Ansty Garden Community

Environmental Statement

Volume 2

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CHAPTER 11: ECOLOGY AND BIODIVERSITY

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11 Ecology and Biodiversity

11.1 Scope of Assessment

11.1.1 This chapter of the ES assesses the likely significant effects of the Proposed Development and the Parkland Reserve Site in terms of Ecology and Biodiversity and is supported by **ES Volume 4, Appendix G**.

11.1.2 The chapter describes: key legislation, policy and guidance considerations; the assessment methodology; the baseline conditions currently existing at the Site, the Parkland Reserve Site and in the surrounding area; the likely significant environmental effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; the likely residual effects after these measures have been employed; and the cumulative effects associated with the Proposed Development and the Parkland Reserve Site in combination with other developments within 5 km of the Site and the Parkland Reserve Site.

11.1.3 The Parkland Reserve Site, as outlined in **Chapter 1: Introduction**, is subject to a separate planning application, however as it is the intention for the Parkland Reserve Site to deliver off-site Biodiversity Net Gain (BNG) provision for the Proposed Development; as such, these applications are inter-linked and one would not come forward without the other. In view of this the Parkland Reserve Site has been considered within this chapter, primarily with regard to the baseline conditions, an assessment has been undertaken to outline the extent of the low impact works proposed and consideration of them cumulatively with the Proposed Development.

11.1.4 'Type 1' cumulative ('intra-project') effects, which are combined effects of individual EIA topic effects on a particular receptor, are considered in **ES Volume 2, Chapter 14: Effect Interactions**.

11.2 Key Legislation, Policy and Guidance Considerations

11.2.1 The ecological assessment has been undertaken within the context of relevant planning policies, guidance documents and legislative instruments. These are summarised below.

Legislation and Regulation

11.2.2 The legal protection applying to relevant bird, mammal, herpetofauna and invertebrate species and current nature conservation planning policy used to steer this assessment includes:

- **The 'Birds Directive'**[1]**, 'Habitats Directive'**[2] **and 'European Sites'**[3] is legislation that defines the protections afforded to European Sites and the duty of planning authorities to ensure their conservation status is maintained;
- **The 'Conservation of Habitats and Species Regulations' (2017), as amended**[4], is the principle means of transposing the Habitats Directive and the Birds Directive, and updates the Conservation (Natural Habitats, &c.) Regulations 1994 ("the 1994 regulations") in England and Wales. This legislation is also makes it a criminal offence under Regulation 41 to deliberately capture, injure, kill, disturb or take European Protected Species and further protects breeding and resting places used by these animals ;
- **The Wildlife and Countryside Act (1981), as amended**[5], is one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).;
- **The Natural Environment and Rural Communities (NERC) Act (2006)**[6] created the statutory nature conservation body Natural England, and places a statutory duty on all public bodies, including planning authorities, under Section 40, to take, or promote the taking by others, steps to further the conservation of *habitats and species of principal importance for the conservation of biodiversity* in England (commonly referred to as the 'Biodiversity Duty').;
- **The Environment Act 2021**[7] sets a target of halting the decline in species through the inclusion of a legally binding 2030 species abundance target. Aiming to restore natural habitats and enhance biodiversity, the Act requires new developments to improve or create habitats for nature (through mechanisms such as mandatory Biodiversity Net Gain), and tackle deforestation.;
- **The Protection of Badgers Act (1992)**[8] consolidated and improved previous legislation, making it a serious offence to kill, injure or take a badger, or interfere with a sett unless a licensee is obtained from a statutory authority;

[1] Directive 2009/147/EC

[2] Directive 92/43/EEC

[3] Formerly referred to as Natura 2000 sites and comprises Special Areas of Conservation and Special Protection Areas.

[4] Habitat Regulations (2017) (as amended)

[5] Wildlife and Countryside Act (1981) (as amended).

[6] Natural Environment and Rural Communities (NERC) Act (2006).

[7] Environment Act (2021).

[8] Protection of Badgers Act (1992).

- **The UK Post-2010 Biodiversity Framework**[9] was the UK's response to the commitments of the Rio Convention on Biological Diversity (1992) until 2010, when the UK BAP was replaced by the UK Post-2010 Biodiversity Framework; and
- **The Birds of Conservation Concern (BoCC)**[10] is a list produced by the UK's leading non-governmental bird conservation organisations, which s periodically reviews the status of all regularly occurring birds in the UK, Channel Islands and Isle of Man. Whilst not itself forming policy or legislation, this list is used to help inform impact assessments and local and national planning policy.

Planning Policy

National Planning Policy

National Planning Policy Framework

11.2.3 The National Planning Policy Framework (NPPF 2023)[11] sets out the Government's view on how planners should balance nature conservation with development and helps to ensure that the Government meets its biodiversity commitments with regard to the operation of the planning system.

11.2.4 Paragraph 179b states that council policies should "promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity". In accordance with the NPPF, it is important that developments should contribute to and enhance the natural and local environment by:

- minimising impacts on existing biodiversity and habitats,
- providing net gains in biodiversity and habitats, wherever possible,
- establishing coherent ecological networks that are more resilient to current and future pressures.

11.2.5 The Planning Practice Guidance Provided on the gov.uk[12] website has also been reviewed, specifically focussing on guidance on the Natural Environment. Of relevance to this chapter, this guidance sets advice on how to conserve biodiversity, geodiversity and ecosystems, with a focus on the requirements of the

[9] JNCC and DEFRA, (2012). UK Post-2010 Biodiversity Framework

[10] Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. & Win, I. (2021). Birds of Conservation Concern.

[11] Department for Levelling Up, Housing and Communities, (2023). National Planning Policy Framework.

[12] https://www.gov.uk/government/collections/planning-practice-guidance

NERC Act and the commitments made by government in its 25 year Environment Plan.

Local Planning Policy

Mid Sussex District Policy

Mid Sussex District Plan

11.2.6 Relevant policy is set out with the Mid Sussex District Plan 2014-2031[13] and there is one policy within this document that is relevant to biodiversity and nature conservation as follows:

11.2.7 Policy DP38: Biodiversity - Biodiversity will be protected and enhanced by ensuring development:

- Contributes and takes opportunities to improve, enhance, manage and restore biodiversity and green infrastructure so there is a net gain in biodiversity including through creating new designated sites and locally relevant habitats, and incorporating biodiversity features within developments.
- Protects existing biodiversity, so there is no net loss of biodiversity.
- Unavoidable damage to biodiversity should be offset through enhancements and mitigation measures.
- Minimises habitat and species fragmentation and maximises opportunities to enhance and restore ecological corridors to connect natural habitats and increase coherence and resilience.
- Promotes the restoration, management and expansion of priority habitats in the district.
- Avoids damage to, protects and enhances the qualifying features of internationally designated sites of importance.
- Designated sites will be given protection and appropriate weight according to their importance and the contribution they make to the wider ecological networks.
- Valued soils will be protected and enhanced, including the best and most versatile agricultural land and development should not contribute to unacceptable levels of soil pollution.

11.2.8 The Mid Sussex District Plan 2021 -2039 is currently subject to consultation under Regulation 18. The Consultation draft has been reviewed and emerging policies

[13] Mid Sussex District Council, *Mid Sussex District Plan 2014-2031* (adopted March 2018).

have been identified under Chapter 9 – Natural Environment and Green Infrastructure.

11.2.9 DPN1 – Biodiversity, Geodiversity and Nature Recovery. This policy sets out how Biodiversity will be protected by

Mid Sussex Sustainable Economy Strategy

11.2.10 The Mid Sussex Sustainable Economy Strategy and Action Plan 2022-202514, sets out the ambitions of the council to support sustainable economic growth. Whilst not forming local policy, this document does set out the ambitions of Mid Sussex, which includes Policy 8: Improve, Manage and Promote Biodiversity and Nature Recovery.

11.2.11 Under Policy 8, the following relevant commitments are made:

- Ensure that new development and land management demonstrates significant improvements to biodiversity and nature recovery by developing and implementing policies in the District Plan Review (including Biodiversity Net Gain) and working with stakeholders to implement the Local Nature Recovery Strategy (subject to secondary legislation), which is a system of spatial strategies for nature that will cover the whole of England as set out in clauses 100-104 of the Environment Act..
- Build on the success of local rewilding initiatives to oversee a managed and incremental growth in the proportion of Council-owned land managed for biodiversity under the national BLUE campaign, which was founded in 2014 and requires a patch of land to be allowed to grow naturally and see which species can naturally return.
- Set out how Mid Sussex District Council (MSDC) will allocate resources to meet the strengthened biodiversity duty contained in the Environment Act 2021. Begin by contracting a consultant to deliver a short-term, desk-based natural capital.
- mapping of Mid Sussex, that will form the basis for a Mid Sussex nature recovery network (to be budgeted from the Sustainability and Climate Change Special Reserve) and conducted with use of West Sussex County Council's (WSCC) project mapping tool to ensure coherence.

[14] Mid Sussex District Council, *Sustainable Economy Strategy 2022-2025*

Technical Standards and Guidance

11.2.12 This chapter has been written in accordance with the CIEEM Guidelines for Ecological Impact Assessment[15] and CIEEM Guidelines for Ecological Report Writing[16]. Details of the ecological assessment methods are provided within section 11.3 below.

11.2.13 The chapter has also considered the following advice pages on the gov.uk website:

- Protected species and development: advice for local planning authorities.
- Prepare a planning proposal to avoid harm or disturbance to protected species.

11.2.14 This guidance is directed towards planning authorities and developers respectively, but makes clear what the broad expectations are from the process of both informing and designing a development proposal and assessing the information provided to support a planning application.

11.3 Assessment Methodology

11.3.1 The following sections describe the methods used in the desk study and protected species / habitat survey(s). All survey methods are in accordance with current best practice guidance for the respective species / taxonomic group and any limitations encountered during the surveys are explained in this chapter.

Determination of Baseline

11.3.2 The collection of all data of the Ansty Carden Community baseline assessments have followed the guidelines produced by CIEEM. This has followed a standard process of initial baseline data gathering, followed by the consideration of both desktop and Site survey data, to determine what further detailed surveys would be required to produce a well-informed Ecological Impact Assessment (EcIA). The details of all surveys undertaken are set out below.

Desk Studies

11.3.3 A search for pre-existing records of protected species, priority species for conservation and invasive non-native species was requested from the Sussex Biodiversity Records Centre (SxBRC) within a radius of 2 km of the Site boundary in line with best practice.

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[15] CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester.

[16] CIEEM (2017) *Guidelines for Ecological Report Writing, 2nd edition.* Chartered Institute of Ecology and Environmental Management, Winchester.

11.3.4 A search of on-line mapping resources was undertaken to identify the location of any features of potential ecological interest including ponds contained within the Site and up to a distance of 500 m from the boundary (relevant to great crested newts *Triturus cristatus,* as best practice), watercourses (relevant to riparian mammals and crayfish for example) and connectivity to woodland, scrub, and hedgerow networks (relevant to bats and dormice, for example) in the wider landscape around the Site. The connectivity of the Site to these features, buildings and other semi-natural habitats are also relevant to species such as bats, great crested newts and reptiles.

11.3.5 The MAGIC website resource[17] was used to identify the location of designated sites for nature conservation and European Protected Species (EPS) licences granted in relation to the Site.

Habitat Survey

11.3.6 An extended Site walkover survey was undertaken in the week commencing 13th June 2022, during which the habitats contained within the Site were described and evaluated in accordance with standard UK Habitat Classification (UKHab)[18]. The dominant species and indicators of important habitat types, such as ancient woodland or unimproved grassland, were recorded and the condition of the habitats was evaluated according to the Biodiversity Metric 4.0 Habitat Condition Assessment sheets provided by Natural England[19] in line with Natural England guidance[20].

11.3.7 UKHab survey presents a standardised system for classifying and mapping wildlife habitats in all parts of Great Britain, including urban areas. The aim of the survey is to provide, relatively rapidly, a record of the vegetation and wildlife habitats present over large areas of countryside. The habitat classification is based principally on vegetation, augmented by reference to topographic and substrate features, particularly where vegetation is not the dominant component of the habitat.

11.3.8 The results of the survey have been presented as a map showing the distribution of habitat categories across the Site, provided in the accompanying EcIA (**ES Volume 4, Appendix G1**). Target notes have been used to describe specific features of biodiversity interest and record indicator species where appropriate. In

[17] (www.magic.gov.uk)

[18] UKHab, *The UK Habitat Classification – Habitat Definitions Version 1.1* (September 2020).

[19] https://publications.naturalengland.org.uk/publication/6049804846366720

[20] *The Biodiversity Metric 4.9, User Guide*. Natural England (March 2023)

addition to this, notable habitats, such as habitats listed under the NERC Act, 2006 are highlighted.

11.3.9 The UKHab methodology is a recognised tool for initial scoping of potential ecological constraints and opportunities, and for identifying potential effects of the Proposed Development as part of the planning application process. As part of the Preliminary Ecological Appraisal, the Site features were evaluated for their potential to support legally protected species and observations of any important plant communities, bird assemblages or other potentially valuable ecological features were recorded. Details of the preliminary survey methods for each legally protected species are given below, along with any specific limitations to the survey(s), such as access constraints.

11.3.10 Details of the survey methods for each legally protected species deemed to have the potential to be present (following the initial site appraisal and desktop assessment) are provided below and all figures relevant to these assessment methods are presented in **ES Volume 4, Appendix G1**.

Badgers

11.3.11 Badgers tend to live in family groups with clearly defined territories with the main sett, used throughout the year, as a focal point. The territory often also contains a number of 'annex', 'subsidiary' and outlier setts that are used intermittently. Badgers can exist in a variety of habitats, but a mixed farmland landscape containing pasture and arable land, studded with woodland, scrub and hedgerows support the highest population density.

11.3.12 A comprehensive badger walkover survey of the Site was undertaken in April 2022, covering all field parcels, woodlands and boundary features. Special attention was paid to boundary features such as hedgerows, woodland edge, earth banks, and fence-lines, where signs of badger activity are often concentrated. Surveyors searched for badger setts, latrines, foraging marks, footprints and worn pathways, and trapped hairs on fences and any other evidence of badger activity.

11.3.13 Any setts identified were subject to on-going monitoring during other survey visits to determine the type of sett and current occupation by badgers. Where necessary, motion sensitive cameras 'trail cams, or other non-intrusive methods (e.g. laying soft damp sand, placing dead leaves or straw or sticky hair traps at entrances) were used to confirm occupation by badgers. This survey methodology is in accordance with Harris, et al (1989)[21], which is considered to be industry best practice.

[21] Harris, S, Cresswell, P. and Jefferies, D. (1989) *Surveying Badgers*. Mammal Society.

Bats

11.3.14 There are 18 species of bat resident in the UK, each with their own specific habitat requirements. Bats can use a wide range of features for roosting purposes including loft spaces, cavity walls, loose tiles, mortice joints and cracks / gaps in a variety of built structures. They can also be found in trees with holes, splits, cracks, cavities, ivy and loose bark. Bats are generally active at night and utilise a wide range of habitats for foraging and commuting between roost sites, hibernation sites and foraging habitats. Linear features such as hedgerows, woodland edges, even fences can be important for navigation between roosting and foraging habitats.

Natural Roost Features - Trees

11.3.15 All trees likely to be affected directly by the Proposed Development (as identified in **ES Volume 4, Appendix G1**) were subject to a ground-based visual inspection to identify potential roost features, followed by climbing inspections, where necessary and safe, to look for evidence of roosting bats and to further assess the suitability of the feature. This included an additional climbed survey of any roost features suitable for hibernating bats in February 2023. Each tree / feature was categorised for its potential to support roosting bats as shown in **Table 11.1** in accordance with best practice guidance produced by the Bat Conservation Trust[22].

11.3.16 Where trees could not be safely climbed, they were subject to emergence surveys utilising night-vision aids to aid the detection of bats.

Table 11.1: Characterising potential roost features in trees

Category	Description
High	Trees with one or more potential roost sites that appear suitable for large numbers of bats or use as maternity or hibernation roosts.
Medium	A tree with one or more potential roost sites that could be used by bats due to their size, conditions and surrounding habitat, but unlikely to support a roost of high conservation status such as a maternity or hibernation roost.
Low	A tree of sufficient size to potentially support roosting features, but with none seen from the ground or features identified of limited roosting potential.
Negligible	A tree with negligible roosting habitat features likely to be used by bats.

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

Built Structures

11.3.17 A detailed ground based visual assessment was carried out on all buildings at the centre of the Site (though excluded from the redline boundary), including Building 1 'The Barn' and Building 2 'Old Place', looking for features with potential to support roosting bats (e.g. gaps under tiles, soffits, cracks or gaps in brickwork and cladding) and any evidence indicating the presence of bats, such as rub marks, staining or droppings beneath potential roost features. Where possible and safely accessible, internal inspections of potentially suitable enclosed loft spaces were made to search for evidence of use by bats (live bats, dead bats, droppings, rub marks or staining of timbers). An additional survey of the cellar associated with Building 2 was carried out in February 2023 to check for any signs of hibernating bats.

Emergence / Re-entry surveys

11.3.18 In accordance with survey findings and best practice guidance, three emergence / re-entry surveys were undertaken between August and September 2022, covering all buildings assessed as having high potential to support roosting bats. The surveys were carried out using methodology provided by the Bat Conservation Trust.

11.3.19 The surveys focused on all features identified during the initial assessment as potential roosting sites or access points for bats, with surveyors positioned according to **Figure 3**, presented in **ES Volume 4, Appendix G1**. From these locations, surveyors could see all features potentially suitable for roosting bats that were identified during the initial bat scoping survey. Surveyors were positioned to start surveillance at approximately 30 minutes before sunset and continued until at least one and a half hours after sunset and up to 2 hours, depending on the level of activity.

11.3.20 The surveyors recorded any bat activity on or around the potential roosting entry / exit features. All surveys were undertaken during weather conditions suitable for bat activity and at ambient temperatures above 10°C. The surveyors recorded bat activity using 'Echo Meter Touch' bat detectors featuring auto-identification of bat species and automatically triggered recording for later review.

Bat Activity Surveys - Walked Transects

11.3.21 Bat activity surveys followed best practice guidelines produced by the Bat Conservation Trust. Pre-determined transect routes (as shown in **Figure 4**, presented in **ES Volume 4, Appendix G1**) were followed by surveyors, focussing on all linear features within the Site boundary (tree-lines, woodland edge and hedgerows). The northern route included the north-east corner for the months April–June but due to challenging access conditions along this route and as this part of the Site will not be adversely impacted by the Proposed Development, it

was not included within the last surveys (July–September). The transect routes were walked at a slow pace during the period from sunset to two hours after sunset by a team of surveyors, such that each part of the route was passed approximately every twenty minutes. All surveys were undertaken during weather conditions suitable for bat activity and at ambient temperatures above 10°C. The surveyors recorded bat activity using 'Echo Meter Touch' bat detectors featuring auto-identification of bat species and automatically triggered recording for later review. The locations of all bat 'registrations' was recorded onto a field map during the survey to correspond with all sound recordings.

Bat Activity Static - Automated Bat Detecting

11.3.22 Six Song Meter Mini static bat detectors were deployed across the Site (as illustrated in **ES Volume 4, Appendix G1, Figure 4**) on six separate occasions, once a month between April and September 2022, and left in the field for a minimum of five days – the expected maximum lifetime of the battery. Static bat detectors comprise a passive recording device with real-time full-spectrum calls that can be viewed in detail once downloaded on analysis software, allowing accurate identification of most bat calls to species level (or genus level, in the case of *Myotis* and *Plecotus* spp.).

11.3.23 The walked transect and static bat detector ('bat logger') survey methods complement each other, with the transect surveys providing information on foraging and commuting patterns, and distribution across the Site; and automated static detector surveys giving more prolonged coverage through consecutive nights, thus increasing the likelihood of detecting scarce species.

Bat Activity surveys - Trapping and Radiotracking

11.3.24 Temple Group Ltd carried out trapping and radiotracking at the Site in 2022. A separate report produced by Temple[23] has been included in **ES Volume 4, Appendix G2** and the findings from the Temple report have been considered in the EcIA process.

Breeding Birds

11.3.25 The methods used for the breeding bird survey followed the methodology developed by the Bird Survey and Assessment Steering Group (RSK Biocensus)[24]. This methodology requires six visits spread evenly between late-March and early-July. Any deviation from this number should be justified. Each survey commenced

[23] Temple (2023) Bat Trapping and Radiotracking Report, Greater Ansty New Village

[24] https://birdsurveyguidelines.org/methods/survey-method/

between 30 minutes before and 30 minutes after sunrise and concluded before mid-morning (10 am). One of the visits was undertaken in the evening, extending past sunset. All bird surveys were only undertaken during favourable weather conditions for bird activity, with periods of persistent or heavy rain, high winds or fog avoided.

11.3.26 A pre-determined transect (as shown in **ES Volume 4, Appendix G1, Figure 5**) was walked on each visit, during which the observer recorded all birds encountered. As recommended in the guidelines, the transect route was walked at a constant slow pace by a competent bird surveyor, stopping to check any priority habitat / features and causing minimum disturbance, recording all birds detected either by sight or calls / song. Notes regarding the behaviour of birds identified were made to determine their breeding status. Birds were said to be 'confirmed as breeding' if they were observed carrying nesting material, food or faecal pellets; or if nests, eggs, or recently fledged young were discovered. Birds were recorded as 'likely breeding' if observed singing or displaying, repeatedly visiting the same locations, and showing agitated or distraction behaviour. Each bird 'registration' was recorded on a field map of the survey Site using standard British Trust for Ornithology (BTO) Common Birds Census (CBC) notation[25], which includes behaviours and flight movements – new standards. A note was also made of the start and end time, sunrise / sunset time, temperature, wind (Beaufort scale) and precipitation levels.

