the current grazing regime associated with the designated site, and will not have any impact on the qualifying habitat or species of the SAC.

The proposed residential development will have no likely significant effect on the qualifying habitat and species of Salisbury Plain SAC either alone or in combination with any other plan or project, and no mitigation or compensation is required.

This section provides appropriate information to enable the local planning authority, as the Competent Authority, to undertake a 'Test of Likely Significance' under the Habitats Regulations 2010 (as amended).

5.2.2 Special Protection Area

Salisbury Plain SPA, which is located ca 1.8km to the east and 3.4km to the south of the study area, is designated due to the following qualifying features: breeding stone curlew (*Burhinus oedicephalus*), quail (*Coturnix coturnix*) and hobby (*Falco subbuteo*); and over-wintering hen harrier (*Circus cyaneus*).

The SPA Conservation Objectives (Natural England, 2014b) are to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- ❖ The extent and distribution of the habitats of the qualifying features;
- ❖ The structure and function of the habitats of the qualifying features;
- ❖ The supporting processes on which the habitats of the qualifying features rely;
- ❖ The population of each qualifying features; and
- ❖ The distribution of the qualifying features within the site.

Identified threats to the SPA conservation objectives (JNCC, 2016b) are as follows:

- ❖ Air pollution / air-bourne pollutants; and
- ❖ Changes in biotic conditions, including food and habitat availability.

Consultation with Natural England on the draft Wiltshire Core Strategy also identified the following threat to the integrity of the SPA (Wiltshire Council, 2012):

- ❖ Recreational disturbance, particularly in relation to breeding stone curlew.

Predicted impact on air pollution / airbourne pollutants. The proposed residential development is located within a rural area, which is not identified as an air pollution hot-spot. The proposed residential development will not have a significant impact on local air quality. Local airbourne pollutants, especially dust and other particulate matter, will be managed during the construction phase, and will not have any impact on the SPA located 1.8km away. The proposed development will not have any impact on the qualifying features of the SPA.

Predicted impact on biotic conditions. The proposed residential development will not alter existing biotic conditions associated with the SPA. For example, there will be no impact upon interspecific floral relations (no change to existing levels of parasitism, pollination, disease or physical damage) or interspecific faunal relations (no impact change in existing levels of competition, predation, parasitism or disease, and no effect relating to introduction of exotic/invasive/damaging species).

The proposed development site does not contain habitat suitable for supporting for the qualifying bird species. The proposed residential development will not affect the current grazing regime or physical habitat/vegetation conditions, and therefore will have no impact upon extent or quality of available habitat or prey items for qualifying bird species. The proposed development will not have any impact on the qualifying features of the SPA.

Predicted impact on recreational disturbance. The proposed development site does not contain habitat suitable for qualifying bird species to breed within. Increased housing around Salisbury Plain, included within the Wiltshire Core Strategy, has been subject to a Habitats Regulation Assessment (Wiltshire Council, 2012) which focussed on the potential effects of increasing recreational pressure upon breeding stone curlew. The combined effects of the Wiltshire and Test Valley Core Strategies are predicted to increase visitor pressure on Salisbury Plain by at least 30.5 visits per day, of which 93% would be due to additional housing. Although it is difficult to establish actual effects of increased visits on the integrity of the SPA, the HRA identified appropriate, precautionary mitigation to offset potential effects as ‘monitoring stone curlew distributions and breeding success’ and ‘monitoring visitor access’, the results of which will allow targeted site management. The HRA concluded that no single residential development will be large enough to cause a significant increase in recreational pressure so as to affect stone curlew breeding success. Furthermore, overall recreational pressure from combined developments can be accommodated on Salisbury Plain without detrimentally affecting stone curlew populations as long as the SPA is monitored and managed appropriately.

The proposed residential development at West Lavington will have no likely significant effect on the qualifying species of Salisbury Plain SPA either alone or in combination with any other plan or project, and no additional mitigation or compensation is required.

This section provides appropriate information to enable the local planning authority, as the Competent Authority, to undertake a ‘Test of Likely Significance’ under the Habitats Regulations 2010 (as amended).

5.3 Nationally designated sites outside the study area

There are two nationally designated SSSIs located in the local landscape, which cover mainly unimproved chalk downland/grassland, with woodland and open water, that support important assemblages of invertebrates and birds.

