



December 2023

Ecological Position Statement: Land at Crabtree Farm, Barwell (Western Section – Phase C).

1.0 Introduction & Background

- 1.1 FPCR Environment and Design Ltd. ("FPCR") were instructed by Fort Estates to prepare an ecological position statement to support a revised planning application for the construction of 14 residential dwelling houses with associated access and parking. The site boundary is shown on Figure 1: Annex C. This site forms the northern section of a larger consented residential development for the construction of 45 dwellings with associated access and parking (Planning Reference Number: 22/00153/FUL).
- 1.2 A new planning application for the development of 45 dwellings is being submitted for the southern section site, but the new planning application has largely been constrained to the building consented building footprint. This is subject to a separate ecological statement and biodiversity net gain assessment.
- 1.3
- 1.4 The previous planning application and planning appeal were subject to detailed botanical and protected species survey completed by BWB Environment and reported in:
 - Land at Crabtree Farm West, Hinckley Road, Barwell. Ecological Impact Assessment. BWB (November, 2022) (Annex A).
 - Land at Crabtree Farm East, Hinckley Road, Barwell. Biodiversity Net Gain and Local Wildlife Site Assessment. BWB (November, 2021) (Annex B).
- 1.5 To support this revised application ecologists from FPCR completed an additional walkover survey of the site in November 2023, but the above-mentioned reports should be read in conjunction with this position statement. The purpose of the additional walkover survey was to ensure there had been no substantive changes to the ecological baseline since determination of the previous planning application.
- 1.6 An updated Biodiversity Impact Assessment (BIA) using the latest version of the DEFRA metric has been completed to support this revised application. Where there has been reduction in the baseline value since determination of the application, the previous baseline conditions have been used.

- 1.7 The following statement provides a resume of the ecological information previously submitted to the Local Authority (LA) and the results of the updated walk over survey completed by FPCR.

2.0 Previous Ecological Submissions

- 2.1 The completed ecological survey work reported in the Ecological Impact Assessment (dated November 2022)¹ included: a standard consultation exercise for baseline ecological information within 1Km surrounding the Site, a phase 1 habitat assessment completed in April 2022, eDNA survey of surrounding ponds and assessments for other protected species including bat, badgers, and breeding birds.

Statutory & Non-statutory Designated Site

- 2.2 The only statutory designated site within 2Km of the site is the Burbage Common and Woods LNR. This site is located 1.2km south-east of the site.
- 2.3 The consultation exercise confirmed the presence of 16 Local Wildlife Sites (LWS) within 2Km of the site. Four of these are located within 1Km of the site. These sites comprise:
- Hinckley playing fields hedge 1 LWS 0.6km south,
 - Barwell hedgerow LWS 0.7km north,
 - Mature Oak off Barwell Lane LWS 0.85m south-east,
 - Mature Ash off Barwell Lane LWS 0.9m south-east.

Habitats

- 2.4 The dominant habitat recorded within this area of the Site was improved grassland with areas of dense bramble scrub encroaching from the boundaries of the Site. Other habitats recorded included boundary hedgerows and a pond to the southeast of the site.
- 2.5 An updated botanical survey to assess the quality of the grassland against Local Wildlife Selection criterion was completed by BWB in July 2021². This updated assessment confirmed the site did not meet the requirements to be selected as an LWS. The grassland was classified a 'modified grassland' in 'poor' condition.
- 2.6 The updated habitat assessment completed by FPCR in November 2023 confirm the habitat within the site where similar to those recorded in 2018 and 2021, with the dominant habitat comprising modified grassland with areas of encroaching bramble scrub on the site boundaries.
- 2.7 Unmanaged boundary hedgerows are present on the northern, eastern and western boundaries of the site. These hedgerows are dominant by native species and conform to the criteria to be classified as habitats of principle importance as described in S41 of the NERC Act 2006.

¹ Land at Crabtree Farm West, Hinckley Road, Barwell. Ecological Impact Assessment. BWB (November, 2022).

- 2.8 A single pond is situated to the southeast of the site. This pond retained water, but no aquatic vegetation was recorded in the pond. The condition of this pond has not improved since the previous assessment.

Protected Species

Great Crested Newts (GCN)

- 2.9 GCN Environment eDNA testing of ponds within 500m of the Site was completed by BWB Environment in 2018 and 2021. The results of both of these surveys confirmed GCN were absent from ponds within 500m of the Site. Given two years of survey information confirming GCN are absent from waterbodies within 500m of the Site, it is reasonable to conclude GCN are absent in the pond within the 500m Zone of Influence 'ZoI' surrounding the Site.

Badgers

- 2.10 No evidence of badger activity was recorded within the Site during the current or previous survey occasions.

Bats

- 2.11 No buildings are present within this site and no trees with the potential to support a bat roost were identified associated with habitats affected by this planning application.
- 2.12 The boundary hedgerows will provide a proportion of foraging habitats for the local bat population, but the grassland / scrub habitat will not provide a significant resource for the local bat population.

Birds

- 2.13 The boundary hedgerow within the site will provide a resource for the local bird population, but it is unlikely that the habitats either currently present or previously present within the site will provide a significant resource for the local population.

Reptiles

- 2.14 Habitat previously present within the site did not provide the structural diversity to support a significant population of reptiles and the current conditions do not represent suitable habitats to support common species of reptiles.