Common Dormouse

11.3.27 Common dormice are typically associated with broadleaved woodland habitat, hedgerows and scrub. They tend to occur at low density and good habitat connectivity is important. Common dormice need a constant supply of food throughout the active season over a large home range. A diversity of tree and shrub species will provide a range of fruit, nuts and insects. They hibernate during the winter – typically at ground level amongst leaf litter and mosses protected by coppice stools, tree stumps or piles of brash wood.

Nest Tube / Box Survey

11.3.28 Dormouse surveys are undertaken by attaching purpose built 'nest tubes' on trees and shrubs in suitable habitat such as woodland, scrub and hedgerows. Nest tubes are used by dormice as places of shelter, and they will often construct their nests within them during their periods of activity (typically between April and

[25] https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf

November). In accordance with current best practice guidelines[26], 400 nest tubes were deployed approximately 20 m apart in suitable habitat across the Site, including woodland, hedgerows and scrub, in April 2022 and left in situ for the survey season (see **ES Volume 4, Appendix G1, Figure 6**). These were checked on a monthly basis for presence of animals and evidence of dormouse presence (distinctively woven nests) from May to September 2022. Since the likelihood of use by dormice varies through the year, an index of probability score was used to determine confidence in a particular survey (refer to **Table 11.2** below) comprising checks over several months. A minimum score of 20 is normally accepted to establish 'likely absence' in the event that no signs of dormice are found during the survey.

11.3.29 Dormice checks were undertaken in the mornings and commenced one month after the nest-tubes were positioned. Surveys were undertaken under the supervision of licensed surveyor, Kate Lewis, dormouse survey Class 1 licence holder.

Table 11.2: Search effort score for each month that dormouse tubes are out on the Site and subject to surveys

Month of check	Index of probability
April	1
May	4
June	2
July	2
August	5
September	7
October	2
November	2

11.3.30 Monthly checks between May and September across 2022 results in a score of 21 and therefore exceeds the score required for a sufficient survey effort according to best practice[26]

Great Crested Newts and Other Amphibians

11.3.31 Great crested newts require ponds for breeding that meet a series of habitat criteria including good quality water, aquatic plants and an absence of predatory fish. The ponds must have good connectivity to semi-natural terrestrial habitats that provide their invertebrate food sources and suitable safe places to rest and

[26] Bright, B., Morris, P., Mitchell-Jones, A.J. and Mitchell-Jones, T (1997) *The Dormouse Conservation Handbook*. English Nature.

hibernate outside the breeding season. Great crested newts tend to occur more frequently in areas of high pond density across the landscape in 'metapopulations' where habitat occupancy ebbs and flows according to changes in conditions.

11.3.32 Common toad *Bufo bufo* are a priority species in England under Biodiversity 2020: A strategy for England's wildlife and ecosystem services and under section 41 of The NERC Act 2006, where UKBAP species were recognised as of principal importance for the conservation of biodiversity. This species should therefore be considered during planning and development. No surveys have been undertaken at the Site that specifically target common toad, as no such survey methodology has been standardised, however a record has been made if they are found during any other Site visit / survey.

Habitat Suitability Assessment

11.3.33 The Site contains 11 ponds within its boundaries. The desk study revealed a further 21 ponds within a 500 m radius of the Site boundaries (excluding ponds which are separated from the Site by a significant barrier to amphibian movement, such as a major road). **ES Volume 4, Appendix G1, Figure 7** presents the location of the ponds.

11.3.34 Where ponds were visible from public rights of way (PRoWs) or where access permission was granted, they were assessed for their potential to support great crested newts using the Habitat Suitability Index (HSI)[27].

11.3.35 Those ponds contained within the Site or within 250 m of the Site's boundaries and with 'average' or 'above average' suitability for breeding great crested newts, were carried forward for Environmental DNA (eDNA) sampling and / or presence / likely absence surveys.

Environmental DNA Sampling and Analysis

11.3.36 This relatively new technique allows a quick and reliable qualitative measure of the presence / likely absence of great crested newts. It involves collection of water samples from a pond, using a standard protocol set out by Natural England[28]. The samples are sent to an approved laboratory to isolate and determine presence of environmental DNA (eDNA) shed into the water by amphibians during the breeding season. Samples for eDNA analyses were taken from ponds 1, 3, 4, 13, 20

[27] Oldham, R. S., Keeble, J., Swan, M. J. S. and Jeffcote, M. (2000) Evaluating the suitability of habitat for the great crested newt (Triturus cristatus). Herpetological Journal, 10, 143 - 155.

[28] Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. *Analytical and methodological development for improved surveillance of the Great Crested Newt.* Defra Project WC1067. Freshwater Habitats Trust: Oxford.

and 32 on 20th April 2022. All six ponds returned a negative result for great crested newt DNA and no further surveys were carried out.

Field Survey

11.3.37 Ponds 6, 7, 8 and 9 were carried forward for further surveys, as these ponds were already understood to have a high potential to support great crested newts. The survey methodology followed standard guidance for great crested newts[29]. Six survey visits were undertaken using a combination of bottle-trapping, torchlight searching and egg searching during each survey visit; ponds 8 and 9 had dried up after two survey visits and surveys were discontinued. All surveys were undertaken during weather conditions suitable for great crested newts – above the minimum temperature of 5°C – and at least three of the survey visits were undertaken during the 'peak activity period' for breeding great crested newts (i.e. between 15th April and 15th May). Weather conditions, temperature and pond turbidity was recorded during each survey visit.

Reptiles

11.3.38 The common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis* grass snake *Natrix natrix* and adder *Vipera berus* are widespread species that can be found in many semi-natural habitats, such as rough grassland, scrub, heathland and open woodland where there is good vegetation cover, an abundance of invertebrate, amphibian or small mammal prey and areas of open ground for basking.

11.3.39 Standard reptile presence / likely absence surveys involve setting out artificial refugia (reptile 'mats' or 'tins') in potentially suitable habitat. Reptile mats are pieces of roofing bitumen felt, corrugated onduline or carpet tiles, and reptile tins are pieces of corrugated metal sheet, all of which are approximately 1 m x 0.5 m in size. These refugia absorb heat from the sun more rapidly than the surrounding vegetation and provide cover and basking places attractive to reptiles. They are placed in areas of potentially suitable habitat at an approximate density of 20 per ha, or 20 m apart along linear features, and are then checked for presence of animals under suitable weather conditions. There are no up-to-date best practice guidelines for reptile surveys, but a minimum of seven survey visits under suitable weather conditions is generally considered to be adequate when determining their presence/likely absence, and 15–20 visits are used to calculate a 'peak count' for population size class assessment.

11.3.40 A total of 400 roofing felt mats were used in this survey (see **ES Volume 4, Appendix G1, Figure 8**). The mats were left *in situ* for a minimum of one week to

[29] English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

'bed in' and allow reptiles to locate them before the first check. The mats were checked at least seven times over the period May to September 2022 and all observations of reptiles were recorded, together with the weather conditions, temperature and time of day. The location of the mats may have changed slightly from initial setup due to surveyors moving the mat to a better location (e.g. more sun) or the mats may have been replaced following damage.

Riparian Wildlife

11.3.41 Watercourses and waterbodies can support a range of protected species, principally otter, water vole *Arvicola amphibius* and white-clawed crayfish *Austropotamobius pallipes* together with important fisheries and invertebrate assemblages.

11.3.42 Copyhold Stream runs through the northern half of the Site and along the eastern boundary. A small tributary from the stream runs through the southern half of the Site. Two walked surveys along the stream were carried out on 22nd April and 30th June 2022, looking for signs of crayfish, otter and water vole, including feeding remains, latrines and scat.

11.3.43 Baseline aquatic invertebrate surveys were undertaken on the Copyhold Stream. A standardised kick sample was taken both upstream and downstream from the existing confluence of the Cuckfield Sewage Treatment Works, and another sample from the small tributary that passes through the southern part of the Site. These were sorted on the bankside and voucher specimens taken for later identification in a laboratory.

Other Notable Species

11.3.44 The Site's habitats were broadly assessed for their potential to support species of principal importance for nature conservation (Section 41 NERC Act 2006) and other notable species. This includes mammals such as harvest mouse *Micromys minutus*, hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus*, and many bird species. The Site was broadly assessed for its potential to support important invertebrate assemblages, with specific attention paid to features such as standing dead-wood, wet flushes, bare earth banks and botanically rich areas.

Invasive species

11.3.45 No specific surveys for invasive non-native species (INNS) were undertaken, as invasive plants would have been recorded during the UKHab survey and the diversity of invasive mammals, amphibians, reptiles and invertebrates would make it impossible to proceed with a detailed assessment. However, the presence of any invasive non-native species encountered during other fieldwork, was recorded.

Beechy Bottom Parkland Reserve Site

11.3.46 An ecological appraisal of the 'Beechy Bottom Parkland Reserve Site' has been completed by Ecologic Consultants LLP[30]. This has been informed by a suite of surveys designed to determine both the impacts from the proposal to establish greater public access, but also focus on determining opportunities for biodiversity enhancement and the targeting of opportunities to benefit protected and notable habitats and species.

Desk Study

11.3.47 A desk study was undertaken to include a search of the MAGIC resource for priority habitats within 1 km of the Parkland Reserve Site, statutory sites designated for nature conservation and European designated sites (now referred to as the UK's National Site Network) and for any European Protected Species licences in the surrounding area. Biodiversity records were also obtained from the Sussex Biodiversity Records Centre within a 1 km radius of the Parkland Reserve Site.

Field survey

11.3.48 Field surveys were undertaken on the 6th and 7th June 2023 by Ecologic, with habitats mapped according to UKHab methodology[31] and an assessment was conducted to establish the suitability of the Parkland Reserve Site to support a range of protected or rare habitats or species.

Protected and notable species surveys

11.3.49 Baseline surveys were undertaken by Ecologic, much of which has followed the same process as for the Site and to save duplication, this is stated where appropriate. Surveys at the Parkland Reserve have in some instances utilised a reduced survey effort that is more suited to future monitoring than for impact assessment, given the proposals for this site are designed for biodiversity enhancement. The protected and notable species surveys undertaken at the Parkland Reserve Site are as follows:

- Badger survey – a search for field signs and setts utilising the same methodology as for the Site.

[30] Ecological Impact Assessment – Beechy Bottom Parkland Reserve. Ecologic Consultant Ecologistd LLP (2023)

[31] UKHab, *The UK Habitat Classification – Habitat Definitions Version 1.1* (September 2020).

- Bat roost assessment of trees – an assessment of the suitability of trees to support roosting bats was undertaken according to best practice guidance[32] according to the same methodology as for the site, though no tree climbing assessments were undertaken.
- Great crested newts – an HSI and eDNA assessment was undertaken for all waterbodies situated on the Parkland Reserve Site and within 500 m of the Parkland Reserve Site boundary according to the same methodology as for the Site.
- Bat activity survey – three walked transect surveys and three static logger deployments were undertaken across 2023 in line with best practice and according to the same methodology as for the Site, though utilising a reduced survey effort.
- Breeding bird survey – four survey visits were carried out across April, May and June 2023 in line with BTO methodology, with a walked transect covering the entire Parkland Reserve Site. This differs from the six survey methodology followed for the application site that is tailored for impact assessment, however the data gathering process is the same.
- Dormouse survey – A nest tube survey was undertaken according to best practice[33], with 100 nest tubes deployed across the site in April 2023 and subsequent monthly checks undertaken May to September. This mirrors the methodology used at the Site, though a reduced survey effort was incorporated (with 100 nest tubes used instead of 400).
- Reptile survey – An artificial and natural refugia survey was undertaken, with 200 artificial refugia distributed across the Parkland Reserve Site on the 17th April 2023 and 7 subsequent survey visits were undertaken between May and June 2023 according to the same methodology as the Site.
- Otter and water vole survey – Riparian habitats were searched for field signs of otters through walked assessments of both banks of watercourses present, including accessible areas 100 m upstream and downstream of the Parkland Reserve Site.
- Freshwater invertebrates – sampling of aquatic flora and fauna was undertaken of ponds at the Parkland Reserve Site on the 12th July 2023 and followed the

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

[33] Bright, B., Morris, P., Mitchell-Jones, A.J. and Mitchell-Jones, T (1997) *The Dormouse Conservation Handbook*. English Nature.

Predictive System for Multimetrics (PSYM) method developed by the Freshwater Habitats Trust[34].

Prediction Methodology

11.3.50 The identification of the zone of influence for this impact assessment, the weighting for the importance of ecological features, the evaluation of ecological impacts and categorisation of significant effects have followed CIEEM guidelines[35]. Professional judgment has been applied to interpret all identified impacts and their effects at an appropriate geographic scale, degree of certainty and permanence.

11.3.51 The CIEEM criteria has then been translated to an effect that corelates with the scale of negligible, minor, moderate and major (and significant/not significant) to align with standard EIA terminology as presented within in **Volume 2, Chapter 3: EIA Methodology**.

11.3.52 Major and moderate adverse or beneficial effects are considered to be 'significant' and minor and negligible adverse or beneficial effects are considered to be 'not significant'. This methodology is used in order to allow the results of the assessment of effects on biodiversity to be integrated into the wider EIA without compromising the CIEEM best practice approach.

11.3.53 Within CIEEM EcIA Guidelines, the importance of ecological features is defined as set out in **Table 11.3** below and this importance is used to establish the baseline value of habitat and species 'receptors' at the site prior to determining the significance of impacts (positive or negative) resulting from a proposal. Impact are further identified and described under CIEEM guidelines as follows:

- *adverse or positive* – does the impact result in the loss or gain in biodiversity/quality of the environment?
- *extent, magnitude* – the spatial area over which the impact may occur, the area of habitat lost, or the number of individuals/populations affected;
- *timing* – in relation to the life cycle of the ecological feature (e.g. nesting bird season)
- *duration, frequency* – is the impact temporary or permanent, frequently repeated or a one-off event?

[34] PSYM Manual, December 2002 - https://freshwaterhabitats.b-cdn.net/app/uploads/2023/05/PSYM-MANUAL-AUG-2019.pdf

[35] CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester.

- *reversibility* – is the impact temporary or permanent? Would the ecological feature recover after the impact?
- *cumulative impacts* – in combination with other plans/projects.

11.3.54 It should be noted that for residential development, impacts here are assumed to be permanent and irreversible unless stated otherwise. Some impacts can be temporary and reversible (such as the creation of construction set-down areas), however it is not possible to define this at an outline stage of planning.

Table 11.3: Search effort score for each month that dormouse tubes are out on the Site and subject to surveys

Level of importance	Criteria
International	Internationally designated site; Special Protected Area (SPA), Special Areas of Conservation (SAC), Ramsar, Biosphere Reserves; Regularly occurring population of internationally important species listed in Annex 1, 2 or 4 of the Habitats Directive and Annex 1 of the Birds Directive; A viable area of a habitat listed in Annex 1 of the Habitats Directive or area important for maintaining viability listed as in Annex 1 of the Habitats Directive Areas outside designated sites that are important for supporting and maintaining the viability of the above designated habitats and/or species.
National	Nationally designated sites; Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Local Nature Reserves (LNR). A sufficiently large population of a species or area of habitat listed as a priority for nature conservation (S41 NERC Act) to make a significant contribution to the national conservation status (e.g. greater than 1% of the national total). A viable or regularly occurring population of a species that is nationally scarce, threatened or declining on a national scale. A habitat type that is nationally scarce, threatened or declining on a national scale.
Regional	A habitat type that is scarce, threatened or declining on a regional scale. A sufficiently large population of a species or area of habitat listed as a priority for nature conservation (S41 NERC Act) to make a significant contribution to the regional conservation status (e.g. greater than 1% of the national total).

Level of importance	Criteria
County	Locally designated sites; Local Wildlife Sites (LWSs), Sites of Nature Conservation (SNCIs) and Site of Importance for Nature conservation (SINCs). A sufficiently large population of a species or area of habitat listed as a priority for nature conservation (S41 NERC Act) to make a significant contribution to the conservation status of the species at county level (e.g. greater than 10% of the county total). A viable or regularly occurring population of a species that is rare in the county, but may be common and widespread elsewhere, For example, a population at the edge of a species' range. A habitat type that is scarce in a county but may be more frequent elsewhere.
Local/parish	Habitats and species which are scarce in the local area but are sufficiently common and widespread elsewhere that they do not meet the above criteria.
Site/negligible	Habitats with little to no ecological value (e.g. amenity grassland and hardstanding)

Limitations and Assumptions

11.3.55 Surveys record any flora or fauna that is present at the time of the survey visits. It is, therefore, possible that some species may not have been present during the surveys but may be evident at other times of the year and may appear or disappear from the Site or Parkland Reserve Site if habitat conditions change. For this reason, the surveys are considered valid for up to eighteen months for badgers and bats, two years for reptiles and three years for great crested newts and dormice. If the habitat conditions change significantly in the intervening period, then it is recommended that the surveys be updated.

11.4 Scoping and Consultation

11.4.1 A formal EIA Scoping Request was not undertaken; however, the Sussex Biodiversity Record Centre (SxBRC) was consulted to obtain all available data for protected and notable species, habitats and both statutory and non-statutory designated sites within 2 km of the Site. The subsequent surveys undertaken to inform the Ecological Impact Assessment were determined by the senior team at The Ecology Co-op in consideration of the desktop information gathered and the initial

11.5 Baseline Assessment and Identification of Key Receptors

Designated Sites

11.5.1 The Site lies on the border of the High Weald Area of Outstanding Natural Beauty (AONB) and is 1.3 km west of Blunts and Paiges Wood Local Nature Reserve (LNR) and 1.6 km west of Ashenground and Bolnore Woods LNR. There are no European sites (such as Special Protection Areas) situated within 10 km of the Site and as such, the need for a Habitat Regulations Assessment has been scoped out as there are no potential significant effects arising from the development proposal upon these sites.

11.5.2 Within 2 km of the Site, there are five Local Wildlife Sites and three designated verges, including Great Wood & Copyhold Hanger Local Wildlife Site (LWS) which lies immediately adjacent to the south-east boundary. No other statutory designated sites for nature conservation are found within 2 km. **ES Volume 4, Appendix G2 (Table 3 and Figure 1)** provides more details. Table 11.4 below provides details for designated sites found within 2km of the site.

11.5.3 The Site contains approximately 7.3 ha of Ancient Woodland and 16.3 ha of Priority Woodland and is well connected to similar habitat within the surrounding area (refer to **ES Volume 4, Appendix G2, Figure 2**).

11.5.4 There is one granted EPS license for mitigation projects within 1 km of the Site boundary, concerning the destruction of a resting place for brown long-eared bats *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* 800 m south-west of the Site boundary (refer to **ES Volume 4, Appendix G2, Figure 3**).

Table 11.4: Designated sites within 2 km of the Site

Site name	Designation	Features listed on citation	Proximity	Ecological importance
Statutory Designated Sites				
Ashenground and Bolnore Woods	Local Nature Reserve (LNR)	Ashenground and Bolnore Woods LNR is a small area of ancient woodland in Haywards Heath. The woodland comprises of relic stands of hornbeam *Carpinus betulus*, hazel *Corylus avellana* and ash Fraxinus excelsior coppice along with oak *Quercus* sp., mature beech *Fagus sylvatica* and field maple *Acer campestre*. The woodland provides suitable	1.3 km north-east	National

Site name	Designation	Features listed on citation	Proximity	Ecological importance
		habitat and food source for a range of birds with blackthorn *Prunus spinosa*, rowan *Sorbus aucuparia*, and goat willow *Salix caprea* providing insect prey.		
Blunts and Paiges Wood	LNR & Local Wildlife Site (LWS)	This LNR is 28.9 hectares in size and habitats include hazel coppice, mixed coppice, birch *Betula* sp. woodland, bluebell *Hyacinthoides non-scripta* woodland, meadow, grassland, pond, hedgerows and wetland area. The reserve was extended to include several meadows in June 2003.	1.6 km east	National
Non-statutory Designated Sites				
Great Wood & Copyhold Hanger	LWS	This site consists mostly of a wooded ghyll valley which is ancient in origin, and several old abandoned water meadows. The ground flora is generally quite species rich and well developed, becoming increasingly so nearer the streams. The site also has particularly good fern and bryophyte communities.	Adjacent to south-east boundary	County
Pond Lye	LWS	This site includes a pond with extensive areas of sedge swamp around the margins and a species-rich neutral grassland. Several locally uncommon plants are found in the meadow. The pond is of importance, for its breeding birds.	1.1 km north-east	County
Catt's Wood Complex & Meadows	LWS	This large block of woodland lies on the edge of Haywards Heath. Most of it is ancient, though only the north-east of Catt's Wood (known as Ashenground) appears to	1.7 km south-east	County

Site name	Designation	Features listed on citation	Proximity	Ecological importance
		be ancient semi-natural woodland. The complex has a rich and varied ground flora. Several ungrazed meadows, just north of the woodland, are of botanical importance.		
The Hanger	LWS	Two main types of wood are present within this gill woodland site. Alder occurs along the streams and extends up the lower slopes in parts, with oak, hazel and ash on the upper slopes and the flat ground above. The wood supports a wide range of woodland plants, mosses and liverworts, a good bird community and several uncommon butterflies.	1.9 km north-west	County

The Parkland Reserve Site

11.5.5 As the Parkland Reserve Site lies immediately northwest of the Site, it is in a similar proximity to all of the aforementioned statutory designated sites. It does however lie notably closer to The Hanger LWS; situated 900 m to the west, whilst all other designated sites lie further away.