Salisbury Plain Site of Special Scientific Interest (SSSI), located between 1.8 and 3.4km from the study area, is 41% in favourable condition, 57% is unfavourable-recovering and 2% is either destroyed or not assessed. Natural England management recommendations are to continue an appropriate grazing, cutting/mowing and management (use of fertilisers and pesticides/herbicides). As discussed in Sections 5.1 and 5.2, the proposed residential development will not impact upon site management within the SSSI, and will not adversely affect existing baseline conditions in terms of habitat structure/function or wildlife associated with this designated site.

Great Cheverell Hill SSSI, located 1.2km from the study area, is 68.5% of site is in favourable condition, while 31.5% is unfavourable-recovering. Natural England management recommendations are to continue an appropriate grazing and scrub management. The proposed residential development will not impact upon site management within the SSSI, and will not adversely affect existing baseline conditions in terms of habitat structure/function or wildlife associated with this designated site.

The proposed residential development will not significantly increase recreational pressure on these designated sites.

The impact of the proposed residential development on these two nationally designated nature conservation sites is neutral, and no specific additional mitigation or compensation is required. This is in accordance with Wiltshire Core Policy 50.

5.4 Locally designated site outside the study area

There is one locally designated nature conservation site located immediately north of the study area, which encompasses broad-leaved woodland. The proposed residential development will not alter local environmental/abiotic conditions associated with this designated site during- or post-construction as additional tree planting and an appropriate lighting strategy will screen the designated woodland, maintain a dark corridor along the northern boundary, and avoid impacts associated with light pollution/disturbance. Therefore, the proposed residential development will have no effect on the existing baseline conditions, in terms of habitat structure/function and supported wildlife, associated with the designated woodland.

The impact of the proposed development on the locally designated nature conservation site in the local landscape is *neutral*, and no additional mitigation is required. This is in accordance with Wiltshire Core Policy 50.

5.5 Stream outside study area

A stream flows outside the northern boundary and the eastern boundary. The proposed residential development does not adversely affect existing environmental/abiotic conditions of this watercourse. For example, the scheme will not alter surface water quantity or quality due to integrating an appropriate, consented surface water drainage design. All construction activities with the potential to cause either fugitive or wind-blown dust emissions will be appropriately monitored and managed according to agreed construction management plan. Tree planting and an appropriate lighting strategy, integrated into the scheme design, will screen the stream corridor, maintain a dark corridor along the northern and eastern boundaries, and avoid impacts associated with light pollution/disturbance. This will ensure no detrimental adverse impact on the habitat structure and function of the watercourse ensuring protection for wildlife species associated with this habitat including protected/notable aquatic mammals.

The impact of the proposed residential development on the stream corridor is *neutral*, and no additional mitigation is required. This is in accordance with Wiltshire Core Policy 50.

5.6 Boundary trees, shrubs and hedgerow

Retained boundary habitat could potentially be damaged during the construction phase through root compaction or physical damage by vehicles 'spilling' into areas outside the construction zone. This is a potential *negative* impact, but will be managed and removed through clear delineation and good site working practices.

5.7 Bats

5.7.1 Roosting

No potential bat roosts in trees will be adversely affected by the proposed quarrying scheme as all trees with PRF will be retained and protected. The impact of the proposed development is therefore *neutral* for roosting bats, and no mitigation is required. This is in accordance with Wiltshire Core Policy 50.

To be confirmed for final submission

5.7.2 Foraging/commuting

Bats within the local landscape will principally be associated with foraging and commuting activity along the woodland edge, tree lines and stream corridor on the northern and eastern boundaries.

Habitat fragmentation is a significant conservation issue in the UK as semi-natural habitats become more isolated and unavailable to bats. As part of the proposed residential scheme all important boundary wooded habitat and the adjacent stream corridor will be retained and protected with appropriately sized stand-offs and appropriate scheme design (e.g. surface water drainage strategy, lighting strategy). This will allow bats to continue to forage and migrate through and around the study area.

In addition to maintaining and protecting these important habitat corridors, the scheme design will strengthen this boundary habitat for bats by incorporating new woodland planting along the northern and eastern boundaries.

A lighting strategy will be developed with consideration to protecting the existing environmental conditions of the important northern and eastern boundary woodland habitat. Key requirements include maintaining dark corridors, using appropriate lighting to minimise outward and upward light spill, and avoiding ultra violet and infrared emissions.