Habitats

11.5.6 The Site comprises mostly of arable fields, with multiple parcels of woodland and tall grassland. The fields are separated by hedgerows which, for the most part, are native species-rich and provide high value green corridor habitat throughout the Site. An overview of the individual habitats is provided in **Table 11.5** below. **ES Volume 4, Appendix G1, Figure 4** presents a habitat map of the Site and **ES Volume 4, Appendix G3** presents corresponding photographs. Common names are used for botanical species within this report, with the scientific name provided in **ES Volume 4, Appendix G2**.

Table 11.5: The habitats contained within the Site.

Habitat type	UKHab Code	Area/ length	Species composition	Ecological importance
Area (polygon)				

Habitat type	UKHab Code	Area/ length	Species composition	Ecological importance
Arable and horticulture	c1	47.6 ha	Most of the Site comprises arable fields, sown with rye grass, barley and broad bean.	Site
Arable field margins	c1a	4.5 ha	See paragraph 11.5.17.	Local
Other neutral grassland	g3c	7.8 ha	See paragraphs 11.5.19-11.5.20.	Site
Arrhenatherum neutral grassland	g3c5	5.1 ha	A few of the fields are dominated by false oat-grass and are likely harvested for hay / silage.	Site
Modified grassland	g4	8.1 ha	See paragraph 11.5.22.	Site
Lowland mixed deciduous woodland	w1f	17.8 ha	See table 11.6.	District
Other woodland – broadleaved	w1g	4.9 ha	See table 11.6.	Local
Other coniferous woodland	w2c	0.7 ha	See table 11.6.	Local
Rivers and lakes – pond	r	0.2 ha	See paragraphs 11.5.64 – 11.5.67.	Local
Built up areas and gardens	u1	1.3 ha	There are two houses, with associated residential gardens, at the centre of the Site, but positioned outside of the red line boundary. The gardens comprise close mown lawns, manicured hedgerows and a mix of native and ornamental trees and shrubs.	Negligible
Linear (line)				
Hedgerow (non-priority)	h2	0.2 km	A species poor, damaged hedgerow forms the south-eastern boundary of the Site. The hedgerow is dominated by bramble and bracken with occasional trees, including elder and sycamore.	Local
Hedgerow (priority)	h2a	6.9 km	Most of the hedgerows on-site are native species-rich hedgerow with trees, and are largely minimally managed,	Local

Habitat type	UKHab Code	Area/ length	Species composition	Ecological importance
			providing high value habitat for wildlife. Species recorded include field maple, oak, blackthorn, sycamore, hawthorn, hazel, dogwood, elder, holly, ash, bramble, rose, bracken, honeysuckle. The hedgerow at the centre of the Site also contains wild service tree and spindle. The hedgerow along the western boundary of the Site has frequent mature trees, with similar composition but with the addition of horse chestnut, beech and common lime.	
Line of trees	w1gc	0.09 km	There is a line of oak trees bordering a horse paddock within the south-east section of the Site.	Local
Canal or ditch - Stream	r1e	2.7 km	The Copyhold Stream includes a confluence point with the largest of the two tributaries flowing ono the site from the west across the A272 and a second small stream flowing southwards past the wastewater treatment works, which augment the flow. The watercourse runs southwards past the eastern boundary of the site after this confluence point and has steep clay banks with a stony bottom comprising a mixture of shallow faster flowing sections and deeper pools.	District
Built linear feature – sealed surface	u1e	1.15 km	A hardcore track bisects the Site, providing access to a residential property along the eastern boundary.	Negligible

The Parkland Reserve Site

11.5.7 The Parkland Reserve Site comprises largely of a mixture of woodland (both plantation and semi-natural) and a mixture of species-poor and medium

distinctiveness value neutral grassland swards. A full list of habitats recorded at the Parkland Reserve Site according to UKHab codes is provided in **Table 11.6** below.

Table 11.6: The habitats contained within the Parkland Reserve Site.

Habitat type	UKHab Code	Area/ length	Ecological importance
Area (polygon)			
Grassland – bracken	g1c	0.12 ha	Parkland Reserve Site
Urban – artificial unvegetated, unsealed surface	u1c	0.21 ha	N/A
Urban – developed land; sealed surface	u1b	0.03 ha	N/A
Heathland and shrub – blackthorn scrub	h3a	0.09 ha	Parkland Reserve Site
Heathland and shrub – mixed scrub	h3h	0.09 ha	Parkland Reserve Site
Woodland and forest – wood-pasture and parkland	W (26)	37.49 ha	District
Grassland – other neutral grassland	w2c	1.5 ha	Local
Grassland – modified grassland	g4	13.24 ha	Parkland Reserve Site
Lakes - ponds	u1	0.58 ha	Local
Woodland and forest – lowland mixed deciduous woodland	wf1	18.99 ha	District
Woodland and forest – other woodland; broadleaved	w1g	30.97 ha	Local
Native hedgerow	h2a6	0.57 km	Local
Species-rich native hedgerow with trees	h2a5 (11)	1.28 km	Local

11.5.8 The Parkland Reserve Site includes a mixture of common, low value, habitats including modified grassland (13.24 ha) and areas of dense bracken (0.12 ha), but conversely also supports a large quantity of some high value habitats including lowland mixed deciduous woodland (18.99 ha) and wood pasture and parkland habitat (37.49 ha).

Grassland habitat

11.5.9 Grassland habitats present on the whole, were of poor botanical diversity, including much of the swards within the areas mapped as wood pasture and parkland. The northern end the Parkland Reserve Site includes a rye grass ley and an area of sports pitches, with both parcels representing very low biodiversity value. Grasses dominating the remainder of the Parkland Reserve Site include sweet vernal, perennial rye and common bent, whilst common grassland plants

included creeping buttercup, thyme-leaved speedwell, common ragwort, broad-leaved dock, black medick, dove's foot-cranesbill, curled dock and common hogweed. Species diversity across most sward areas was below 8 species per m², which is typical for more improved grassland habitats.

11.5.10 Some grassland swards of greater diversity were identified, including areas of other neutral grassland found around the verges of the modified grassland areas to the north, though there were no plants of notable interest identified. Further *Lolium-Cynosurus* Neutral grassland was identified to the south of the Parkland Reserve Site that included a mixture of sweet vernal grass, Yorkshire fog, common bent, perennial rye grass and cock's foot. Grassland plants included white clover, creeping buttercup, meadow buttercup, common sorrel, creeping thistle, bird's-foot trefoil, meadow cranesbill and common ragwort. This sward passes the 8 species per m² threshold required to qualify as Other Neutral Grassland (g3c), though no species indicating unimproved or semi-improved characteristics were noted.

Woodland habitat

11.5.11 Lowland mixed deciduous woodland comprising of: ash, oak, field maple, hazel, beech, sycamore, sweet chestnut, horse chestnut and spindle is situated along the western part of the Parkland Reserve Site. The ground flora present included some ancient woodland indicator species, with hard fern, wood sorrel, pendulous sedge, sanicle, dog rose, thin-spiked wood sedge, stinking iris, betony, ivy, bramble, bush vetch, wood sage, hemp agrimony, tormentil, water mint, tufted hairgrass and bracken all identified. Invasive Rhododendron ponticum was identified in the southern part of this woodland. Other semi-natural woodland parcels, smaller in size, extend along the southern boundary of the Parkland Reserve Site and forms a small copse towards the northeast.

11.5.12 Other woodland habitats present comprise largely of plantation woodland, which include a mixture of turkey oak, silver birch, ash, pedunculate oak, poplar sp., sweet chestnut, willow sp., wild cherry and some naturally established hazel and alder. The ground flora within these woodlands was not considered to be of any notable interest. Ash die-back was identified to have extensively affected the areas of ash plantation.

Wood pasture and parkland

11.5.13 A series of parkland trees, particularly within the southern part of the Parkland Reserve Site were identified. This included veteran pedunculate oak and sweet chestnut trees. The veteran sweet chestnut trees in particular were identified to be outstanding specimens and some were classified as ancient trees, with clumps of these trees planted in places as part of a historic parkland feature.

11.5.14 Detailed descriptions of all habitats can be found in **ES Volume 4 Appendix G3**.

Botanical Baseline

11.5.15 As an extension to the UKHab survey, the detailed botanical survey provides a full species list for the habitats present on the Site.

11.5.16 In brief, the grassland (neutral and modified) appears to be subject to little management and is allowed to grow tall and coarse. The arable margins are mostly not of any notable botanical interest, with the exception of two relatively large areas at the centre of the Site. The woodland parcels vary in composition and condition, but some are relatively diverse with an interesting ground flora, including multiple ancient woodland indicators.

Arable Field Margins

11.5.17 Most of the arable fields on-Site have a field margin comprising rough tall herb and grass vegetation, with frequent false oat-grass, cocksfoot, rough meadow-grass, creeping bent, creeping thistle and bristly oxtongue. Occasional or rare amounts of the following species were also recorded: redshank, scarlet pimpernel, hoary plantain, greater plantain, goosefoot sp., creeping buttercup, marsh cudweed, common fleabane, curled dock, tall fescue, dandelion, ragwort, hoary willowherb, sharp-leaved fluellen, round-leaved fluellen, common mouse-ear, scentless mayweed, red clover, oxeye daisy, creeping cinquefoil, field bindweed, self-heal, crested dog's-tail, bird's-foot trefoil, white clover, cut-cleaved cranesbill, thyme-leaved speedwell, germander speedwell, hard rush and smaller cat's-tail. Trailing St John's wort was recorded within the southern margin of the field south-east of the central track and hairy buttercup was recorded in the field margin at the centre of the Site.

11.5.18 There are two notable field margins at the Site; one is an area measuring approximately 0.4 ha, north-west of the central fields, the second is a 40 m wide margin at the centre of the Site. Both have been seeded with a wildflower rich mix, including frequent knapweed, oxeye daisy, creeping thistle and yarrow, occasional white clover, creeping buttercup, bird's-foot trefoil, red fescue, smooth meadow-grass, rough meadow-grass, Yorkshire fog, crested dog's-tail, selfheal and rare amounts of thyme-leaved speedwell, yellow rattle, curled dock, cocksfoot, spear thistle, dandelion, field forget-me-not, ribwort plantain, hoary willowherb, red clover, smaller cat's-tail, smooth tare, hoary plantain, ragwort, lady's bedstraw, greater knapweed, hedge bedstraw, spear thistle and grass vetchling.

Other Neutral Grassland

11.5.19 In the northern fields of the Site, there is tall vegetation, comprising abundant Yorkshire fog, frequent sweet vernal, creeping thistle, common sorrel, white clover, meadow buttercup, occasional ragwort, lesser stitchwort, red clover, cocksfoot, common bent and rare amounts of meadow vetchling, bird's-foot trefoil, meadow

foxtail, rough meadow-grass, hard rush, curled dock, false oatgrass and smooth meadow-grass.

11.5.20 In the south-east corner of the Site, these fields appear to be minimally managed, comprising frequent cocksfoot, red fescue, Yorkshire fog and hairy sedge, occasional rough meadow-grass, sweet vernal grass, meadow foxtail, common bent, creeping cinquefoil, germander speedwell, ragwort, lesser stitchwort, meadow buttercup, creeping buttercup, marsh thistle, yarrow, cleavers, rare amounts of common spotted orchid, curled dock, meadow vetchling, smaller cat's-tail, meadow buttercup, oak and ash saplings and encroaching bramble and bracken.

Modified Grassland

11.5.21 The northern fields of the Site are classified as modified grassland, comprising abundant white clover, frequent meadow buttercup and creeping thistle, occasional Yorkshire fog, creeping buttercup, bird's-foot trefoil, curled dock, sweet vernal, crested dog's-tail and rare amounts of red clover, lesser stitchwort, perennial ryegrass, meadow foxtail and smooth meadow-grass. These fields are cut annually for hay and grazed periodically by cattle.

Arrhenatherum Neutral Grasslands

11.5.22 Several fields in the north-east of the Site, to the south of the sewage works are dominated by false oatgrass with rare amounts of other forb species, recorded within the adjacent neutral grassland, such as creeping buttercup and selfheal.

Woodland

11.5.23 There are multiple parcels of woodland across the Site, including ancient semi-natural, priority habitat deciduous woodland and a mix of broadleaved and conifer plantation woodland. **Figure 11.2** presents a map of the woodland parcels present at the Site and a general description of each woodland parcel is provided in **Table 11.7**, with detailed species composition provided in **ES Volume 4, Appendix G2 (Table 5)** and locations of semi-natural ancient woodland parcels are illustrated in **Figure 11.2.**

Figure 11.2: A map of woodland parcels present at the Site

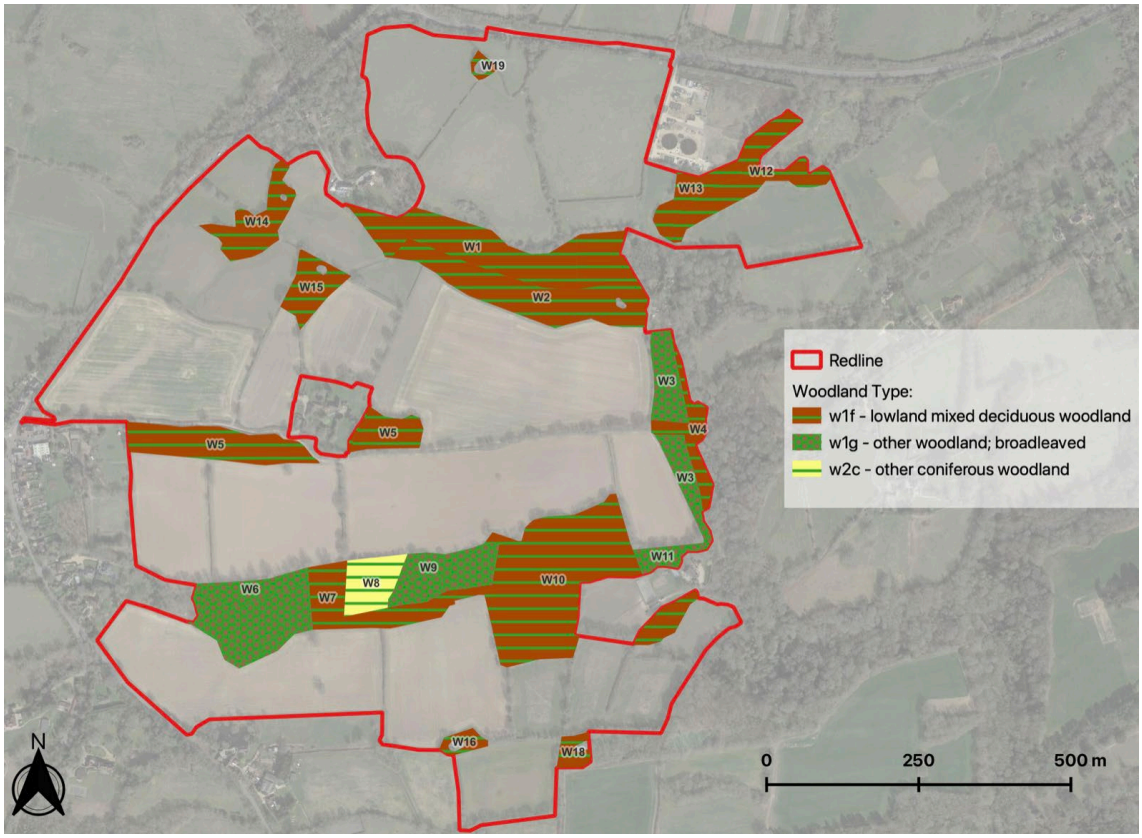

Table 11.7: A general description of the woodland parcels at the Site

Woodland type	Description (number relates to woodland parcel numbering shown on Figure 11.2)
Lowland mixed deciduous woodland	1 & 4: Dense broadleaved woodland with diverse species of trees, shrubs and ground flora. 7: Low botanical diversity to the west, with signs of disturbance, frequent willow and occasional poplar. More diverse along the stream but becomes dominated by bramble to the east. 12: Broadleaved woodland with ancient woodland indicators. 13: Broadleaved woodland of recent origin with evidence of an old Victorian landfill with rubble and glass throughout. Ground flora dominated by common nettles. 14: A small parcel of woodland with a steep bank and a small stream and woodland pond. 15: A small parcel of woodland with dense ground flora in places, including three nerved sandwort and early purple orchid. There is a pond which is surrounded by dense scrub. 16: A small parcel of scrubby woodland surrounding a pond. 17: A small parcel of scrubby woodland adjacent to a horse paddock. 18: A small parcel of woodland with a footpath through it and a large pond to the east. Ground flora around the footpath is

Woodland type	Description (number relates to woodland parcel numbering shown on Figure 11.2)
	dominated by bramble. Frequent wood anemone carpets the woodland around the pond. 19: Dense scrubby woodland surrounding a pond.
Other woodland – broadleaved Ash plantation	2: Less diverse than the adjacent broadleaved woodland and dominated by semi-mature ash planted in distinct rows. 5: Approx. 30yrs of age ash plantation, with ash dieback frequent. A small area in the central parcel is dominated by oak. 9: Old ash plantation with some interesting ground flora. Bramble frequent. Alder along the stream.
Other woodland – broadleaved Chestnut coppice	3: Sweet chestnut plantation with dense leaf litter and scattered sparce ground flora.
Other woodland – broadleaved Hybrid poplar plantation	6: Hybrid poplar plantation with alder understory and dense leaf litter.
Other coniferous woodland – Larch plantation	8: Larch plantation.
Other woodland – broadleaved Hazel coppice	10: Recent coppicing management evident. Open areas and dense bluebells.
Lowland mixed deciduous woodland – Laurel and rhododendron	11: Woodland shrub layer is dominated by Invasive Non-native Species (INNS).

11.5.24 Overall, the value of the habitats present at the site are considered to be of district importance, with the semi-natural broadleaf woodland present representing the most valuable habitat present as summarised in **Table 11.5**.

Badgers

11.5.25 Due to the sensitive nature of information pertaining to badgers, this section should be omitted / redacted from the report prior to release into the public domain.

Survey Results

11.5.26 Two active setts have been confirmed within the Site, identified through the use of camera traps (refer to **ES Volume 4, Appendix G2, Photograph 1**). One sett, within the north-eastern parcel of woodland (W12), comprised of seven active entrances (with recent signs of digging and/or bedding recorded) and was

confirmed as active throughout the 2022 survey season, confirming the classification as a 'main sett'. The sett within the western parcel of woodland (W14) was discovered late in the survey season and only comprised one entrance that appeared active at the time. This sett is likely an outlier sett.

11.5.27 Numerous mammal runs have been recorded throughout the Site, along with multiple badger latrines, indicating that badgers frequently use the entire Site for foraging and commuting.

11.5.28 It should be noted that the exact location of the badger setts is confidential and will be submitted to MSDC directly, upon request.

Pre-existing Records

11.5.29 Records of badgers are not provided by the records centre, due to the sensitive nature of this information.

Interpretation

11.5.30 Badgers are a common and widespread species across most of the UK countryside. Badgers are therefore not currently considered to be of great conservation concern within the UK, although the UK supports a significant proportion of the global population. Badgers are, however, legally protected for reasons of welfare.

11.5.31 The survey has identified evidence of badger activity in the form of one active main sett and one active outlier sett. A badger main sett is the primary location for a badger clan, whose territory may extend across a wide area beyond the Site. These records represent a very small proportion of the total UK population and, consequently, the Site is not considered to be of importance to the conservation of badgers beyond the **local level**.

Bats

Natural Roost Features – Trees

11.5.32 A ground level tree assessment identified 13 high suitability trees, 17 moderate suitability and 62 low suitability trees for roosting bats (refer to **ES Volume 4, Appendix G2, Figure 4 and Table 4**). All moderate and high potential trees were climbed twice and three times respectively in 2022, to confirm roost features and to search for roosting bats. No bats were found but the roost features have potential to become occupied at any time. A further hibernation survey of all 'high' and 'moderate' trees was carried out in February 2023, with no evidence of roosting bats identified.

11.5.33 In 2023, bat emergence surveys were undertaken of trees that were deemed unsafe to climb, with two emergence surveys undertaken of moderate suitability

trees and three surveys of high suitability trees. No bats were identified to emerge from tree roost features being monitored across any of the surveys of these trees by surveyors, or on night-vision cameras used to monitor these trees.

Built Structures – Roost Appraisal

11.5.34 There are two main residences at the centre of the Site (but excluded from the redline boundary) which are surrounded by a number of smaller outbuildings. All 10 buildings were assessed for their potential to support roosting bats, the details of which are provided in **ES Volume4, Appendix G2, Table 5**.

11.5.35 Three of the buildings were confirmed to be in use by bats or were assessed as having high potential to support roosting bats (Buildings 1, 2 and 3); five of the buildings have moderate potential; and the remaining two buildings have low potential. Further survey work was recommended for Buildings 1, 2 and 3, comprising three emergence surveys, and these were carried out between 26th July and 3rd September 2022, with the results provided in the section below.

11.5.36 Additionally, a further hibernation survey of the cellar associated with Building 2 was carried out in February 2023, with no evidence of bats identified.

Built Structures – Emergence Survey

11.5.37 The dates, times, weather conditions, temperatures and personnel for each survey visit are presented in **ES Volume 4, Appendix G2, Table 6**.

11.5.38 Detailed descriptions of the emergence surveys are provided in **ES Volume 4 Appendix G2**. In summary, Building 1 was confirmed to support a day roost for common and soprano pipistrelle bats, and Building 2 was confirmed to support day roosts for common and soprano pipistrelle, brown long-eared bat(s) and an unknown *Myotis* species. Building 3 was shown to support brown long-eared bats, which are likely using the building as a maternity roost, with a peak of seven bats recorded emerging on 26th July 2022.

Bat Activity Surveys – Walked Transects

11.5.39 Survey conditions and timings are presented in **ES Volume 4, Appendix G2, Table 7**. The route of each walked transect was covered at least two times in a session, with all bat passes recorded and directional data for all bats noted where bats were visible. The results of each walked transect survey are summarised in **ES Volume 4, Appendix G2, Figure 5**.

11.5.40 The walked transect surveys recorded six known species and one unknown myotis species. These were: common pipistrelle, soprano pipistrelle, brown long-eared, noctule, serotine and barbastelle.

11.5.41 Generally, high activity was recorded for common and soprano pipistrelle, particularly around the sewage works in the north-east corner of the Site, and along hedgerows and woodland boundaries. Low activity was generally recorded for the other species, with the exception of a few isolated instances of high activity from serotine and a myotis species.

11.5.42 The woodland and hedgerow features are of high value to bats, which use them to commute and forage along.

Bat Activity Surveys – Automated Static Bat Detecting

11.5.43 The results of the automated static bat detector surveys are summarised in **ES Volume 4, Appendix G2, Table 8**.

11.5.44 The records reflect that of the walked transect survey, with common and soprano pipistrelle recorded in high numbers, relative to the other species. An additional species, Nathusius' pipistrelle, was recorded by the static loggers, though this only comprised a few passes.

11.5.45 Logger 4, along the central tree line, recorded an exceptionally high number of passes by common pipistrelle, with a peak average of 719 passes on a single night in June 2022. Logger 6, within the south-east of the Site, recorded an exceptionally high pass rate for *Myotis* in September 2022, relative to recordings for this species across the rest of the Site over the survey season.

11.5.46 There was one instance of a logger failing to record any data: Logger 2 in May 2022.

Pre-Existing Records

11.5.47 The SxBRC provided 100 bat records in the 2 km biodiversity records search comprising 10 identified species. The number of records for each species is presented in **Table 11.8**.

Table 11.8: Number of pre-existing records of each bat species within 2 km of the Ste boundary.

Species	No. of records
Common pipistrelle Pipistrellus pipistrellus	27
Brown long-eared bat Plecotus auritus	27
Unidentified bat species	12
Soprano pipistrelle Pipistrelle pygmaeus	7
Long-eared bat Plecotus species	5
Pipistrelle Pipistellus species	5
Serotine Eptesicus serotinus	5
Myotis species	3
Noctule Nyctalus noctula	2

Species	No. of records
Daubenton's bat Myotis daubentonii	2
Nathusius' pipistrelle *Pipistrellus nathusii*	1
Whiskered/Brandt's bat Myotis mystacinus/brandtii	1
Natterer's bat Myotis nattereri	1
Whiskered bat Myotis mystacinus	1
Bechstein's bat Myotis bechsteinii	1

Interpretation

11.5.48 Three of the buildings at the centre of the Site, but positioned outside of the red line boundary are confirmed to be in use by bats, with the surrounding buildings also having moderate/low potential – these have not been surveyed to date.

11.5.49 The activity surveys have demonstrated that the habitats contained within the Site support seven identified species and unknown *Myotis* species(s). This includes barbastelle and serotine, which are classed as vulnerable to extinction, and Nathusius' pipistrelle which is near threatened. Although it is not possible to identify the *Myotis* species from their calls, the SxBRC data shows that Daubenton's, whiskered / Brandt's, Natterer's and Bechstein's bats have all been recorded locally.

11.5.50 The trapping and radiotracking surveys, undertaken by Temple recorded the following:

'…A total of 67 bats from ten species were captured. The species included barbastelle, Bechstein's bat, Alcathoe bat, Brandt's bat, brown long-eared bat, common pipistrelle, Daubenton's bat, Natterer's bat, soprano pipistrelle, and whiskered bat…. Breeding females from four species Alcathoe, brown long-eared bat, common pipistrelle and whiskered bat were trapped… During the surveys, six roosting locations were identified, all between 300m east and 1.2km north-east… radio-tracking surveys have confirmed the importance of the site at a regional level for the rare Bechstein's bats, barbastelle and Alcathoe bats…'

11.5.51 Taking into consideration all of the survey data, the Site is considered to be important to bats at the **regional level**, considering the conservation status of bat species identified at the Site and their abundance, as illustrated in **Table 11.9**.

Table 11.9: Conservation status and distribution of bats recorded on-site.

Species	Conservation status England	Distribution in England
Barbastelle	Vulnerable	South and central England
Bechstein's bat	Least Concern	South and central England

Species	Conservation status England	Distribution in England
Serotine	Vulnerable	South and south-east of England
Nathusius' pipistrelle	Near threatened	Widespread
Common pipistrelle	Least concern	Widespread
Soprano pipistrelle	Least concern	Widespread
Brown long-eared bat	Least concern	Widespread
Noctule	Least concern	Widespread
Daubenton's bat	Least concern	Widespread
Natterer's bat	Least concern	Widespread
Whiskered bat	Data deficient	Widespread, rare
Brandt's bat	Data deficient	Widespread, rare
Alcathoe bat	Data deficient	Widespread, rare

Breeding Birds

Survey Results

11.5.52 **ES Volume 4, Appendix G2, Table 9** presents the dates, times and survey conditions recorded for each visit and **ES Volume 4, Appendix G2, Table 10** provides a full list of species recorded during all six surveys. The location of notable bird species has been mapped for each survey, including information on whether the bird was singing, territory calling or only observed (as shown in **ES Volume 4, Appendix G2, Figures 6–8**).

11.5.53 In total, 45 species of bird were recorded during the survey; of these, eight species are 'red' listed under the Birds of Conservation Concern (BoCC) (common starling *Sturnus vulgaris*, herring gull *Larus argentatus*, house sparrow *Passer domesticus*, linnet *Linaria cannabina*, marsh tit *Poecile palustris*, mistle thrush *Turdus viscivorus*, skylark *Alauda arvensis*, yellowhammer *Emberiza citronella*) and nine are 'amber' listed (bullfinch *Pyrrhula pyrrhula*, dunnock *Prunella modularis*, grey wagtail *Motacilla cinerea*, moorhen *Gallinula chloropus*, song thrush *Turdus philomelos*, stock dove *Columba oenas*, whitethroat *Sylvia communis*, woodpigeon *Columba palumbus*, wren *Troglodytes troglodytes*). The following species recorded during the survey are also listed under Section 41 of the NERC Act (2006) or Schedule 1 of the Wildlife and Countryside Act: marsh tit, common bullfinch, common starling, skylark, yellowhammer, herring gull, linnet, red kite, firecrest *Regulus ignicapilla*, dunnock, house sparrow and song thrush. These species are therefore considered of principal importance in England (NERC Act), or receive additional legal protection, making it an offence to disturb these birds whilst at their nest.

11.5.54 Additionally, a tawny owl *Strix aluco* was recorded calling on a night-time trail cam set out for the badger survey. Tawny owls have amber conservation status in the UK.

Pre-Existing Records

11.5.55 The SxBRC provided bird records for a total of 59 species. Most of these species are relatively common and widespread, but the list includes 26 species of principal importance for conservation (S41 NERC Act 2006), and 13 species listed on Schedule 1 of the Wildlife and Countryside Act. In addition, 26 species are red listed on the Birds of Conservation Concern lists. Of these notable species the following are relevant to the habitats on-Site: bullfinch, dunnock, song thrush, barn owl *Tyto alba*, red kite, swift *Apus apus*, lapwing *Vanellus vanellus*, herring gull, woodcock *Scolopax rusticola*, turtle dove *Streptopelia turtur*, cuckoo *Cuculus canorus*, skylark, corn bunting *Emberiza calandra*, yellowhammer, linnet, house martin *Delichon urbicum*, nightingale *Luscinia megarhynchos*, spotted flycatcher *Muscicapa striata*, marsh tit, house sparrow, wood warbler, starling and mistle thrush. Species that are not considered relevant to the site might (for example) include those associated with large wetland habitats, which are not present.

Interpretation

11.5.56 The breeding bird surveys have confirmed that the Site's breeding bird assemblage consists largely of common and widespread species, with eight red listed species and 13 species listed under S41 NERC or Schedule 1 WCA. In addition to the rarity of the species on-site, the abundance is worth noting, with peak numbers of 55 woodpigeon, 40 blue tit and 17 song thrush of particular note.

11.5.57 Due to the size of the Site, the range of habitats present and the bird species recorded, the Site is considered to be important for the conservation of birds at the **local level**.

Dormice

Nest-tube Survey

11.5.58 A peak of two dormice were found at the Site, both of which were recorded along the northern hedgerow boundary. A further four nests were also found along this boundary in different tubes and a starter nest was found within the southern boundary of the same field. Food caches were found but it is not possible to distinguish these from other mice, such as wood mice and yellow necked mice. **ES Volume 4, Appendix G2, Figure 10** illustrates the exact locations.

11.5.59 No evidence of dormice was found anywhere else on-Site but there is good connecting habitat between all woodland blocks contained on the Site.

Pre-Existing Records

11.5.60 The SxBRC provided 37 dormouse records in the 2km biodiversity records search area. The closest of these was at 1.3 km north-east from the boundary of the Site.

Interpretation

11.5.61 The Site contains high value woodland, hedgerow and scrub habitat for dormice, which is well connected throughout, and is further well connected to habitat of value within the surrounding landscape.

11.5.62 Published research suggests that population sizes in summer months is typically around three to five adults per ha, but up to 10 in optimal habitat (diverse deciduous woodland with abundant scrub and vigorous understorey)[36]. A recent study in 2018 found that the mean range-area for dormice was 0.51 ha and the mean core area was 0.09 ha[37].

11.5.63 The current survey suggests that common dormouse is restricted to the northern hedgerow and not across the wider Site, despite suitable habitat and good ecological connectivity. However, this result should be interpreted with caution and it is common best practice to assume that they could occur in any suitable habitat around a positive record, as they may use the habitat in other years or choose not to nest in the dormouse tubes in optimal habitats.

11.5.64 Dormice are recognised as vulnerable in the UK, though they are fairly common in many parts of the Southeast of England and there are numerous pre-existing records around Haywards Heath and other local surroundings. Based on the survey findings and the fairly restricted recorded distribution of this species within the Site, the habitats contained within the Site are considered likely important for the conservation of dormice at **a local level**.

Great Crested Newts and Other Amphibians

Habitat Suitability, eDNA Testing and Field Survey Results

11.5.65 Of the 32 ponds identified during the desk study, access was only granted for 11. HSI results for these ponds area presented in **ES Volume 4, Appendix G2**, with the exception of Pond 5, which was found to be dry.

11.5.66 Water samples were taken from six of the ponds (ponds 1, 3, 4, 13, 20 and 32) for eDNA analysis, with a negative result returned for all.

[36] Bright et al (2006) The Dormouse Conservation Handbook, second edition.

[37] Goodwin et al (2018) Habitat preferences of hazel dormice *Muscardinus avellanarius* and the effects of tree-felling on their movement.

11.5.67 Presence / likely absence surveys were caried out for four of the ponds (ponds 6, 7, 8 and 9), and a small population of great crested newts was confirmed in ponds 6 and 7. Ponds 8 and 9 were dry by May and no evidence of great crested newts was found. In addition to great crested newts, smooth newt *Lissotriton vulgaris* and palmate newts *Lissotriton helvetica* were recorded in ponds 6, 7 and 8. All the survey results are detailed in **ES Volume 4, Appendix G2, Tables 12, 13, 14 and 15**.

11.5.68 Common toad was recorded at Pond 6 (both adult and tadpoles) and adult common toads were recorded across the wider Site (refer to **ES Volume 4, Appendix G2, Figure 9**).

Pre-Existing Records

11.5.69 The SxBRC provided 258 amphibian records in the 2km biodiversity records search area. This included 66 records for great crested newt, 84 records for smooth newt, 59 records for palmate newt, 32 records for common frog *Rana temporaria* and 17 records for common toad *Bufo bufo*. The closest great crested newt record was 600 m north of the Site, dated 2020.

Interpretation

11.5.70 A small population of great crested newts has been recorded at the Site. There is high value terrestrial habitat for this species contained on-Site and numerous ponds of varying condition; however, the intensive arable habitat is likely the reason why the population is not thriving[38].

11.5.71 Although targeted surveys for common toads were not undertaken, this species was recorded on-site in low numbers and should be assumed present in all suitable habitat.

11.5.72 Based on the above, the Site is considered to be important for the conservation of great crested newts at the **local level** and likely the **local level** for common toad

Reptiles

Survey Results

11.5.73 A total of 46 grass snakes were recorded at the Site, with a peak of 11 grass snakes recorded during one survey (refer to **ES Volume 4, Appendix G2, Figure 9** for the locations and **ES Volume 4, Appendix G2, Table 16** for details of the survey). No other reptiles were found.

[38] Piha et al (2007) Amphibian occurrence is influenced by current and historic landscape characteristics.

11.5.74 Many of the grass snakes were found along the northern boundary of the central field, with scattered records across the rest of the Site.

Pre-Existing Records

11.5.75 The SxBRC provided 69 reptile records in the 2km biodiversity records search area, including 49 grass snake records, 8 adder, 7 common lizard and 5 slow worm. The closest of these was for grass snake, 180 m west of the boundary of the Site.

Interpretation

11.5.76 The survey findings indicate a likely 'large' population of grass snakes at the Site, with no other reptile species recorded.

11.5.77 Grass snakes are a common and widespread species in south-east England, though numbers are thought to be declining[39], and are likely to be present in most areas of suitable habitat. Based on the relatively large numbers involved and the large extent of suitable habitat at the Site, the population contained within the Site is considered important to the conservation status of grass snake at the **local level**.

Riparian Wildlife

Survey Results

11.5.78 The walked river survey in April and June 2022 found no evidence of crayfish, water vole or otter.

11.5.79 An aquatic invertebrate assessment in May 2023, identified 32 invertebrate species of mostly local interest and which indicate that the water quality in the Copyhold stream is reasonably good. Of these species, perhaps the most notable was the giant lacewing *Osymulus* fulvicephalus, which thrives in damp moss environments.

Pre-Existing Records

11.5.80 The SxBRC provided no records of otter or white clawed crayfish in the search area but did return one record for water vole, dated 2005. They also returned records for European eel *Anguilla anguilla*, bullhead *Cottus gobio*, brown trout *Salmo trutta* and brook lamprey *Lampetra planeri*, though all records were beyond 1 km from the Site.

[39] Froglife (2023) https://www.froglife.org/info-advice/amphibians-and-reptiles/grass-snake/

Interpretation

11.5.81 Crayfish, water voles and otters are likely absent from the Site and are not considered further within this chapter.

11.5.82 The aquatic invertebrate assemblage of species identified at the Site is indicative of reasonable water quality and is considered to be important at a **local level**.

Other Notable Species

Survey Results

11.5.83 There are habitats on-Site which could support brown hare, hedgehog and a variety of notable invertebrates.

11.5.84 Incidental sightings of invertebrates on-Site include demoiselle *Calopteryx virgo*, glow worm *Lampyris noctiluca*, pale tussock moth *Calliteara pudibunda* caterpillar, meadow brown *Maniola jurtina* and ringlet butterfly *Aphantopus hyperantus*.

Pre-Existing Records

11.5.85 The SxBRC provided 23 records for hedgehog and one record for brown hare within 2 km of the Site. The closest of these was for hedgehog, recorded within the Site boundary in 2013.

11.5.86 The following higher plants have been recorded within the 2km biodiversity records search area in the last 10 years:

- Hay-scented buckler-fern *Dryopteris aemula*;
- Royal fern *Osmunda regalis*;
- Star sedge *Carex echinate*;
- Flea sedge *Carex pulicaris*;
- Bladder-sedge *Carex vesicaria*;
- Autumn hawkweed *Hieracium sabaudum*;
- Long-leaved hawkweed *Hieracium virgultorum*;
- Marsh pennywort *Hydrocotyle vulgaris*;
- Bitter-vetch *Lathyrus linifolius*;
- Corn mint *Mentha arvensis*; and
- Lesser spearwort *Ranunculus flammula*.

11.5.87 The following notable invertebrates have been recorded within the 2km biodiversity records search area in the last 10 years:

- Purple emperor *Apatura iris;*

- Small heath Coenonympha pamphilus;
- Dingy Skipper *Erynnis tages;*
- White admiral Limenitis Camilla;
- Grizzled skipper *Pyrgus malvae*;
- Brown hairstreak *Thecla betulae;*
- Downy emerald *Cordulia aenea;*
- Common darter *Sympetrum striolatum*;
- Red-green carpet *Chloroclysta siterata*;
- Orange footman *Eilema sororcula;*
- Chequered pearl *Evergestis pallidata*;
- Alder kitten *Furcula bicuspis*;
- L-album Wainscot *Mythimna l-album;*
- Common wainscot *Mythimna pallens;*
- Spindle knot-horn *Nephopterix angustella*;
- Grass rivulet Perizoma *albulata albulata*;
- Cypress carpet *Thera cupressata*;
- Sword-grass *Xylena exsoleta*;
- Large sallow mining bee *Andrena apicata*;
- Red-girdled mining bee *Andrena labiate;*
- Four-banded flower bee *Anthophora quadrimaculata*;
- Hill cuckoo bee *Bombus rupestris;*
- A social wasp *Dolichovespula media*;
- A solitary wasp *Gorytes laticinctus*;
- Red bartsia blunthorn bee *Melitta tricincta;*
- Painted nomad bee *Nomada fucata;*
- Red-tailed mason bee *Osmia bicolor;*
- Orange-vented mason bee *Osmia leaiana;*
- Green dock beetle *Gastrophysa viridula*;
- Stag beetle *Lucanus cervus*;
- A long horned beetle *Poecilium alni;*
- A checkered beetle *Tillus elongatus;*

- Roesel's Bush-cricket *Roeseliana roeselii;* and
- A wolf Spider *Pardosa saltans*.

Interpretation

11.5.88 The Site comprises habitats, including habitat characteristic of ghyll woodland, arable field margins and grassland, which could support a number of notable plants and invertebrate species which have been recorded within the area. However, the majority of the Proposed Development's impact area is arable farmland and improved pasture, of negligible value for these species.

11.5.89 Some of the species from the above list are assumed to be present, including the Roesel's bush-cricket, which is now abundant across the south-east, the common wainscot, which is found across grassland habitats and woodland rides and the stag beetle, which is found in most ancient woodland habitats where there is sufficient dead wood present. It is not possible to accurately attribute the importance of the Site to each individual species as there is insufficient data to determine what the populations of these species might be within the surrounding landscape, regionally or nationally.

Invasive Non-native Species

Survey Results

11.5.90 Rhododendron and cherry laurel have both been recorded on-Site.

Pre-Existing Records

11.5.91 The SxBRC provided records for 34 invasive species within the 2km biodiversity records search area, including cherry laurel, rhododendron, contoneaster spp., Japanese knotweed *Fallopia japonica*, false acacia *Robinia pseudoacacia* and American mink *Neovison vison*.

Interpretation

11.5.92 Rhododendron and cherry laurel negatively impact biodiversity by outcompeting native species for resources such as light. The occurrences on-Site are restricted to a small area at present but both species thrive in the English climate and can spread with ease.

11.5.93 The negative ecological risks to the Site posed by existing INNS are significant at a **site level**.

The Parkland Reserve Site – Protected and notable Species

11.5.94 A summary is provided here of the findings of the surveys undertaken at the Parkland Reserve Site, whilst detailed survey data can be found in **ES Volume 4, Appendix G3**.

Great Crested Newts

11.5.95 One positive result for great crested newt DNA was returned from four ponds subject to eDNA sampling. This pond is situated centrally within the Parkland Reserve Site and in close proximity to the western woodland parcel, which comprises high-value foraging habitat. The identification of a likely breeding pond for this species suggests that the Parkland Reserve Site is important for this species at a **local level**.

Badger

11.5.96 One active main badger sett with seven entrances and a single outlier have been identified at the Parkland Reserve Site, whist a disused former badger sett was also identified. Field signs by badgers were identified across the Parkland Reserve Site, indicating that the Parkland Reserve Site is of importance to at least one, but potentially two clans. The importance of the Parkland Reserve Site for badgers is considered significant at a **site level** only.

Bats

11.5.97 Records for a wide variety of bat species were identified, with the most notable being records for Nathusius's pipistrelle and Brandt's bats. The Parkland Reserve Site has value for foraging bats, with the mosaic of grassland, plantation and semi-natural woodlands, coupled with ponds and watercourses all providing value for a variety of foraging bat species.

11.5.98 A number of potential bat roosting features were identified within the large quantity of mature trees across the Parkland Reserve Site, particularly within veteran trees. No direct evidence of roosting bats was identified, though a detailed search was not undertaken. A single building is present on the Parkland Reserve Site, which has gaps visible under ridge and roof tiles and a single bat dropping was found internally (though this does not confirm roost presence). It is assumed that the Parkland Reserve Site is **likely to have at least local importance** for roosting bats. A more detailed assessment would be required to confirm this importance, but has not been considered necessary as the proposal does not require the felling of any trees.