The impact of the proposed residential development is therefore neutral for foraging/commuting bats, and no additional mitigation is required. This is in accordance with Wiltshire Core Policy 50.

5.8 Hedgehog

Hedgehog could be present within the study area. Hedgehog is not currently legally protected, but is recognised as a priority species due to declining populations. The development has the potential to damage or destroy hedgehog if undertaken without appropriate safeguards. If this were to happen this is a negative impact. This adverse impact will be removed through implementing appropriate mitigation.

5.9 Nesting birds

Some nesting birds are likely to be present within the boundary vegetation or standard trees. Some vegetation may be removed (i.e. cutting/pruning) to facilitate the access road off Lavington Lane or other aspects of the development. If woody vegetation is removed without appropriate safeguards then there is the potential to damage, destroy or disturb nesting birds. This is a potential negative impact, but will be removed through implementing appropriate mitigation.

5.10 Reptiles

There is a possibility of slow worm and grass snake being present within the boundary or adjacent off-site habitats of the study area. Both species may therefore forage across the grassland interior, but will not use the grassland field for breeding or hibernation. The development protects the majority of boundary habitat, but nonetheless has low potential to damage or destroy reptiles (especially slow worm which are not as mobile and wide ranging as grass snake) if undertaken without appropriate safeguards. If this were to happen this is a negative impact. This adverse impact will be removed through implementing appropriate mitigation.

5.11 Significance of impacts

The proposed development scheme, if implemented without appropriate mitigation or compensation, could have some minor adverse impacts associated with potential damage/destruction of retained boundary vegetation, hedgehog, nesting birds and low number of common reptiles. These impacts, if they occur, are only considered to be 'significant' at the Local scale.

6 Mitigation, Compensation and Enhancement

6.1 Protecting retained trees and shrubs

All retained boundary trees, shrubs and hedgerow will have their root zones, which can extend wider than the canopy, protected from compaction. This will be achieved through avoidance (appropriately sized buffers). The final mitigation to protect trees and shrubs will be developed by a qualified arboriculturalist and agreed with the local planning authority. Working areas may need to be clearly delineated to prevent vehicles and machinery from encroaching upon and damaging vegetation that is to be retained.

6.2 Protecting hedgehog

At present, there is no legal responsibility to protect hedgehog, however, mitigation to ensure protection of this species includes:

- ❖ Vegetation removal will proceed with care (any shrubs cut by hand to ground level) so as to allow animals to disperse if they are present at the time of the work;
- ❖ All site clearance work undertaken during daylight hours avoiding issues associated with disturbance to these nocturnal animals; and
- ❖ If a hedgehog is found during site clearance work it will be carefully picked up (using gloves) and moved to the eastern site boundary, which will not be affected by the proposed work.

6.3 Protecting nesting birds

The proposed development may remove small areas of boundary vegetation or trees currently available for nesting birds to use. This could result in the damage or destruction of breeding birds, their nests (while in use or being built) or the destruction of bird eggs unless appropriate mitigation action is taken. To ensure compliance with the Wildlife and Countryside Act, 1981 (as amended) the following action is required:

- ❖ Undertake any woody vegetation (trees, scrub or hedgerow) removal outside the bird breeding season, which is generally considered to be from 1st March to 31st August (to cover all bird species, particularly multiple brood species). This option will avoid the need for a pre-works inspection to determine the presence of nesting/breeding birds.

If this option is not feasible and some or all work has to go ahead within the bird breeding season, as defined above, then the following action will be taken:

- ❖ A nesting bird inspection immediately prior to the commencement of the specified work (maximum of 2 weeks prior to work starting) will be undertaken by a qualified ecologist, ornithologist, arboriculturalist or other suitably qualified individual. If nesting birds or birds constructing a nest are subsequently identified to be present, work in that area must

cease until the nest is clear. This could involve avoiding individual trees/shrubs, whilst holding a watching brief on the area to establish when the nest is clear.

Regardless of time of year if nesting birds are found in the development site then work in the immediate vicinity should stop and an ecologist consulted to define appropriate mitigation.