11.5.99 The activity surveys identified a moderate level of bat activity with a moderate diversity of bat species recorded that was dominated by the presence of common pipistrelle bats, with smaller numbers of soprano pipistrelle, noctule, long-eared

bat sp., Myotis sp. and serotine. The static detectors further identified Nathusius's pipistrelle, Daubenton's, natterers, barbastelle, whiskered and alcathoe bats.

11.5.100 The assemblage of bat species recorded is assumed to have at least a **county importance**, given the presence of barbastelle and alcathoe bats, which are nationally uncommon.

Dormice

11.5.101 Several records for this species were returned from biodiversity records and the nest tube survey identified two dormouse nests at the Parkland Reserve Site during visits in July and September 2023. This confirms both the presence of this species at the Parkland Reserve Site and further indicates a local abundance. For this reason, the Parkland Reserve Site is considered to have a **local importance** for dormice.

Breeding birds

11.5.102 The scrub, woodland and hedgerows provide significant value for a range of bird species. A total of 37 bird species were recorded at the Parkland Reserve Site, with 27 of these species considered likely to breed at the Parkland Reserve Site or within its immediate surroundings. Four red listed species were identified; marsh tit, willow tit, skylark and mistle thrush. Other notable species recorded included kingfisher, meadow pipit, redwing and barn owl.

11.5.103 Whilst generally the assemblage of bird species recorded is not exceptional, the record of a willow tit is very notable. This species is known to be the second fastest declining bird in the UK and a survey in 2019 by the Sussex Ornithological Society did not identify any active breeding sites, with the species subsequently presumed to be extinct from the county.

11.5.104 The assemblage of bird species generally at the Parkland Reserve Site indicates that its value for breeding birds is of **local importance**, however it is of **county importance** for willow tit, with the identified breeding territory potentially forming the only record for the county.

Reptiles

11.5.105 The habitats present at the Parkland Reserve Site are highly suitable for common reptiles, with the woodland edges, hedgerow bases, areas of dense scrub and grassland swards all providing cover, foraging value and refugia. The reptile surveys utilising 200 artificial refugia identified good populations of grass snakes and slow worms across the Parkland Reserve Site. These populations of relatively common and widespread reptile species within the district suggests a **local level** of importance.

Otter and water vole

11.5.106 No evidence of otter or water vole were identified from the surveys undertaken. The suitability of the habitat present for water vole was found to be negligible, whilst the habitat value for otter is sub-optimal and this species is considered likely to be absent, though future presence remains possible. Neither species is considered further within this chapter in respect of the Parkland Reserve Site.

Aquatic invertebrates

11.5.107 All of the four ponds at the Parkland Reserve Site were found to be in the latter stages of succession, with the assemblage of aquatic invertebrate species identified totalling 33 species. The majority of these were found in pond 2, which was the only pond found to be of 'good' ecological status by PSYM.

11.5.108 The shading of ponds by relatively young trees and shrubs has likely led to a reduction in the value of ponds for aquatic invertebrates and further has led to a build-up of leaf litter and woody debris in the pond basins.

11.5.109 The assemblage of aquatic invertebrates identified is considered significant at a **local level** only.

Future Baseline (the 'do nothing' scenario)

11.5.110 In the absence of the Proposed Development and Parkland Reserve Site, it could be assumed that there would be few changes to habitats present. There are, however, ongoing likely changes to this farmed landscape that may need to be considered. Some of the woodland plantations, including the hybrid black poplar and larch, are nearing a stage where they might expect to be harvested for timber. It would be expected that stock may be replaced with another commercial plantation species, though there are new incentives to create and restore native broadleaf plantations and semi-natural woodland.

11.5.111 The arable and pasture would be unlikely to change over time, though market forces on commercial agriculture can lead to changes in the crops grown, or could potentially lead to the reversion of arable land, or ploughing of pasture in the future.

11.5.112 Invasive species identified, including rhododendron and cherry laurel could continue to spread in the absence of measures to ensure their removal.

11.5.113 In the absence of the Proposed Development, there would also unlikely be funding available to create the Parkland Reserve Site, with the opportunities for access to nature for local people and significant biodiversity net gain offered by this proposal.

11.6 Identification and Description of Changes Likely to Generate Effect

11.6.1 In this section, the predicted impacts and effects of the Proposed Development and the Parkland Reserve Site are described for each important ecological feature in turn. This is based on the best available information, both on the baseline ecological condition and on the method of construction, timescale and other development / planning constraints known at the time of writing. The significance of the impact on nature conservation is recorded in accordance with CIEEM guidance and the degree of uncertainty relating to the occurrence and severity of an impact is discussed.

Proposed Development

11.6.2 This assessment is based on Sketch Site Plan D3012-FAB-00-XX-DR-Y-009 dated October 2023 (Figure 2).

11.6.3 The Proposed Development comprises redevelopment of the Site to create a new community with up to 1,450 new homes. Direct impacts from the Proposed Development (habitat loss) will largely be confined to the arable fields but will also impact some areas of woodland, grassland, hedgerows. The Proposed Development will have indirect impacts on these and adjacent habitats and the watercourses that flow through them.

11.6.4 Impacts that are likely to arise as a result of construction of the Proposed Development include:

- direct harm from pollution, noise, lighting, vibration and the movement of people and construction machinery;
- soil compaction;
- habitat severance caused by construction works on-site; and
- habitat destruction during Site clearance activities.

11.6.5 Impacts that are likely to arise as a result of operation of the Proposed Development include:

- permanent habitat loss;
- chronic disturbance from noise, lighting, vibration and the movement of people, vehicles on-site; risk of traffic collisions;
- increased recreational use of habitats on-site and adjacent habitats, including Great Wood & Copyhold Hanger LWS, leading to soil compaction, human / dog disturbance, littering, physical damage to trees; and
- increase in numbers of people and pets on-site.

The Parkland Reserve Site

11.6.6 This assessment is based on the landscape plan overview provided in **Figure 5.11** of **Chapter 5 Proposed Development and Construction Overview**.

11.6.7 The creation of the Parkland Reserve Site includes the change of use of farmland and woodland to parkland reserve, including establishment of pedestrian and cycle tracks, with new pedestrian and cycle access points to the north, the addition of two wooden viewing platforms and instigation of long-term management and rewilding regime which is intended to have significant benefits for wildlife. Whilst the proposal is not without impact risk or sources of potential harm (such as increased wildlife disturbance risks from increases in the number of visitors to the site), this is set against the clear overwhelming wildlife benefits that will result from the rewilding regime and as such, this assumption of significant overall benefits for wildlife is well founded.

11.7 Assessment of Likely Significant Effects

Proposed Development - Construction Phase

Embedded Mitigation Measures

Designated Sites

11.7.1 The Proposed Development does not result in any direct loss of designated site habitats. The Great Wood & Copyhold Hanger LWS lies directly adjacent to the Site's south-eastern boundary. No detailed avoidance measures through the construction phase are considered necessary beyond normal good construction practices.

Priority Habitats

11.7.2 The Proposed Development has been designed to avoid habitat losses where possible. The two bridges through the woodland are essential and cannot be avoided; however, a 'path of least resistance' that avoids the most valuable features within the woodland (such as native mature trees) has been taken. This bridge will have a clear span and will not require an embankment and box culvert, which would otherwise result in a much greater footprint within the woodland.

11.7.3 Industry standard construction methods will be implemented to minimise the risk of pollution or release of sediments into the surrounding habitats during the construction phase. These will be set out in a Construction Environmental Management Plan (CEMP) for the Proposed Development, prepared during the detailed design phase and secured through planning condition.

11.7.4 During the construction phase, a buffer zone of at least 20 m from ancient woodland and 15 m from priority habitat woodland will be established between the Proposed Development and woodland habitat boundaries. No construction, earthworks or development will be permitted within the buffer zone, other than native landscape planting.

11.7.5 During the construction phase, heras fencing will be used to mark out a minimum of 20 m buffer from the ancient woodland, 15 m buffer from priority woodland and 10 m buffer from all other woodland. This heras fencing will be lined with an impermeable membrane to reduce dust pollution and visual impacts on the woodland. Heras fencing will be used to mark out a minimum 4 m buffer along all hedgerows, with the majority of hedgerows protected by an 8 m buffer.

11.7.6 The above measures shall be set out in detail through the adoption of a Landscape and Ecology Management Plan (LEMP) for the Site and secured through planning condition.

Badgers

11.7.7 The Proposed Development will be designed to avoid direct impacts on the existing known badger setts by ensuring a minimum 30 m exclusion zone for all earthworks, machinery and personnel. Pre-construction checks and ongoing monitoring of badger activity through the development phase, would inform the need for any changes to the badger mitigation strategy.

11.7.8 Construction Site safeguarding measures will be followed during the construction period to prevent harm to badgers. All deep excavations will be kept covered at night, or a means of escape provided (ramp or ladder) to prevent entrapment of badgers, and all hazardous waste, chemicals or food will be suitably contained to prevent access by badgers.

11.7.9 All measures to protect badgers and ensure the welfare of the local population will be detailed in a Construction Environmental Management Plan (CEMP) that can be secured through planning condition.

Bats

11.7.10 The majority of habitat of value for bats will be retained, though there are unavoidable losses to habitats of high value where the bridge crossings are proposed. A key consideration of the Site design has been to ensure that the central hedgerow with trees running north-south between woodland parcels at the Site has been retained, with an 8 m buffer to be maintained each side of this hedgerow. This will help ensure that effective commuting routes through the Site by bats are protected and maintained. There will be no impacts to the buildings at the centre of the Site, which lie outside of the application red line boundary.

11.7.11 If it is not possible to retain a tree with bat roost features, precautionary felling techniques ('soft-felling') will be used, at an appropriate time of year, or, exceptionally, may require a European Protected Species (EPS) licence if bats are clearly using the feature on a regular basis, or could be present at the time of the works. Any trees to be felled, which have bat roost features, will be surveyed by a qualified ecologist immediately prior to commencement of works.

11.7.12 A repeat climb will be required immediately prior to any works to a tree with roost a feature(s), to confirm the absence of bats, due to the tendency for bats to change roost frequently.

11.7.13 The Proposed Development will incorporate a 'sensitive lighting plan' developed as part of the detailed design, in accordance with guidelines set out by the Bat Conservation Trust and secured through the planning system. All woodland will be a 'no light zone' and 'dark corridors' will be created throughout the Site, along the retained hedgerows and tree belts. Any lighting required for health and safety will have features to minimize light spill onto all semi-natural habitats. All street lighting should be directed downwards and use light sources that are not attractive to insects. Reflective white line marking should be used in preference to artificial lighting in all non-essential applications.

Breeding Birds

11.7.14 Construction work must commence outside of the ground-nesting (skylark) breeding season (typically April to August), or only following the implementation of nesting deterrent measures that may include targeted crop cycle management, in combination with a survey that confirms the absence of active nests. Should any active nests be identified, works must be postponed until the chicks have fledged.

11.7.15 Any woody vegetation removal should only be undertaken outside of the breeding bird season (avoiding March–August inclusive). It is an offence to cause disturbance to an active nest of any bird species listed on Schedule 1 of the Wildlife and Countryside Act (1981) as amended.

11.7.16 Small areas and single trees may be felled during the bird nesting season if all features are first checked by a suitably qualified ecologist and no active nests are found.

11.7.17 Heras fencing must be erected to protect all nesting bird habitat from indirect impacts such as accidental damage from machinery and to limit the amount of disturbance during the construction phase.

Dormouse

11.7.18 Based on the survey results, this species appears to have a range that is restricted to the northern part of the Site, though this species is difficult to detect, and it is reasonable to assume that dormice could potentially be present at different times

in all other areas of woodland, scrub and tree lines where it is connected across the landscape.

11.7.19 The majority of dormouse habitat will be retained through the Proposed Development, with habitat loss within the northern part of the Site restricted to ecologically poor hedgerow sections. However, since the Proposed Development involves removal of this habitat, a European Protected Species (EPS) licence must be obtained from Natural England for the development to legally proceed. Details of the mitigation measures will be set out in a method statement submitted with the licence application at an appropriate time before construction and habitat restoration works commence.

11.7.20 Where possible, vegetation removal will be strategically planned, to retain connectivity within the canopy of the woodland and across gaps in hedgerows. Where this is not possible, a specialised bridge for dormice will be installed across any gaps of more than 3 m; gaps of more than 3 m have been proven to present a significant barrier to dormouse movement[40]. Details of these measures will be specified within the EPS licence.

11.7.21 All evidence of dormice recorded during the surveys was along the northern boundary, indicating that this hedgerow is of particular importance. To protect the hedgerow, an 8 m vegetated bund will be created and planted up with scrub, including species of high value for dormice such as hazel and honeysuckle. Thorny species will also be planted along the bund to deter domestic cats.

Great Crested Newt and Other Amphibians

11.7.22 The ponds and surrounding gardens at the centre of the Site are not due to be impacted by the Proposed Development. However, the loss of field margins, and small areas of woodland and hedgerow cannot be avoided.

11.7.23 The risk assessment tool provided by Natural England has determined that an 'offence is highly likely' as a result of the Proposed Development and therefore an EPS licence will be required. There are presently two licensing options available for Mid Sussex that would enable lawful development. A Mitigation License may be applied for from Natural England, which would detail the mitigation measures will be set out in a method statement submitted with the licence application at an appropriate time before construction and habitat restoration works commence. Alternatively, a District License may be sought through the NatureSpace Partnership, who are the delivery partner for MSDC under this licensing scheme. District Licensing takes the approach to create compensatory habitats for great crested newts at a landscape level and does not focus on intensive trapping and

[40] Bright, P.W (1998) Behaviour of specialist species in habitat corridors: arboreal dormice avoid corridor gaps

translocation of individual newts, though reasonable avoidance measures are applied to minimise mortality where reasonably possible. Any mitigation measures for great crested newts will also ensure mitigation for common toad.

Reptiles

11.7.24 The majority of suitable reptile habitat at the Site will be retained. However, there will be an unavoidable loss / chronic increased disturbance of field margins, which are of high value for grass snakes.

11.7.25 As grass snakes are a highly mobile species, fencing and translocation is not considered necessary or environmentally appropriate. Instead, a process of habitat manipulation at a suitable time of the year to encourage reptiles away from construction zones and minimise the risk of killing or injuring any individuals is proposed. Prior to commencement of works, suitable habitats for reptiles contained within the construction Site should be strimmed of vegetation to ground level and all cuttings raked off and removed. This should ensure that reptiles are discouraged from the construction zone. The strimming process should be completed in two phases with the grass cut initially to a height of 10-15 cm on the first pass, to reduce the risk of harming reptiles during the strimming process and to allow any reptiles present to move away. Vegetation will either need to be maintained to below a 5 cm sward to ensure it does not become suitable for use by reptiles while the development is on-going, or could be taken back to bare ground, if this is the preferred option until the Proposed Development is completed. The strimming process must be overseen by a suitably qualified ecologist.

Riparian Wildlife

11.7.26 No direct impacts upon Copyhold Stream are anticipated, however measures under a CEMP must be put in place to ensure that runoff from construction into this watercourse are prevented. This will include runoff and sediment traps in place on all ground that slopes down towards any watercourses as well as best practice measures to minimise risks of littering and air pollution sources.

Invasive Non-Native Species

11.7.27 To avoid any risk of the further spread of rhododendron and cherry laurel, all specimens must be removed from the Site and disposed of, following strict invasive species protocol.

11.7.28 Precautionary measures will be put in place to ensure the spread of invasive species to the Site from construction machinery is prevented. This will include a requirement for all machinery to be thoroughly cleaned before arrival at the Site and for all materials delivered to be vetted and certified as free of contamination before being used. Strict controls will particularly be required for all landscape

planting schemes, with soil importation posing a particular risk. No importation of any products that include soil from outside the UK would be permitted.

Anticipated Effects

Designated Sites

Impact Characterisation

11.7.29 Construction of the Proposed Development will potentially result in air pollution from machinery and delivery vehicles, and dust deposition that could impact on vegetation growth in the nearby Great Wood and Copyhold Hangar LWS[41]. There is a small risk of increased disturbance from noisy construction activities, and presence of construction workers who may access the local wildlife site during break times. The risk of direct impacts or habitat damage caused by earthworks is considered low, but there is a risk of impacts on the local wildlife site through pollution of watercourses that may drain water from the construction Site and through this designated site. There is a small risk of increased air pollution as the proposed construction zone is approximately 250 m[42] from the LWS.

Significance of Effects

11.7.30 No significant construction phase impacts upon designated sites are anticipated based on the distance between the Site and all identified designated sites, the closest of which is approximately 250 m away from the construction zone. The impact is therefore considered **likely negligible**.

Biodiversity Value

Impact characterisation

11.7.31 Habitats of all types that are lost to the footprint of the Proposed Development have been evaluated through the DEFRA Metric 4.0, the most recent tool developed by Natural England to establish the biodiversity value of habitats. This established a baseline value of 607.82 habitat units, 121.72 hedgerow units and 33.40 river units. Due to the complexity of biodiversity metric's, impact values in the absence of on-site biodiversity enhancement measures are not provided separately and only the impact of the Proposed Development with mitigation and compensation measures are considered in detail. Based on the Proposed Development's layout plan D3012-FAB-00-XX-DR-Y-009 the Metric shows an on-site

[42] Institute of Air and Quality Management (2016) Guidance on the assessment of mineral dust impacts for planning

post-intervention loss of 53.46 habitat units (an 8.79 % loss), but an assumed gain of 13.02 hedgerow units and 3.49 river units (10.7 % and 10.46 % gain respectively). It should be noted that the masterplan does not include detailed proposals for hedgerows around the gardens of properties, which is likely to contribute a significant hedgerow unit uplift in biodiversity value, with an indicative value provided based on experience of hedgerow lengths typically created within residential development, based on conservative assumptions.

11.7.32 Biodiversity values are relative to the scales they are recorded at, and a focus of the biodiversity metric is the 'distinctiveness' of the habitats that are lost. The majority of habitats lost to the footprint of the Proposed Development are low and medium distinctiveness habitats, though a very small number of high distinctiveness habitat units will also be lost (see 'Priority Habitats' below).

Significance of Effects

11.7.33 The loss of biodiversity units is anticipated to result in a **certain moderate adverse (significant) effect** at a **local level** (in absence of compensation and enhancement – additional mitigation).

Priority Habitats

Impact Characterisation

11.7.34 A bridge will be installed across two sections of priority habitat woodland, resulting in the direct loss of a small area of woodland habitat and likely a reduction in condition of the immediate surrounding area, due to shading and elevated air pollution.

11.7.35 The Proposed Development will largely retain the priority hedgerows on-site with the exception of gaps for access roads.

11.7.36 The majority of the arable field margins will be lost, though many will be incorporated into buffers to adjacent woodland and retained hedgerows.

11.7.37 In the absence of mitigation, the construction of the houses will result in air pollution and release of dust, which could deposit on these priority habitats which are in close proximity to the construction zone, with potential indirect impacts on vegetation growth, invertebrates and bryophytes. The construction phase will also bring a risk of habitat damage in adjacent woodlands through encroachment of construction activities, noise and disturbance from construction workers. In the absence of mitigation, there is a risk of fine silt mobilisation during wet weather from the construction Site and into the adjacent watercourses together with water pollution, this would potentially have significant effects on the ecology of the adjacent priority woodland habitat as the watercourses flow through them.

Significance of Effects

11.7.38 With embedded mitigation measures in place, the potential impacts of the Proposed Development represent **certain permanent moderate adverse (significant) effects** on priority habitats at the **local level** (in absence of compensation and enhancement – additional mitigation).

Badgers

Impact Characterisation

11.7.39 Due to the sensitive nature of information pertaining to badgers, this section should be omitted from the report prior to release into the public domain.

11.7.40 Both the active main sett within the north-east woodland and the outlier sett west of the centre of the Site will not be directly impacted. However, indirect impacts to foraging and commuting badgers is likely, both during the construction phase (hazards of tools, trenches and disturbance) and the operational phase (risk of collision with cars, and interference of setts by the public and increased disturbance).

11.7.41 The Proposed Development will result in the loss of a small amount of suitable badger foraging habitat (woodland, arable margins and grassland) and minor fragmentation of commuting routes, as a result of creating gaps in hedgerows and laying roads.

Significance of Effects

11.7.42 The majority of most valuable badger habitat will be retained at the Site. Badgers are generally quite adaptable to some degree of human disturbance, with foraging, commuting routes and occupation or establishment of new setts, constantly adjusting in response to new food sources and disturbance.

11.7.43 With embedded mitigation measures in place, this temporary effect is considered **possible moderate adverse (significant)** at a **site level** (in absence of compensation and enhancement – additional mitigation).

11.7.44 The construction of the Proposed Development will have significant impacts on the local badger social groups as a substantial amount of foraging resource is effectively removed within their home range, but this impact is not considered significant beyond site level because badgers are a common and widespread species across the landscape. The majority of habitats lost are also of lower value for foraging badgers (such as the arable fields) and this loss represents a small proportion of foraging habitat for the population. However, it is always important to consider badgers from a welfare perspective and to ensure compliance with legislation, which will be ensured through adherence to a CEMP.

Bats

Impact Characterisation

11.7.45 Construction of the Proposed Development will not require demolition of any buildings that are known to support roosting bats or that have potential roosting features suitable for bats. Therefore, no direct impacts on bat roosts in buildings will occur, though there are associated impact risks through losses to foraging habitats within the Core Sustenance Zone (CSZ) of roosts in these buildings.