6.4 Protecting foraging reptiles

The boundary habitats, especially the northern and eastern boundaries, will be protected with appropriately sized buffers. Mitigation to protect foraging slow worm (and grass snake) includes maintaining the grassland within the development footprint as a very low sward through regular cutting. The grassland management should be implemented in the year prior to development starting from early spring (i.e. March) onwards and then continuing regularly through the growing season, as necessary, to deter reptiles from using the interior grassland habitat.

6.5 Tree, shrub and hedgerow planting

To be confirmed for final submission following review of scheme and landscape plan

The habitats found on-site are common and widespread, and no significant loss is expected to occur as a result of any proposed development. However, the opportunity to use appropriate native planting within any landscaping scheme is encouraged. Species for new tree, shrub and hedgerow planting should be selected to complement and enhance the surrounding and local landscape habitats, and plants must be native and sourced from a reputable nursery preferably using stock derived from a local provenance. Species that are fruit or berry producing to maximise benefits for birds are also favoured. Trees within the residential development should ideally be native cultivar species. A recommended planting mix is provided below, and should be defined as part of the detailed design process or as a condition of planning.

Woodland understorey shrubs & hedgerow	
Blackthorn	<i>Prunus spinose</i>
Dog rose	<i>Rosa canina agg</i>
Dog wood	<i>Cornus sanguinea</i>
Field maple	<i>Acer campestre</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Holly	<i>Ilex aquifolium</i>
Honeysuckle	<i>Lonicera periclymenum</i>
Spindle	<i>Euonymus europaeus</i>
Wild privet	<i>Ligustrum vulgare</i>
Wayfaring-tree	<i>Viburnum lantana</i>
Woodland canopy trees & hedgerow standards	
Crab apple	<i>Malus sylvestris</i>
English oak	<i>Quercus robur</i>
Field maple	<i>Acer campestre</i>
Hornbeam	<i>Carpinus betulus</i>

Tree / shrub planting mix to be agreed for final submission

Hedgerows should be planted as a minimum double-belt hedge using feathered whips. Small groups (4-7 specimens) of single species would be planted along the line of any hedgerow to ensure good heterogeneity.

Woodland trees will be planted at a density of at least 1,600 trees per hectare, with small groups (5-10 specimens) of the same species planted to ensure good heterogeneity.

Each whip and sapling will have a tree-stake for support, will be mulched and will be protected from grazing animals using tree guards or protective fencing.

Planting must take place between November and March, and newly planted areas should be inspected regularly to confirm establishment or identify remedial action. Once it has been established that plants have taken sufficiently any remaining tree stakes/tree guards or protective fencing can be removed. Any significant gaps or dead plants should be replaced with new feathered whips of the same species.

New native boundary hedgerows will preferably be managed in the long-term to maintain a dense, bushy structure at a minimum height of 2m with foliage down to ground level.

6.6 Wildflower grassland

To be confirmed for final submission following review of scheme and landscape plan

6.7 Bat roosting features

To provide enhancements for wildlife in line with national and local biodiversity policies it is recommended that a single bat brick, which is integrated into the fabric of an external wall, be installed on a number of the new buildings, where practicable and appropriate, to provide safe and isolated roosting habitat for bat species such as pipistrelle and Natterer's bats. Bat bricks should be installed on an external wall as far above the ground as possible (see photo which shows bat brick *in situ* on a new dwelling). No external lighting should be used adjacent to or shine directly at bat box entrances.



Alternative bat bricks can be used depending on the proposed architecture. Alternatives can be viewed at www.nhbs.com, with two examples shown below.



Schwegler bat brick for installation into cavity wall

Habibat bat bricks for installation into cavity wall, faced with brick, stone or render





In addition to bat bricks new buildings could also be designed to allow bats to access voids under ridge tiles (see photo), which will provide alternative roosting opportunities for crevice-dwelling bats. Ridge tiles should have a 15-20mm slot created beneath the leading edge. Entrance slots should preferably be south-east to south-west facing, and no external lighting must be used adjacent to or shine directly at the entrances.

The type, number and location of bat roosting features will depend on the practicality of integrating into the final design of the new build. Bat roosting features should be agreed with the local planning authority ecologist as part of detailed design or as a condition of planning.

6.8 Bird nesting features

To provide enhancements for birds, nesting features should be incorporated where possible and practicable into new building designs. New buildings could seek to provide nesting features such as over-hanging eaves to encourage house martin nesting. Alternatively buildings could integrate nest-boxes, which can be included into the fabric of an external wall or bolted onto an external wall/under eaves, to target summer migrants and other passerines typical of urban environments including house sparrow, swift and house martin. Boxes should be placed on external walls which provide shelter from direct sunlight (i.e. not south-facing).