11.7.46 The Proposed Development does have potential to impact on bats roosting in trees, though no bats in trees have been found thus far.

11.7.47 The Proposed Development has potential to result in disturbance to commuting and foraging bats, both during construction and in the long term after completion, through increased artificial lighting, disruption of commuting corridors and direct loss of natural habitats including woodland.

11.7.48 The changes to habitats within the Site are complex with respect to bats. The arable fields presently provide extremely limited value for foraging bats, with the development that replaces this habitat including a mosaic of green spaces and gardens in addition to buildings and areas of hard-standing. It is possible that in this context, there will be some improved value for common and more light-tolerant bat species such as the common and soprano pipistrelle.

11.7.49 Conversely, the development of buildings upon the pasture is likely to represent a notable loss of foraging habitat value, with pasture supporting significantly greater invertebrate populations than arable habitat. Overall, habitat changes proposed are likely to represent a negative impact to the foraging value of the Site.

Significance of Effects

11.7.50 Bechstein's and barbastelle bats are protected under Annex II of the Habitats Directive, affording them a higher level of legislative protection than the other species of bat recorded on-site. Bechstein's are almost exclusively dependent on woodland habitat and are vulnerable to a loss of woodland habitat and tree roosts. It is thought that Barbastelle's 'prefer pastoral landscapes with deciduous woodland, wet meadows and water bodies, such as woodland streams and rivers'[43]. Barbastelle's are vulnerable to the loss of woodland habitat and degradation of fresh water habitat. The Proposed Development will result in the footprint of the two bridges spanning 0.637ha of lowland mixed deciduous woodland, whilst the development proposals will result in the loss of 1.023 ha of

[43] Bat Conservation Trust (2023): https://cdn.bats.org.uk/uploads/pdf/About%20Bats/barbastelle_11.02.13.pdf?v=1541085170

other woodland; broadleaved and 0.39ha of coniferous woodland. These impacts could result in the degradation of Copyhold Stream, though the incorporation of robust mitigation measures should reduce this impact risk to negligible.

11.7.51 Serotine are considered 'vulnerable' but are well adapted to sub-urban environments, making use of woodland edge and hedgerow habitats for foraging.

11.7.52 As data is deficient on the conservation status of Alcathoe, whiskered and Brandt's bats, it is not possible to accurately assess the impact of the Proposed Development on the conservation status of these species. Little is known about the ecology of Alcathoe bats, though they are thought to be woodland specialists. Whiskered and Brandt's bats are vulnerable to the effects of modern agricultural practices and decline of woodland.

11.7.53 Common and soprano pipistrelle, brown long-eared bat, noctule, Daubenton's and Natterer's bats are all common and widespread, with a conservation status of 'least concern' in England. All rely on the natural habitats on-site for foraging and commuting; although common and soprano pipistrelles and brown long-eared bats will roost in buildings, Daubenton's and Natterer's rarely do and noctules are primarily tree roosting.

11.7.54 Of all the above species recorded on-Site, roosts were only confirmed for common pipistrelle, soprano pipistrelle and brown long-eared bat.

11.7.55 Due to the impacts listed above, the species recorded and the confirmation of roosting / foraging / commuting, with embedded mitigation measures in place, the potential impacts of the Proposed Development are anticipated to result in **likely moderate permanent adverse (significant)** effects on bats at the **county level** (in absence of compensation and enhancement – additional mitigation).

Breeding Birds

Impact Characterisation

11.7.56 Without sensitive timing to works, the Proposed Development has the potential to result in disturbance to breeding birds, including skylark and yellowhammer, both of which are red listed and have been confirmed to be breeding on-site.

11.7.57 The Proposed Development will result in the loss of arable fields, which will directly impact skylarks, and the majority of the arable field margins, which will impact yellowhammer. There will also be a small loss of woodland and hedgerow habitat. Any vegetation removal during the breeding bird season has the potential to result in the destruction of active bird nests and the killing / injury of eggs / young.

Significance of Effects

11.7.58 With embedded mitigation measures in place, the impacts during the construction phase will result in habitat losses that would have a **certain permanent**

moderate adverse (significant) effect on birds at the **local level** (in absence of compensation and enhancement – additional mitigation).

Common Dormice

Impact Characterisation

11.7.59 The majority of suitable dormouse habitat will be retained at the Site. However, the loss of small areas of woodland at the bridge crossing point and hedgerow sections to make way for access roads could result in direct harm to individual dormice and a negative effect on the conservation status of this species. The current distribution of the population present is poor, with presence only identified at the northern boundary, though this species can be difficult to detect and reducing opportunities for future colonisation of the Site where suitable habitat is present must also be considered.

11.7.60 The creation of gaps in hedgerows could result in habitat fragmentation, restricting the movement of dormice and negatively affecting the ability for the population to grow and spread to surrounding habitats. However, dormice are able to use non-corridor habitat (e.g. fields and grassland) where necessary and this doesn't present a complete barrier to movement[44]. Furthermore, dormice have been recorded crossing roads[45] and, though this increases the risk of road mortality[46], traffic is expected to be light during the night when dormice are active, and the risk is low.

Significance of Effects

11.7.61 With embedded mitigation measures in place, the impacts will have a **likely permanent moderate adverse (significant)** effect on dormice at the **local level,** (in absence of compensation and enhancement – additional mitigation).

Great Crested Newts and Other Amphibians

Impact Characterisation

11.7.62 Based on the survey results, the great crested newt is present in the ponds at the centre of the Site, in low numbers. These ponds will not be directly impacted by the Proposed Development. Common toad has also been confirmed present on-site.

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[44] Bright, P.W (1998) Behaviour of specialist species in habitat corridors: dormice avoid corridor gaps

[45] Kelm et al (2015) How often does a strictly arboreal mammal voluntarily cross roads? New insights into the behaviour of the hazel dormouse in roadside habitats

[46] Sevianu et all (2022) Road mortality in Hazel Dormice (*Muscardinus avellanarius*): first evidences for this species and implications for road mortality research

11.7.63 The Proposed Development will largely impact arable land which is of low / negligible value for great crested newts and common toad, with the surrounding hedgerows and woodland largely retained. However, there will be a small loss of these high value habitats and their presence cannot be ruled out from the arable land. There is therefore a risk of killing / injury to great crested newts and common toad during the construction phase.

Significance of Effects

11.7.64 As land within 100 m of a great crested breeding pond is due to be impacted by the Proposed Development, harm to great crested newts is likely (refer to **ES Volume 4, Appendix G1, Figure 5**).

11.7.65 As the population of great crested newts at the Site is low and the majority of suitable habitat will be retained, with embedded mitigation measures in place, the impacts will have a **certain permanent moderate adverse (significant)** effect on great crested newts at the **local level**, (in absence of compensation and enhancement – additional mitigation).

11.7.66 The size of the common toad population at the Site is unknown but is likely low as only four observations were recorded throughout the 2022 survey season (three during the reptile survey and one during a great crested newt survey). However, toad tadpoles were recorded within the central pond. As the majority of suitable toad habitat is being retained, and there is extensive similar habitat in the surrounding landscape, and as the population on-site is likely small, the effect of the Proposed Development is assessed as a **likely minor adverse (not significant)** effect at **site level** (in absence of compensation and enhancement – additional mitigation).

Reptiles

Impact Characterisation

11.7.67 Most grass snakes were recorded along the northern boundary of the central field and in the south-east corner of the Site, with both grassland habitats in these areas to be retained. However, disturbance levels will significantly increase, both during the construction phase and the operational phase, which will likely deter grass snakes from this area entirely.

Significance of Effects

11.7.68 Grass snakes are highly mobile and will quickly disperse out of harm's way, and therefore the risk of direct harm to grass snakes is low. With embedded mitigation measures in place for habitat loss, the impacts will have a **certain permanent moderate adverse (significant)** effect on grass snakes at the **local level** (in absence of compensation and enhancement – additional mitigation).

Riparian Wildlife

Impact Characterisation

11.7.69 There are no anticipated impacts on crayfish, water vole or otter.

11.7.70 As previously mentioned in the designated sites and habitats sections, the construction of the Proposed Development carries a high risk of pollution and release of fine sediments into the watercourses that flow through the Site. The bordering woodland along these watercourses will act as a natural barrier to some extent, but the Proposed Development will lead to large-scale construction activity over a wide area of arable land, and run-off during heavy rainfall events is likely to be substantial, causing soil erosion and carrying high sediment loads that will ultimately drain into these watercourses. The resultant soft sediment deposition could result in far-reaching and permanent adverse impacts on the habitat quality downstream from the construction Site, through the smothering of natural stony substrates that are important to aquatic invertebrate assemblages and fisheries alike. Construction activities will also involve the use of a wide range of chemicals and fuel oils, which in the absence of mitigation, could be washed into the watercourses during heavy rainfall and cause pollution. Depending on the type and quantity of pollutants, this could also have far-reaching adverse impacts on the ecology of the watercourses extending beyond the Site and into the LWS downstream.

Significance of Effects

11.7.71 Based on the scale of the Proposed Development, and the size of the watercourses that flow through the Site, the risk of soft silt mobilisation and sedimentation in the watercourses during construction. However, with embedded mitigation in place, this would lead to a **possible permanent moderate adverse (significant) effect** on watercourses **at up to district level,** (in absence of compensation and enhancement – additional mitigation).

Other Notable Species

Impact characterisation

11.7.72 The majority of habitat to be directly impacted by the Proposed Development is arable, which has low biodiversity value and notable species are unlikely to be present.

11.7.73 However, small amounts of woodland, arable field margin, grassland and hedgerow will be lost to the Proposed Development and this could potentially negatively impact notable invertebrate and botanical species.

11.7.74 Based on pre-existing records, the Proposed Development has potential to impact on European hedgehog through habitat loss and increased risk of roadkill.

However, the proposed residential development and the associated mosaic of private gardens and greenspace created would, in time, become suitable for hedgehogs and offer more value than the existing arable land if designed to allow permeability of movement for this species and this will offset the construction impacts.

11.7.75 In the absence of mitigation, there remains a risk of direct harm to hedgehogs during construction activities, if present on the Site. In the long term, the Proposed Development could result in fragmentation of hedgehog foraging and resting areas as fencing between properties could restrict the movement of hedgehogs.

Significance of Effects

11.7.76 The hedgehog has suffered dramatic declines in population in recent decades, although it remains fairly widespread and is thought to have declined less in urban areas than rural areas[25]. There is a high degree of uncertainty of impacts occurring but as the Proposed Development will largely impact arable land, of low / negligible value to hedgehogs, the Proposed Development is likely to result in **possible moderate adverse (significant) effects** at a **local level**, (in absence of compensation and enhancement – additional mitigation).

Invasive Non-Native Species

Impact Characterisation

11.7.77 If cherry laurel and rhododendron are not removed from within woodland parcel 11, there is a small risk that these species could spread to other areas at the Site.

11.7.78 There is a small risk during construction that invasive / non-native species (such as those listed on Schedule 9 of the Wildlife & Countryside Act, 1981) could potentially be introduced and become established on the Site and potentially spread beyond the Site. Sources could include importation of contaminated materials and / or deliberate planting of ornamental non-native species for landscaping purposes.

Significance of Effects

11.7.79 With embedded mitigation measures in place, the Proposed Development presents risk for a **likely negligible** effect on ecology at the Site.

Parkland Reserve Site – Construction Phase

11.7.80 The construction proposals at the Parkland Reserve Site are extremely limited and will result in localised impacts to parts of the Parkland Reserve Site only. For this reason, the summary of significant effects resulting from these proposals are not in depth and do not individually cover each identified potential sensitive receptor.

11.7.81 No impact risks are considered significant for the following protected or notable species: bats, aquatic invertebrates, badgers and riparian wildlife, in consideration

of the scale of the proposals (establishment of new footpath and cycle path) and the habitats impacted (no direct impacts to ponds or watercourses are anticipated). Further, a standard precautionary approach to the proposals through the production of a CEMP for the establishment of new pedestrian and cycle access points to the north, the addition of two wooden viewing platforms and instigation of long-term management and rewilding regime, mean that impact risks to dormice, common reptiles, breeding birds and priority habitats will be negligible. The construction of the proposed paths along existing trackways further reduces impacts to surrounding trees and ground cover. Further details of receptor specific proposed mitigation measures are provided in **ES Volume 4 Appendix G3** which can be referred to for further detail.

11.7.82 The significant effects resulting from the establishment and management of new habitats are considered entirely within the 'operational phase' for the Parkland Reserve Site.

Proposed Development - Operational Phase

Embedded Mitigation Measures

Designated Sites

11.7.83 With the establishment of the Proposed Development, new areas of publicly accessible green space will be created on the Site and within the associated Parkland Reserve Site located to the north-west (an area measuring approximately 103.21 ha). This will provide an alternative place for recreation to the adjacent LWS and other designated sites within the local area. This may have a wide-ranging beneficial effect on designated sites beyond this Proposed Development, that draws visitors from Cuckfield and thus reduces visitor impacts to designated sites.

Priority Habitats

11.7.84 To prevent impacts from increased recreational pressure, all ancient woodland will be fenced off from the public, with the proposed buffers to include native thorny shrub planting that should further deter access, whilst these buffers also act to sequester nitrogen absorb air pollutants. The remaining woodland and greenspace will be clearly signposted with footpaths and information boards will be erected to educate the public about the sensitive habitats and notable species.

11.7.85 It is essential that the habitats on-Site are monitored in perpetuity for signs of human damage, such as littering and footfall in restricted areas. Any signs of damage must be addressed, with preventative measures put in place.

11.7.86 The above measures shall be set out in detail through the adoption of a LEMP for the Site and secured through planning condition.

Badgers

11.7.87 To reduce the risk of cars injuring or killing wildlife, including badgers, the roads within the Proposed Development will be limited to 20 mph where possible. Signs will be installed where any road is in close proximity to woodland or a natural feature that provides a commuting route for badgers, to warn drivers of animals crossing. High visibility road paint will be used to mark the edges of the road around potential crossing points.

11.7.88 The woodland in which the setts are located will be fenced off to exclude the public and where possible dogs, but allow free movement by badgers.

Bats

11.7.89 The Proposed Development will incorporate a 'sensitive lighting plan', developed as part of the detailed design, in accordance with guidelines set out by the Bat Conservation Trust. All woodland will be a 'no light zone' and 'dark corridors' will be created throughout the Site, along the retained hedgerows and tree belts. Any lighting required for health and safety will have features to minimise light spill onto all semi-natural habitats. All street lighting should be directed downwards and use light sources that are not attractive to insects. Reflective white line marking should be used in preference to artificial lighting in all non-essential applications.

Breeding Birds

11.7.90 No less than 500 bird nesting features will be incorporated into the Proposed Development, to ensure that nesting opportunities for house martin, swallow, house sparrow, starling and common garden birds are provided. Furthermore, every home will incorporate a 'built in' swift brick that is installed near to the eaves of each home. These new nesting features will ensure significant nesting value for a variety of breeding birds through the lifetime of the Proposed Development, with specific proposals detailed within a LEMP secured via planning condition. All nesting features will need to be maintained and monitored in perpetuity.

Dormouse

11.7.91 The thorny planting incorporated into the Site design will help reduce the effects of potential future predation by domestic cats. A sensitive lighting scheme already outlined for bats will further help reduce the effects of artificial light upon dormice.

11.7.92 New habitats will be created that are favourable for dormice, with an area of habitat created that will significantly exceed that lost at a ratio of no less than 3 / 1, with these habitats managed in perpetuity to favour dormice. This includes the proposed 'ecotones' forming buffers to all woodlands present and additional scrub planting proposed at the northern boundary of the site where a dormouse nest was identified.

Great Crested Newt and Other Amphibians

11.7.93 Habitats created for great crested newts will need to be managed in perpetuity to support this species as set out within the LEMP secured via planning condition. Existing ponds will be carefully managed to ensure they are kept free of pollution risks and monitoring will check for the arrival of any invasive species, with remedial action taken where necessary. Design features that will aid the continued use of the Site by amphibians includes the inclusion of sloped kerbstones and set back gullypots from the kerb to prevent accidental amphibian entrapment.

Reptiles

11.7.94 Management of all grassland habitats will be set out within the LEMP secured via planning condition and will incorporate measures that ensure risks to common reptiles through grassland management are minimised.

Riparian Wildlife

11.7.95 The control of surface drainage will be carefully managed to ensure that there is no direct runoff to the Copyhold Stream. Features to be incorporated will include Sustainable Drainage Systems (SuDS), attenuation ponds and pollution control valves. Access to the watercourse must be monitored and managed to ensure that public access is restricted. The local sewerage network will either cover the proposed increased housing capacity, or the water company would be obliged to increase its capacity as necessary to support the Proposed Development.

Invasive Non-native Species

11.7.96 Impacts resulting from non-native species will be avoided through the adoption of native planting schemes. Seed mixes and tree / shrub planting schemes will be detailed within a Site-wide LEMP secured via planning condition. Education boards on the risks to semi-natural habitats that are caused by inappropriate green waste disposal and release of unwanted fish or reptiles will be incorporated into the Site as part of a drive to ensure appropriate use of the Site by residents and wider public.

Other Notable Species

11.7.97 Monitoring for hedgehogs will help identify potential future conflicts, particularly road crossings. An adaptive future strategy to deal with these conflicts as they arise can be considered within the LEMP secured via planning condition.

11.7.98 All new garden fencing should contain accessible gaps (10 cm x 15 cm) at their base to allow movement of hedgehogs between garden plots. An ecological permeability plan (showing hedgehog movement routes) should be included in the LEMP.

11.7.99 Road signs should be erected throughout the Proposed Development, reminding people to look out for hedgehogs.

Anticipated Effects

Designated Sites

Impact Characterisation

11.7.100 There is a footpath connecting the Site with Great Wood and Copyhold Hanger LWS. The Proposed Development would therefore result in direct impacts to the LWS in the form of increased recreational pressure and associated impacts including disturbance, increased dog fouling, litter and soil compaction. There is also a risk of air pollution as the proposed area for new houses is within 250 m[47] of the LWS.

11.7.101 Furthermore, the Proposed Development will potentially result in increased recreational pressure on Blunts and Paiges Wood LNR (1.3 km north-east) and the three nearby LWSs, which are beyond 1 km from the Site boundary.

Significance of Effects

11.7.102 With embedded mitigation measures in place, the potential impacts of the Proposed Development are anticipated to result in **likely minor adverse (not significant)** effects on Great Wood and Copyhold Hanger LWS at a **District Level**. Impacts upon other designated sites are considered to be **likely negligible**, (in absence of compensation and enhancement – additional mitigation).

Biodiversity Value

11.7.103 Biodiversity value losses are largely calculated based on construction phase impacts and are therefore not considered further as an operational impact, though undoubtedly some habitats have the potential to reduce in condition when subjected to recreational use and other impacts. With embedded mitigation measures in place, these effects are considered to be **likely negligible**.

Priority Habitat

Impact Characterisation

11.7.104 The operational phase of the Proposed Development could result in chronic disturbance from access by new residents through trampling and dog fouling,

[47] Institute of Air and Quality Management (2016) Guidance on the assessment of mineral dust impacts for planning

which can change vegetation communities, and ongoing air pollution due to an increase of vehicles on-Site.

11.7.105 The air quality assessment report produced by Temple (refer to **Chapter 8: Air Quality**) has identified that two ancient woodlands at the Site and four woodlands to the south of the Site will pass the critical load level 1% process contribution by more than 1% for NOX, annual mean NH3 (Ammonia) and nutrient Nitrogen deposition, though for on-Site woodland only the nutrient nitrogen deposition threshold is passed. These impacts are projected largely as a result of projected future traffic increases once the Site is operational.

11.7.106 Nitrogen deposition in all forms has the potential to affect plant communities, creating favourable conditions for vegetation that thrives in more nutrient-rich environments. The most sensitive receptors within woodland environments however are bryophytes and lichens, which often thrive within ancient woodlands with closed canopies where humidity levels may be elevated.

11.7.107 Anticipated increases in nitrogen levels causes by vehicles run on fossil fuels are uncertain. Whilst government commitments on the phasing out of petrol and diesel cars is presently uncertain, the trend in public purchasing of electric vehicles is positive, with the intent to buy electric cars at 54% amongst the UK public, compared with 41% for petrol and diesel cars[48].

Significance of Effects

11.7.108 Impacts through the operational phase of the Proposed Development, with imbedded mitigation measures in place, a **possible moderate adverse (significant)** effect at a **local level** is anticipated, (in absence of compensation and enhancement – additional mitigation).

Badgers

Impact Characterisation

11.7.109 Indirect impacts to foraging and commuting badgers is likely during the operational phase through the permanent loss of foraging habitat (arable fields and pasture), risk of collision with cars, and interference of setts by the public and increased disturbance. Badgers can be subject to stress through disturbance by people and dogs, though they are increasingly found in more urbanised contexts, demonstrating adaptability to their changing surroundings.

[48] Ernst & Young press release 27th June 2023 – www.ey.com/en_uk/news/2023/06/uk-electric-vehicle-buying-intent-continues-rise

Significance of Effects

11.7.110 Impacts upon Badgers during the operational phase of the Proposed Development, once imbedded mitigation measures have been incorporated, will result in **likely minor adverse (not significant)** effects at a **site level**, (in absence of compensation and enhancement – additional mitigation).

Bats

Impact Characterisation

11.7.111 The majority of habitat of value for bats will be retained and will not be subject to ongoing disturbance, as this is within the canopy layer and along woodland edge habitats, however the degradation of ground flora in priority habitats (as described at paragraph 11.7.103), could reduce the abundance of invertebrate prey and there are risks that light pollution could impact commuting routes and foraging areas.

11.7.112 There are no proposed direct impacts to the buildings at the centre of the Site, however the increased isolation of these buildings from surrounding foraging habitats by built form that is artificially lit, may reduce the viability of these roosts.

11.7.113 Domestic cats commonly predate upon bats and the increase in the number of cats locally associated with residential part of the Proposed Development will increase bat mortality. Collision risks with cars could also increase, with the greatest risk being the movement of vehicles over the bridge crossings, through woodland habitat.

11.7.114 Some opportunities for bats may arise from the Proposed Development, in the form of increased roosting opportunities within buildings and an increase in structural habitat complexity of residential areas, compared with arable habitats. The often diverse garden habitats associated with residential development, compared with the monoculture found within arable fields, may lead to an increase in foraging value for more light-tolerant species associated with edge habitats, such as the common and soprano pipistrelle.

Significance of effects

11.7.115 Due to the impacts listed above, the conservation significance of the species recorded and the confirmation of roosting, foraging and commuting, once imbedded mitigation measures have been factored in, the potential impacts of the Proposed Development are anticipated to result in **likely minor adverse (not significant)** effects on bats at the **county level**, (in absence of compensation and enhancement – additional mitigation).

Breeding Birds

Impact Characterisation

11.7.116 Increased human activity during the operational phase will result in chronic disturbance to nesting birds, and the likely increase in cats at the Site will likely significantly increase the predation risk.

11.7.117 Urbanisation can change bird assemblages by favouring those birds that have a higher tolerance to disturbance, whilst garden habitats and the presence of bird feeders put out by residents can also have an influence. Typically, this would see a negative effect upon insectivorous and more secretive birds such as warblers, but may even favour some omnivorous birds such as blue tits.

Significance of Effects

11.7.118 The potential impacts through the operational phase, with embedded mitigation measures considered, are anticipated to result in **likely moderate adverse (significant)** effects on birds at the **local level**, (in absence of compensation and enhancement – additional mitigation).

Common Dormice

Impact Characterisation

11.7.119 There will be long-term impacts from light pollution during the operational phase of the Proposed Development, with this nocturnal species relying on darkness for cover from potential predators.

11.7.120 The Proposed Development will result in a significant increase in the presence of domestic cats on-site, which will result in a significant increase in predation risk to dormice[49].

Significance of Effects

11.7.121 In the absence of mitigation, the continued pressures to dormice through the operational phase of the Proposed Development will result in a **likely minor adverse (not significant) effect** at a **local level**, (in absence of compensation and enhancement – additional mitigation).

[49] Woods et al (2003) Predation of wildlife by domestic cats Felis catus in Great Britain

Great Crested Newts and Amphibians

Impact Characterisation

11.7.122 There will be an increase in road traffic during the operational phase which will restrict movement of great crested newts and common toad and likely result in increased mortality of these species.

11.7.123 The operational phase of the Proposed Development will likely result in an increase of cats on-site, increasing the risk of predation on great crested newts and common toad.

11.7.124 The ponds and surrounding gardens at the centre of the Site are not due to be impacted by the Proposed Development. However, the loss of field margins, and small areas of woodland and hedgerow cannot be avoided.

Significance of Effects

11.7.125 In the absence of mitigation, the impacts through the operational phase of the Proposed Development are anticipated to result in a **likely moderate adverse (significant) effect** at a **local level**, (in absence of compensation and enhancement – additional mitigation).

Reptiles

Impact Characterisation

11.7.126 The Proposed Development will likely deter grass snakes from parts of the Site through disturbance and displacement, particularly at the northern boundary of the central field and in the south-eastern corner of the Site, pushing the existing 'large' population into surrounding habitats and the capacity for these habitats to support grass snakes is unknown. Whilst the majority of suitable reptile habitat at the Site will be retained, the disturbance impacts from the increased footfall, and domestic pets creates uncertainty in how significant impacts upon this transitory species will be.

Significance of Effects

11.7.127 In the absence of mitigation, the impacts through the operational phase of the Proposed Development are anticipated to result in a **likely moderate adverse (significant) effect** at a **local level**, (in absence of compensation and enhancement – additional mitigation).

Riparian Wildlife

11.7.128 There are no anticipated impacts upon crayfish, water vole or otter.

11.7.129 The watercourses that pass through the Site will be subject to increased risk of run-off from hard standing including roads and driveways that could wash salt and

hydrocarbons into the watercourse and have cumulative adverse effects on the aquatic invertebrate assemblage. There is also an increased risk of accidental or deliberate pollution of the watercourse through more human activities close by. The increase in the local residential population resulting from the Proposed Development will result in an increased loading on the existing sewage treatment works, which currently discharges into this watercourse. In the absence of upgrades to these works to cope with this increased demand, the Proposed Development could indirectly lead to deterioration in the water quality of the watercourse downstream from the treatment works. Furthermore, the increased loading irrespective of any upgrades to the capacity of the works, will result in higher volumes of water flow discharged from this sewage works, and an increase in the level of nutrients (phosphates, nitrates) and other trace contaminants (endocrine disrupters, heavy metals and detergents) that could impact on the aquatic invertebrate assemblage.

Significance of Effects

11.7.130 With the embedded mitigation measures considered, the impacts to the Copyhold Stream and its future suitability to support protected riparian wildlife are considered **possible moderate adverse (significant)** at a **local level**, (in absence of compensation and enhancement – additional mitigation).

Other notable species

11.7.131 Increases in traffic, the introduction of pets and other sources of disturbance may have an adverse effect on hedgehogs, if present. Disturbance may affect breeding success and the use of some products by homeowners (such as slug pellets) may be harmful to hedgehogs.

11.7.132 Some beneficial effects are however also possible through the development. Arable habitats are generally unfavourable for hedgehogs, whilst the mosaic of suburban habitats within the Proposed Development, including large areas of connected gardens, green open spaces and the buffer strips will all benefit hedgehogs.

Significance of Effects

11.7.133 With the embedded mitigation measures considered, the impacts to hedgehogs are considered to be **likely negligible**.

Parkland Reserve Site – Operational Phase

Embedded Mitigation Measures and Anticipated Effects

11.7.134 The enhancement of the Parkland Reserve Site is set out within the Habitat & Ecological Restoration Management Plan produced by Tadorna Consulting (**ES**

Volume 4, Appendix G6), which supports a change of land use application for the Parkland Reserve Site.

11.7.135 As the proposals at the Parkland Reserve Site are overwhelmingly positive, this section therefore focusses on the targeted benefits for biodiversity and protected or notable species, with the anticipated effects for each ecological receptor considered here also. Due to the fact that no significant adverse effects have been identified no further additional mitigation measures are proposed in **Section 11.8** for the Parkland Reserve Site and as such, no further residual effects are considered in **Section 11.9**. Monitoring surveys are however proposed to inform future management and provide an evidence basis for the success of failure of the site to deliver targeted benefits for each identified key receptor.

11.7.136 Whilst there will undoubtedly be some disturbance impacts resulting from an increase in visitors to the Parkland Reserve Site, the careful management of visitors through fenced paths, the provision of bins and creation of access barriers are all considered sufficient to ensure that the effects of increased visitor numbers do not detract from the positive effects the proposals will have upon all identified ecological receptors. Potential negative effects from increased visitors include dog fouling and poor dog control, anti-social behaviour, localised trampling of habitats, risk of arson and disturbance of sensitive wildlife (such as nesting birds).

Designated sites

11.7.137 The operational phase of the Parkland Reserve Site will attract local visitors for dog walking and general enjoyment of the countryside. Whilst the Parkland Reserve Site does not lie in close proximity to any statutory designated sites, the draw of local visitors may alleviate visitor pressure from Blunts and Paiges LNR, and Ashenground and Bolnore Woods LNR in addition to five local wildlife sites.

Significance of Effects

11.7.138 The establishment of the Parkland Reserve Site would lead to a **likely minor positive impact at a district level.**

Biodiversity Value

11.7.139 The biodiversity value of the Parkland Reserve Site will increase significantly, and a detailed Biodiversity Impact Calculation is provided in **ES Volume 4 Appendix G5** which sets out how the future habitat creation and management measures proposed will result in a site-level uplift of 177.39 habitat units. Conservative considerations have been made for this biodiversity uplift to ensure a high confidence in this gain and this uplift value ensures an increase of 20% in habitat units for the Proposed Development.

Significance of Effects

11.7.140 The uplift in biodiversity value from the establishment of the Parkland Reserve Site is considered to be a **certain major positive impact at a local level.**

Priority Habitats

11.7.141 The ponds will be restored, with carp removed from two of the ponds to enable their recovery and improved value for amphibians and invertebrates. Two other ponds will be restored by removing built up sediment and detritus to restore the ponds back to their original clay liners.

11.7.142 The lowland mixed deciduous woodland, much of which is designated as ancient woodland, will benefit from the removal of Rhododendron ponticum (an invasive species). Some access by stock (pigs and cattle) in low numbers is also considered to have a likely positive impact overall. The veteranisation of trees is also proposed within some woodland areas, whereby non-native tree species present, such as turkey oak and horse chestnut would be subject to intentional damage that creates a disadvantage for these trees, but creates new opportunities for a range of fungi, invertebrates, birds and bats.

11.7.143 The wood pasture and parkland habitat will benefit from careful grazing management and the protection of veteran trees. Over time this will lead to an improved sward structure and diversity, whilst the ground disturbance caused by cattle and pigs, coupled with the dung associated with these animals will create a significant benefit for a range of invertebrate species.

Significance of Effects

11.7.144 The future careful habitat creation and long-term management proposals for the Parkland Reserve Site would result in a **certain major positive benefit for priority habitats at a local level**.

Badgers

11.7.145 Whilst there is a minor risk of disturbance to a single outlier sett situated close to a proposed new footpath, the retained, enhanced and newly created habitats proposed will result in a significant increase in foraging habitat value for this species. This includes an increase in scrub cover, improved soil health, the establishment of new hedgerows and diversification of grassland swards that will increase foraging opportunities associated with greater numbers of fruiting bodies from trees and shrubs and in an increase in the abundance of invertebrate prey such as earthworms and beetle larvae.

Significance of Effects

11.7.146 The operational phase of the Parkland Reserve Site will have a **likely moderate positive impact for badgers at a site level**.

Bats

11.7.147 The installation of six tree mounted maternity and hibernation boxes is proposed in addition to the veteranisation of a number of poplar trees on the Parkland Reserve Site, which will lead to the creation of a number of new bat roosting features within woodland that is often quite uniform in age structure and lacks many natural roost features.

11.7.148 The proposals do not include any lighting or other impacts that might significantly affect foraging and commuting bats, however conversely the newly created, restored and enhanced habitats will provide a significant benefit for foraging bats, most particularly associated with the new woodland glades, restored ponds and enhanced wood pasture and parkland habitat.

Significance of Effects

11.7.149 The proposals to create new roosting habitat and improve the foraging habitat value of the Parkland Reserve Site will have a **likely moderate positive impact for bats at a county level**.

Breeding Birds

11.7.150 The installation of 20 tree mounted bird boxes within suitable locations is proposed along the eastern edge of the semi-natural ancient woodland in addition to the creation of a number of species-specific nesting provisions to be created within veteranised trees.

11.7.151 The proposed new hedgerows, establishment of mores species-diverse swards, scrub development and the enhancement of the ponds will all lead to improved habitats of value for a range of foraging and nesting bird species.

Significance of Effects

11.7.152 The creation of new nesting sites and the enhancement of foraging and nesting habitats will have a **likely moderate positive impact for breeding birds at a local level.**

Common Dormice

11.7.153 The proposed veteranisation of the poplar trees will lead to the creation of a number of new features that could be adopted by dormice for nesting. The scrub mosaic that will establish over time along the woodland edges and within the enhanced wood pasture and parkland habitat through low intensity grazing

management will lead to new foraging opportunities in addition to the proposed hedgerow planting.

Significance of Effects

11.7.154 The habitat enhancements proposed would result in a likely moderate positive impact upon dormice at a local level.

Great Crested Newts

11.7.155 The restoration of the ponds on the Parkland Reserve Site, including the removal of carp from two ponds, will greatly enhance breeding opportunities for great crested newts. The low density grazing strategy for the future management of the Parkland Reserve Site will further lead to the creation of additional scrub habitat and an increase in invertebrate populations, which will benefit terrestrially foraging amphibians.

Significance of Effects

11.7.156 The proposed restoration of ponds and enhancement of foraging habitats will have a **likely moderate positive impact upon great crested newts at a local level.**

Reptiles

11.7.157 The enhancement of the wood pasture and parkland habitat and conversion of some areas of modified grassland to other neutral grassland habitat will benefit common reptiles. The restoration of the ponds and future subsequent increases in amphibian populations will benefit the grass snake population present, with amphibians forming an important component of their prey.

Significance of Effects

11.7.158 The increase in foraging habitat value will result in a likely moderate positive impact upon reptiles at a local level.

Aquatic invertebrates

11.7.159 The proposed restoration of the ponds, including the removal of invasive lesser dickweed and carp will result in a significant increase in value for a variety of aquatic invertebrates which will benefit from increased habitat availability, water quality and a reduction in predation (through the removal of carp).

11.7.160 The grading of the pond margins to provide shallow sloping or shelved profiles will encourage the natural development of a more diverse marginal aquatic flora within which most aquatic invertebrate species tend to thrive. Further, light poaching of some pond margins by livestock will promote floral diversity and

produce small pools that can act as breeding grounds for a greater diversity of invertebrates.

Significance of Effects

11.7.161 The restoration of the ponds at the Parkland Reserve Site will result in a certain moderate positive impact upon aquatic invertebrate species at a local level.

11.8 Scope for Additional Mitigation Measures

Proposed Compensation and Enhancement Measures

Designated Sites

11.8.1 To compensate for impacts from the Proposed Development on nearby designated sites, it is recommended that appropriate financial contributions secured through a future S106 agreement are given to the respective authorities to contribute towards future management.

Biodiversity Value

11.8.2 The proposed biodiversity enhancements at the Site must be subject to ongoing monitoring and maintenance to ensure that target habitat conditions are met. Appropriate monitoring of habitats that are to be maintained will form a requirement of the Environment Act and subject to a future Section 106 (S106) agreement.

11.8.3 As mentioned in **Chapter 1: Introduction** of this ES, in addition to the outline planning application for the Proposed Development, a separate outline planning application the Parkland Reserve Site is also being submitted in parallel to the planning application for the Proposed Development, as the Site and the Parkland Reserve Site are inter-linked due to the Biodiversity Net Gain Assessment for the Proposed Development, and one would not come forward without the other.

11.8.4 In view of the above, the proposed Parkland Reserve Site forms in a large and very significant compensation and enhancement measure for biodiversity. The Habitat & Ecological Restoration Management Plan sets out habitat creation and management measures for this 103.21 ha site which will deliver significant biodiversity net gain, with an increase of 177.39 habitat units and 0.21 hedgerow units. The Proposed Development would result in an on-site loss of 53.46 habitat units (-8.79 %), a predicted gain of 13.02 hedgerow units (+10.7%) and a gain of 3.43 watercourse units (+10.46 %). Utilising the surplus biodiversity net gain from the Parkland Reserve Site, the Site will achieve 20% biodiversity net gain from the uplift of 177.39 habitat units, whilst the biodiversity gain of 10% targeted under the Environment Act will be met for hedgerow and river units.

11.8.5 Commitments to biodiversity net gain can be secured through a future S106 agreement.

Priority Habitat

11.8.6 It is essential that the habitats on-site are monitored in perpetuity for signs of human damage, such as littering and footfall in restricted areas. Any signs of damage must be addressed and prevented from occurring again.

11.8.7 The above measures shall be set out in detail through the adoption of a LEMP for the Site and secured through planning condition.

11.8.8 The establishment of the 20 m buffer areas around ancient woodlands at the Site will help reduce the effects of elevated nitrogen deposition through sequestration. These buffers will include thorny planting that will also further deter access by future residents into woodland habitat.

11.8.9 The Parkland Reserve Site will result in the enhancement of existing priority habitats, including broadleaved woodlands and also the creation of new priority habitats, including new ponds and the restoration of wood pasture and parkland habitat. These enhancements serve as compensation directly for impacts to woodlands and grassland habitat at the Development Site, but further broadly compensates for overall biodiversity value lost.

Badgers

11.8.10 No additional measures are considered necessary.

Bats

11.8.11 The loss of roosting features in trees will be compensated for through a combination of improved woodland management, which will ensure the future development of large mature trees in the long-term. In the short-term, no less than 100 bat boxes that are suitable for tree roosting bat species will be installed on trees scattered throughout retained woodland habitat at the Site. This commitment can be secured through planning condition.

Breeding Birds

11.8.12 With the exception of suitable habitat for skylarks and yellowhammer, the loss of nesting bird habitat will be adequately compensated for through the addition of nest boxes and pockets, new species-rich hedgerows and through the planting of native trees and shrubs as part of the soft landscape design for the Site. This commitment can be secured through planning condition.

Common Dormice

11.8.13 The 'poor' and 'moderate' condition woodland at the Site will be enhanced, targeting features of value for dormice, such as improving woodland diversity through supplementary planting, improving the woodland structure and coppicing of hazel; the management plan for the woodland will be secured within a Landscape and Ecological Management Plan (LEMP), which can form a condition of development that must ensure all woodland enhancements commence in advance of the commencement of construction. Additionally, a minimum of 100 dormouse boxes will be installed in suitable habitat across the Site, away from locations where there could be disturbance by the public. This commitment can be secured through planning condition.

Great Crested Newts and Other Amphibians

11.8.14 The Parkland Reserve Site will significantly benefit this species through the creation of scrub habitat, enhancement of ponds and improved woodland management, thus improving the local metapopulation of this species and potential future genetic mixing between populations of great crested newts at the Parkland Reserve and at the Site. The restoration and enhancement of some of the ponds at the Site will be set out in the LEMP to ensure that macrophyte cover is improved, ponds with high levels of detritus or sedimentation are cleared to increase their volume and permanence. Commitment to an LEMP can be secured through a planning condition.

Reptiles

11.8.15 The landscape and management plan for the Parkland Reserve Site includes a re-wilding management strategy that will benefit grass snakes, through the creation of tussocky grassland, scrub development, the enhancement of on-site ponds and improved woodland management. Improvements in habitat value at a local level will benefit any grass snakes potentially displaced from the Development Site, but will certainly benefit the wider local population of this species. As amphibians form an important prey source for grass snakes, the enhancements described in paragraph 11.8.13 will lead to increased prey abundance for grass snakes.

Riparian Wildlife

11.8.16 A monitoring programme will be put in place specifically to monitor the ecological condition of the Copyhold Stream for a specified period through the construction phase and post occupation of the Proposed Development. The monitoring should be used to measure any changes in the water quality and instigate appropriate remedial action. The monitoring protocol shall be consistent with nationally recognised methods (outlined by the Environment Agency) and set out in the LEMP as secured through planning condition.

Other Notable Species

11.8.17 No additional measures are considered necessary.

Invasive non-native species

11.8.18 No additional measures are considered necessary.

Likely Effectiveness of Additional Mitigation Measures

11.8.19 A high degree of confidence can be applied to broad habitat enhancements associated with the Parkland Reserve Site and the benefits this will provide for a variety of protected and notable species, including all of the key species or overall species groups described within this chapter. The Habitat & Ecological Restoration Management Plan set out by Tadorna Consulting must be implemented in full to ensure these benefits are realised and it will further be crucial that future detailed monitoring of the effectiveness of ongoing management of the Parkland Reserve Site is undertaken to ensure that target habitat conditions are met. Where any failure to meet target habitat conditions is met, a budget to fund appropriate adaptive management must be available to implement necessary changes.

11.8.20 Ongoing monitoring of the retained and modified habitats at the Site must also be implemented to ensure that target habitat conditions and built features that are prescribed within the LEMP realise their full potential. Any management fund must include an appropriate budget to allow for adaptive management where necessary to ensure that any failure in habitat creation or enhancement can be remedied.

11.8.21 The certainty of success of habitat creation and enhancement at the Site may become challenging, depending on how effectively public users are managed. Significant efforts must be made to ensure that there is good public engagement on appropriate use of public open spaces and retained habitats, through the use of appropriate signage, litter and dog fouling bins and information boards that educate the public on the reasons behind the protection of some habitats at the Site.

11.8.22 All mitigation and compensation measures proposed for great crested newts and dormice will be subject to a European Protected Species license from Natural England, which will form legally binding documents that require the effective delivery of all measures set out within a License Method Statement. These licenses can only be obtained following the grant of planning consent.

11.9 Residual Effects

11.9.1 This section considers both the additional mitigation measures proposed at the Site and the benefits delivered through the creation and management of the Parkland Reserve Site (as set out in section 11.7) in tandem.

Designated Sites

11.9.2 With the implementation of the above enhancement and compensation measures (additional mitigation measures) the potential for residual impacts on the adjacent LWS and designated sites within 2 km is considered to reduce to **likely negligible**.

Biodiversity Value

11.9.3 The achievement of significant biodiversity net gain in Habitat Units that exceeds 20% as measured in the Defra Metric 4.0 should be considered a **likely permanent** significant **moderate beneficial** effect at a **local level**.