A range of alternative bird boxes are available and can be incorporated depending on the proposed design and architecture. These alternatives can be viewed at www.nhbs.com, with some examples shown below.

Schwegler sparrow terrace and integrated nest box



Schwegler brick nest boxes to target swifts

Schwegler nests to target house martins



The type, number and location of bird nesting features will depend on the practicality of integrating into the final design of the new build. Bird nesting features should be agreed with the local planning authority ecologist as part of detailed design or as a condition of planning.

6.9 Wildlife habitat features

Within the boundary grassland/woodland/hedgerow on the boundaries of the development, especially within the south-east corner, ecological habitat features could be created that diversify habitat niches available as refugia for various target species, particularly invertebrates, reptiles and small mammals.

Hibernacula or wildlife refugia piles within the boundary habitats will consist of piles of logs/brushwood approximately 0.5m high, some of which can be covered with topsoil and allowed to vegetate up naturally. Small entrances will be kept open at ground level, which may need to be 'engineered' using a piece of log or stone.

7 Residual Effects

To be confirmed for final submission

There are a few predicted potential adverse impacts associated with the change in use of this improved grassland field. Boundary habitats will be retained and protected, and strengthened with additional planting along the northern and eastern boundaries. Potential predicted adverse impacts on protected species can be appropriately mitigated through appropriate scheme design and implementation. There are no predicted significant residual adverse impacts associated with the proposed development on designated nature conservation sites, protected/notable habitats (woodland, stream or wooded boundaries) or protected/notable species (hedgehog, nesting birds and reptiles), which is in accordance with national and Wiltshire Council Core Policy 50.

The development can provide alternative and enhanced habitat for target species, particularly bats, birds and reptiles that includes diversifying habitat, additional woodland planting, integrating bat roosting features and bird nesting boxes into new buildings, and providing wildlife refugia piles within site boundary vegetation. These design features will ensure that a variety of local wildlife species can continue to use the site in the long-term.

The proposed scheme will not have adverse impacts on the ability of local wildlife to survive, breed or reproduce, to rear or nurture their young or to hibernate or migrate, and may improve the situation for target species such as bats and birds. The proposed scheme will not adversely affect the local distribution or abundance of locally notable wildlife species. The long-term ecological effects of the proposed scheme are considered to be *neutral*.

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Appendix A Location Plan

Added for final submission

Appendix B Phase 1 Habitat Plan with Ecology Target Notes

Added for final submission

Appendix C Great Crested Newt Survey Data

Pond - Habitat Suitability Index

SI Categories		School Pond	
		Score	SI
1	Location	A	1
2	Pond Area (m²)	15	0.03
3	Permanence	Never	0.9
4	Water quality	Moderate	0.67
5	Shade	20%	1
6	Waterfowl	Absent	1
7	Fish	Absent	1
8	Pond count	None*	0.1
9	Terrestrial habitat	Moderate	0.67
10	Macrophyte cover	80%	1
H S I Score		0.51	
H S I Category		Below Average	

* other ponds either on-line or disconnected

Great crested newt survey data

Visit	Date	Cloud	Torching Conditions		Temp
			Rain	Wind	
1	12-13 April	70%	No	Light breeze	11
2	16-17 April	100%	No	Light breeze	11
3	20-21 April	100%	Day showers	Light breeze	12
4	28-29 April	0%	No	Still	10

Torching results

Visit	GCN-M	GCN-F	GCN-J	SN-M	SN-F	SN-J	Frog-A	Frog-Tad	Toad-A	Toad-Tad
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	1	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	1	0
Max	0	0	0	1	0	0	0	0	1	0

Trapping results

Visit	GCN-M	GCN-F	GCN-J	SN-M	SN-F	SN-J	Frog-A	Frog-Tad	Toad-A	Toad-Tad
1	0	0	0	4	2	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	1	0	0	0	0	0	1
4	0	0	0	1	1	0	0	0	0	0
Max	0	0	0	4	2	0	0	0	0	1

Smooth newt population estimate. Adult peak count = 6. Population size = small.

Appendix D Site Photographs

Added for final submission