Priority Habitat

11.9.4 There will be a small loss of priority habitat woodland and hedgerows that cannot be avoided. The lost woodland and hedgerow habitat will be replaced through planting, with the wide buffer zones bordering woodland leading to increases in woodland areas at the Site in the long-term, whilst significant woodland enhancement measures are also proposed both at the Site and the Parland Reserve Site.

11.9.5 There is not clear certainty of the effects that increased nitrogen deposition will have upon ancient woodlands at the Site and on nearby woodlands to the south of the Proposed Development. The modelling shows the critical loads for NOX, ammonia and nutrient Nitrogen deposition only very slightly passing critical load values. However, the sensitivity of the woodlands at the Site is not considered to be high, though access to off-site woodlands impacted by these increases has not been possible at this time.

11.9.6 With the adoption of impact avoidance, suitable mitigation measures and compensation measures both through on-site planting and significant enhancements to priority habitats at the Parkland Reserve Site, it is considered that residual effects on existing priority habitats will be **likely moderate beneficial** and significant at a **local level**.

Badgers

11.9.7 The avoidance and mitigation measures will significantly reduce impacts from the Proposed Development but cannot completely negate the risk of badgers being injured or killed by traffic. However, the Parkland Reserve Site will improve local foraging resources for badgers and a residual **likely minor adverse** effect considered not significant at **site level** only is anticipated.

Bats

11.9.8 There will be a small loss of priority habitat woodland and hedgerows that cannot be avoided at the Site. However, this is unlikely to significantly affect commuting

and foraging bats across the majority of the Site and care has been taken to retain commuting habitat that runs centrally through the development on a north-south axis.

11.9.9 There will be an unavoidable loss of bat roost features due to the removal of a few trees to facilitate the development. Surveys to date have found no evidence of roosting bats in trees to date but the features will be lost all the same.

11.9.10 The creation of the Parkland Reserve Site poses a significant opportunity to enhance habitats for foraging bats and surveys of the Knepp Estate have indicated that Bechsteins bats have increased their use of the Estate since re-wilding began[50], whilst the estate has further been identified as valuable for a number of other bat species.

11.9.11 With the adoption of the above avoidance and mitigation measures detailed, coupled with the compensatory habitat value created within the Parkland Reserve Site, the residual impacts on roosting and foraging bats is considered to be a **likely minor beneficial** effect significant effect at a **local level**.

Breeding birds

11.9.12 The loss of suitable skylark breeding habitat cannot be avoided and will likely result in the loss of skylarks from the Site. This will be potentially offset by the creation of suitable habitat at the Parkland Reserve Site, though the eventual 'scrubbing up' of this habitat may mean this value is short-lived.

11.9.13 There will be a small loss of suitable nesting bird habitat (woodland and hedgerows) at the Site and there will be an increased predation risk due to the likely increase of cats.

11.9.14 The creation of the Parkland Reserve Site will undoubtedly improve foraging resources for breeding and over wintering birds and nesting opportunities for a range of nesting birds, particularly those that exploit successional habitats and scrub, such as nightingale, turtle dove and garden warbler.

11.9.15 The residual effect is assessed as **likely minor beneficial** and significant at the **local level** for breeding and wintering birds.

Common Dormice

11.9.16 The creation of gaps in hedgerows to facilitate roads, which will in turn result in increased noise and air pollution cannot be avoided. Additionally, the increased risk of predation by cats and light pollution cannot fully be mitigated, though the creation of a significant area of new habitat both within the Site and within the

[50] Arbeco (2020) – Bat Survey Report, Knepp Estate.

Parkland Reserve Site create a significant benefit for this species. In particular, the improved woodland management and establishment of successional scrub communities will create significant foraging value for dormice. Therefore, the residual effect of the Proposed Development on dormice is **possible minor beneficial** at a **local level** in the long-term, though short-term impacts are likely to be negative.

Great Crested Newts and Other Amphibians

11.9.17 During the operational phase of the Proposed Development, there is an increased risk of predation by cats and roadkill, though significant foraging habitat and breeding habitat enhancements within the Parkland Reserve Site should balance this to result in a **possible minor beneficial** effect that is significant at a **local level**.

Reptiles

11.9.18 The Proposed Development will result in chronic increase in disturbance of suitable reptile habitat at the Site and will likely result in increased risk of predation by cats. The above mitigation will prevent immediate harm to grass snakes during the construction phase, but the long-term effects of the Proposed Development cannot be mitigated for. The Parkland Reserve Site proposals will however result in significant habitat enhancements for grass snakes and on balance it is likely that overall effects are likely to be **neutral.**

Riparian Wildlife

11.9.19 Whilst there are risks associated with any development within a close catchment proximity of watercourses, through good construction management practices, detailed within a CEMP, risks to the watercourse should be adequately mitigated. The introduction of larger buffers to these watercourses through the Site layout design has some potential to create benefits, whilst the cessation of farming may reduce nutrient input to the watercourses. There is therefore a **possible minor beneficial** impact on watercourses that is significant at a **local level.**

Other Notable Species

11.9.20 Although there is a residual risk of increased roadkill, the creation of new interconnected garden habitats should result in a **likely minor beneficial** impact on hedgehogs at the **site level**.

Invasive non-native species

11.9.21 Following the removal of cherry laurel and rhododendron from the Site, there will be a **certain minor beneficial** impact at a **site level**.

11.9.22 Following the effective implementation of the enhancement and compensation measures as outlined above (additional mitigation), there are no significant residual effects arising from the Proposed Development during construction or operational phases.

11.9.23 **Table 11.10** provides a summary of the residual effects resulting from the Proposed Development after effective implementation of the embedded and enhancement and compensation measures (additional mitigation), including the creation of the Parkland Reserve, proposed above.

Table 11.10: Residual Effects with additional mitigation measures and the creation of the Parkland Reserve considered.

Resource or Receptor Affected	Residual Effect
Designated Sites	Likely negligible (negligible)
Biodiversity Value	Likely permanent positive (moderate beneficial) local effect
Priority Habitats	Likely positive (moderate beneficial) at a local level
Badgers	Likely negligible
Bats	Likely positive (minor beneficial) at a local level
Breeding Birds	Likely positive (moderate beneficial) at a local level
Dormice	Likely positive (moderate beneficial) at a local level
Great Crested Newts and Other Amphibians	Likely positive (minor beneficial) at a local level
Reptiles	Likely positive (minor beneficial) at a local level
Riparian Wildlife	Possible positive (minor beneficial) at a local level
Invasive Non-native Species	Certain positive (minor beneficial) at a site level

11.10 Cumulative Effects

11.10.1 Cumulative effects are the combined effects of several development schemes (in conjunction with the Proposed Development and the Parkland Reserve Site) which may, on an individual basis be insignificant but, cumulatively, have a significant effect.

11.10.2 The ES has given consideration to 'Cumulative 'Effects' for schemes located within a 5 km radius from the boundary of the Site and Parkland Reserve Site, as listed in **ES Volume 2, Chapter 3: EIA Methodology, Table 3.6**.

11.10.3 Committed development within 5 km of the Site and Parkland Reserve Site are all situated to the south and south-east of the Site. The sites considered are as follows:

- **Hurst Farm, Haywards Heath**: Situated 3.35 km from the Site and pending determination, this proposal is for 375 new homes and covers a 33 ha area and

includes a mixture of pastoral habitat and some woodland. No notable protected species impacts beyond a local level were anticipated upon protected species or habitats as a result of this development.

- **Burgess Hill Northern Arc, Burgess Hill**: Situated 1.5 km to the south and granted consent in March 2019, this development is for 3,040 new homes, a centre for community sport, three local centres, a 4 ha business park and three new school campuses in addition to associated development. The approved development site measures 184.4 ha and includes impacts significant at a County level – the permanent loss of woodland habitat, which would be partially mitigated through the planting of new woodland habitat.
- **Land To The West Of Freeks Lane, Burgess Hill, West Sussex, RH15 8DQ**: A residential development situated approximately 2.3 km from the Site and granted consent on the 24th July 2019. It comprises of up to 460 dwellings, public open space, recreation areas, associated infrastructure including roads, surface water attenuation and associated demolition (outline application with all matters reserved except for principal means of access from Maple drive. The Environmental Statement considered the mitigation, compensation and enhancement measures prescribed for this development as likely to deliver an overall gain in the existing ecological interest supported by the application site, though slight adverse impacts are anticipated for ancient woodland, ponds and Bedelands Farm LNR / Bedelands SNCI.
- **Land At And Adjacent To The Former Sewage Treatment Works, Fairbridge Way, Burgess Hill, West Sussex, RH15 8BF:** Situated 2.3km to the southeast and reserved matters approved on the 31st March 2022. The development comprises the construction of 307 homes with associated car and cycle parking, internal roads and boundary treatments. The Ecological Statement supporting the application described the site as largely devoid of vegetation, though some marginal habitat included woodland and scrub. The site was not identified to be of importance to bats, breeding birds or dormice, although a great crested newt translocation is understood to have taken place at the site in 2016 and a population of slow worms and grass snakes was identified.
- **The Martlets Shopping Centre, Burgess Hill, West Sussex, RH15 9NN:** This development is situated centrally within Burgess Hill, approximately 3.8km to the southeast and was granted consent on the 2nd July 2021. The development is entirely brownfield, comprising of a multi-storey car park, public library and offices that are set to be demolished, with little significant implications for wildlife conservation.
- **Land East Of Keymer Road, Burgess Hill, West Sussex:** This proposed development is situated on the southern side of Burgess Hill approximately 5 km from the Site. A request for Screening Opinion under Regulation 6 of the

Town and Country Planning Regulations was made on the 7th June 2022 and the development proposal described within this screening statement is for 300 new homes upon a greenfield site. There is no supporting ecological information that can be used to infer potential cumulative impacts upon wildlife.

11.10.4 The above noted committed developments are situated far enough from the Site that in-combination impacts associated with development activity (such as dust deposition, pollution and noise impacts) are not anticipated. These schemes will / would have impacts upon protected species that are also affected by the Proposed Development and Parkland Reserve Site, including bats, badgers, dormice and great crested newts. This poses potential cumulative impacts that affect these species at a landscape level, should the integrated mitigation and compensation measures designed into these schemes fail to deliver.

11.10.5 Developments within MSDC's District Plan have been assessed in regards to European designations through a Habitat Regulations Assessment (HRA) commissioned to test the impact that future development would have upon European Sites. This HRA is produced to satisfy Natural England that the proposals for development set out within MSDC's District Plan would not have an adverse impact upon European Sites. MSDC has a legal duty under the Habitats Directive to ensure to carefully consider the potential for any new development, regardless of scale, to result in a significant effect upon such sites.

11.10.6 These three nearby schemes will require mitigation strategies secured through planning obligation or planning condition during their construction and operation phases to prevent adverse impacts on protected species. Management measures will also be required to address potential impacts relating to recreational pressure and domestic pets associated with operation of the development. Should inadequate mitigation measures be provided, or in the event that proposed mitigation and compensation measures fail, then there is a risk that landscape level impacts upon protected and notable species and habitats can accumulate. This accumulated risk, in the unlikely event that it should be realised, would lead to a potential threat to the viability of local protected species populations (a reduction in breeding individuals that threatens resilience of a population) and a wider landscape reduction of biodiversity value. The risk of failure of mitigation strategies can depend on extreme events, such as particularly adverse weather that may affect the success of habitat creation (thought this should only 'delay' the implementation of successful mitigation) and relies on adequate monitoring and enforcement by MSDC to ensure that commitments set out in planning are met.

11.11 Summary and Conclusions

Baseline findings

11.11.1 This chapter has set out how appropriate surveys conducted at the Site and Parkland Reserve Site according to accepted industry best-practice has recorded protected and notable species and habitats and their distribution where possible. Furthermore, a Biodiversity Impact Calculation has been undertaken using the DEFRA Metric 4.0, which has identified on-site biodiversity losses and subsequently illustrated how 20% biodiversity net gain will be achieved.

11.11.2 The surveys at the Site have identified sensitive receptors including:

- Ancient woodland habitat
- A natural watercourse
- The presence of rare foraging bats and bat roosts
- A population of hazel dormice
- A great crested newt breeding pond
- Priority habitats including native mixed deciduous woodland and species-rich hedgerows
- A population of badgers
- An assemblage of breeding and wintering birds of local importance
- A population of grass snakes

11.11.3 The chapter has also considered the value of the parallel application for the creation of the Parkland Reserve Site, the creation of which would rely on the success of the Proposed Development. The Parkland Reserve Site has identified the following protected and notable habitats and species:

- ancient woodland and wood pasture and parkland habitat;
- watercourses and ponds;
- the presence of great crested newts and dormice;
- a population of badgers;
- an assemblage of breeding birds, with the notable presence of willow tit;
- a population of grass snakes and slow worms;
- the presence of a notable assemblage if bats, including alcathoe bat.

Construction and Operational Phase Impacts

11.11.4 Construction phase impacts from the Proposed Development are anticipated to include the unavoidable loss of habitats of value, including a small area of priority deciduous woodland habitat where two bridges will cross woodland belts.

11.11.5 Additional impacts include the risk of killing or injury to badgers, dormice, reptiles, breeding birds and great crested newts, which are all present and vulnerable to harm, whilst direct habitat losses would reduce foraging resources for these species, in addition to bats and would cause a direct loss of biodiversity value at the Site.

11.11.6 During the lifetime of the Proposed Development, ongoing impacts would include artificial lighting, which can modify the behaviour of crepuscular and nocturnal wildlife, the introduction of domestic cats, which may predate on amphibians, birds, bats and reptiles. Vehicles would also create collision risks with a variety of wildlife, including badgers, hedgehogs and bats.

11.11.7 The creation of the Parkland Reserve Site will result in a significant uplift in biodiversity value, offsetting inevitable on-site losses associated with the Proposed Development and further achieving a gain in habitat unit biodiversity value of 20%.

11.11.8 Targeted habitat enhancements will improve the condition of semi-natural broadleaf woodland, wood pasture and parkland habitat and ponds, whilst specific management objectives will also ensure benefits for a range of bat species, dormice, breeding birds, invertebrates, common reptiles and great crested newts. These enhancements provide an overwhelmingly positive benefit for local conservation and as set out in this chapter, will create many positive effects for a number of ecological receptors.

Embedded mitigation

11.11.9 Specific impact avoidance measures have been explained and mitigation measures have been detailed to illustrate how protected species and habitats would be protected through the construction phase of the Proposed Development. Further operational phase mitigation, to include the restriction of lighting impacts, protection of habitats from public access and creation of new habitats has been detailed.

11.11.10 The most significant benefit of the Proposed Development is the creation of the Parkland Reserve Site and the significant habitat and species benefits that will result from its creation. Within **Table 11.11** the impacts of the Proposed Development and the Parkland Reserve Site are considered together, with the compensation value that the Parkland Reserve provides (benefits) considered as an offset to habitat losses and protected species impacts that would result from the Ansty Garden Community development.

Conclusion

11.11.11 Whilst the Proposed Development poses some significant negative impacts in the absence of appropriate mitigation and compensation measures, the Proposed Development has been designed as sensitively as reasonably possible in line with the requirements of the mitigation hierarchy. Through the incorporation of a variety of measures designed to protect retained habitats at the Site, particularly through the creation of suitable buffers to woodlands and retained hedgerows, these anticipated impacts have been significantly reduced. Further, the creation of the Parkland Reserve Site and detailed proposals that have been provided to maximise the biodiversity value of the Site, along with specific measures to benefit a variety of protected species, some positive effects are considered likely in the long-term as set out in **Table 11.11**.

Table 11.11: Summary of Residual Effects for the Proposed Development and the Parkland Reserve Site

Receptor/ Affected Group	Value or Sensitivity (Significance) of Receptor	Activity or Impact	Embedded Design Mitigation	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual effect
Construction								
Designated Sites	National/ County	None	Good construction practice	Low District Temporary Likely	Negligible	None	Negligible	Negligible
Biodiversity Value	Local	Loss	Landscape ecological design	High Local Temporary Likely	Moderate	None	Moderate adverse	Moderate adverse
Priority habitats	Local	Loss	CEMP, 15 – 20 m Buffer Zone, heras fencing, LEMP	High Local Temporary Likely	Moderate	None	Low	Moderate adverse
Badgers	Site	Loss of foraging habitat, disturbance,	Earthworks exclusion zone, construction safeguarding measures	Low Site Temporary Likely	Moderate adverse	None	Low	Moderate adverse

Receptor/ Affected Group	Value or Sensitivity (Significance) of Receptor	Activity or Impact	Embedded Design Mitigation	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual effect
		Damage/destruction of sett						
Bats	Regional	Loss of foraging and commuting habitat, disturbance, Potential roost loss	Buffer zones, EPS licences, sensitive lighting plan	Low Local Permanent Likely	Moderate adverse	None	Low	Moderate adverse
Breeding Birds	Local	Disturbance and death / injury	Work outside nesting season, heras fencing	Low Local Permanent Likely	Moderate adverse	None	Low	Moderate adverse
Dormice	Local	Death / injury and habitat loss	EPS licence, vegetated bund	Moderate Local Permanent Likely	Moderate adverse	None	Moderate	Moderate adverse
Great Crested	Local	Death / injury	EPS license	Moderate Local Permanent	Moderate adverse	None	Moderate	Moderate adverse

Receptor/ Affected Group	Value or Sensitivity (Significance) of Receptor	Activity or Impact	Embedded Design Mitigation	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual effect
Newts/ Amphibians				Likely				
Reptiles	Local	Death / injury	CEMP	Moderate Local Permanent Likely	Moderate adverse	None	Moderate	Moderate adverse
Riparian	Local	Death / injury	CEMP	Moderate Local Permanent Likely	Moderate adverse	None	Moderate	Moderate adverse
Invasive non-native species	Local		Removal	Low Local Permanent Unlikely	Negligible	None	Low	Negligible
Operation								
Designated Sites	National/ County	Increase recreational pressure	Green open spaces designed into the development	Low District Temporary Likely	Minor adverse	The Parkland Reserve drawing recreational visitors.	Low	Negligible
	Local	Loss	On-site	High				

Receptor/ Affected Group	Value or Sensitivity (Significance) of Receptor	Activity or Impact	Embedded Design Mitigation	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual effect
Biodiversity Value			habitat enhancements	Local Temporary Likely	Moderate adverse	offsetting against enhancement of the Parkland Reserve Site.	Moderate beneficial	Moderate beneficial
Priority habitats	Local	Loss	LEMP, 20m buffer around ancient woodlands, enhancement of existing priority habitats.	High Local Temporary Likely	Moderate adverse	Enhancement of similar priority habitats at the Parkland Reserve.	Moderate beneficial	Moderate beneficial
Badgers	Site	Loss of foraging habitat, disturbance Damage/destruction of sett.	Speed limit, Setts fenced off	Low Site Temporary Likely	Moderate adverse	Enhancement of existing priority habitats at the site and at the Parkland Reserve.	Likely negligible	Likely negligible
Bats	Regional	Loss of foraging and commuting habitat, disturbance	Sensitive lighting, dark corridors	Low Local Permanent Likely	Moderate adverse	Woodland management, 100 bats boxes on suitable tree throughout retained	Moderate beneficial	Moderate beneficial

Receptor/ Affected Group	Value or Sensitivity (Significance) of Receptor	Activity or Impact	Embedded Design Mitigation	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual effect
		, Potential roost loss				woodland. Enhancement of the Parkland Reserve.		
Breeding Birds	Local	Disturbance and death / injury	Incorporation of nesting features, detailed on-site habitat creation and enhancement within an LEMP	Low Local Permanent Likely	Moderate adverse	Nest boxes and pockets, new species-rich hedgerows and through the planting of native trees and shrubs as part of the soft landscape design for the Site.	Moderate beneficial	Moderate beneficial
Dormice	Local	Death / injury and habitat loss	Thorny planting, sensitive lighting	Moderate Local Permanent Likely	Moderate adverse	Enhanced woodland, management plan, 100 dormouse boxes and habitat enhancements	Minor beneficial	Minor beneficial

Receptor/ Affected Group	Value or Sensitivity (Significance) of Receptor	Activity or Impact	Embedded Design Mitigation	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual effect
						at the Parkland Reserve.		
Great Crested Newts/ Amphibians	Local	Death / injury	LEMP detailing careful management and enhancement of existing ponds	Moderate Local Permanent Likely	Moderate adverse / minor adverse	Creation of scrub habitat, and enhancement of ponds at the Parkland ~reserve, re-wilding management strategy.	Minor beneficial	Minor beneficial
Reptiles	Local	Death / injury	Habitat enhancements set out within an LEMP	Moderate Local Permanent Likely	Moderate adverse	Enhancement of on-site ponds and improved woodland management at the site and at the Parkland Reserve.	Minor beneficial	Minor beneficial
Riparian	Local	Death / injury	SUDS pollution control	Moderate Local	Moderate adverse	Monitoring of water quality of	Minor beneficial	Minor beneficial

Receptor/ Affected Group	Value or Sensitivity (Significance) of Receptor	Activity or Impact	Embedded Design Mitigation	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual effect
				Permanent Possible		copyhold stream, LEMP.		
Hedgehogs	Local	Death / injury	LEMP	Low Local Permanent Unlikely	Moderate adverse	enhancement of existing priority habitats at the site and at the Parkland Reserve.	Minor beneficial	Minor beneficial
Invasive non-native species	Local		LEMP	Low Local Permanent Unlikely	Negligible	None	Negligible	Negligible
Cumulative Effects – Construction								
N/A								
Cumulative Effects – Operation								
N/A								