Other Mammals

- 2.15 Given the proximity to the urban environment and the structure of the habitats within the Site it is likely that hedgehogs do occasionally use the site and use by a small population is expected.

3.0 Discussion

Designated Sites

- 3.1 The updated development proposal will not result in any additional effects to the conservation value of the statutory or non-statutory designated site identified within 1 – 2km of the proposed development.

Habitats

- 3.2 Development of the Site will result in the loss of current habitats within the site. In terms of the BIA submitted to support this application, it is assumed that the development will result in the loss of native species scrub and grassland. There will be some minor hedgerow loss through the creation of the main site access, but the remaining hedgerows will be subject to long term management.
- 3.3 Given the conditions within the site are broadly similar to those previously, the conclusion and recommendations of the previous submission are still considered to be valid.
- 3.4 The grassland and scrub lost to the development are common and widespread habitats which are easily replaceable. The proposals will provide a degree of mitigation for the habitats lost to the development. The mitigation comprises the implementation species rich grassland within the open space and the creation of wet grassland in the basin of the balancing facility.
- 3.5 Given the limited ecological value of the habitats effected by the proposals and the mitigation provide in the scheme, loss of the existing ecological receptors is not considered to result in significant effects to biodiversity locally but the proposals will result in a loss of biodiversity units of -1.10 habitat units (-42.97%) and -0.11 linear units (-10.33%) (Annex C).
- 3.6 Compensation for the loss of habitat units will be provided through the provision of offsite compensation which will be managed for a period of 30 years. The provision of such compensation is consistent with the measures agreed by the local planning authority through the granting of the previous planning permission.
- 3.7 The compensation required for loss of the linear units will be provided through the provision of new hedgerow planting in the landscape buffer proposed along the western boundary of the planning application referred to as 'Crabtree Farm, Barwell. Western Site. Phase D'.

Protected Species

- 3.8 No statutory ecological constraints from the presence of protected species were identified previously and the result of the recent updated walkover survey did not highlight environmental conditions to support protected species have improved since completion of the original surveys. From this assessment the presence of protected and notable species is not a statutory ecological constraint to the development proposals, and the application of the mitigation and ecological working methods reported in Section 5 of the original ecological submission will avoid / minimise potential effects to the protected / notable species.

Annex A:

**BWB Environment.
Land at Crabtree Farm West, Hinckley Road, Barwell.
Ecological Impact Assessment.
November 2022.**

ENVIRONMENT

Land at Crabtree Farm West
Hinckley Road, Barwell

Ecological Impact Assessment

ENVIRONMENT

Land at Crabtree Farm West
Hinckley Road, Barwell

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EXECUTIVE SUMMARY

The Site habitats comprised an improved grassland field, dense scrub and hedgerows with one pond located adjacent to the south-eastern boundary. The habitats were considered to have remained largely unchanged since the previous surveys undertaken in 2018.

The development proposals will impact both the improved grassland and scrub habitats but retain the boundary hedgerows, with only a section of the northern hedgerow to be removed to facilitate access into the Site.

The desk study identified one statutory designated site present within 2km of the Site boundary and no European designated sites within 5km of the Site. 16 Local Wildlife sites were also identified within 2km of the Site.

The Site was considered suitable to support amphibians, roosting bats, foraging and commuting bats, common and widespread invertebrates, common and widespread species of birds as well as red list and priority species of birds and hedgehogs. The site was also considered to offer some suitability for reptiles, brown hare, badger.

The update eDNA surveys of the ponds within 500m of the Site returned negative results for the presence of great crested newt eDNA. Further surveys and mitigation for this species is not required.

A range of mitigation measures are required to protect the retained boundary hedgerows as well as any species which may be impacted during vegetation and site clearance works as well as during the construction phase of the development.

A sensitive lighting scheme will be created to protect roosting, foraging and commuting bats from any lighting impacts from the development.

A Biodiversity Enhancement and Management Plan will be produced to detail all compensation and enhancements for the Site and including measures such as bat and bird boxes, hedgehog highways, wildflower meadow creation as well as suitable refuge and hibernation Site creation for amphibians and reptiles.

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Table 4.1: Nature Conservation Evaluation

Table 9.1: Summary

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Appendix 1: Relevant Legislation

Appendix 2: LWS Criteria for Leicestershire

Appendix 3: Extended Phase 1 Habitat Map

Appendix 4: Site Photographs

Appendix 5: Full eDNA Survey Results

1. INTRODUCTION

Instruction

- 1.1 This Ecological Impact Assessment (EcIA) has been undertaken on behalf of Fort Estates Limited (the Client) in respect of the Site at Land at Crabtree Farm (East), Hinkley Road, Barwell, Leicestershire. It has been produced to accompany an outline planning application for a residential development of 45 dwellings at the Site.

Site Description

- 1.2 The Site is located on land south of Hinkley Road and west of Crabtree Road, on the southern outskirts of Barwell in south-west Leicestershire. The Site itself comprises one improved grassland field with dense scrub and hedgerows with mature trees. The Site is surrounded by a mosaic of agricultural land and residential estates. The Site is approximately 2.29 hectares (ha) in extent and is centred on grid reference SP 4368996205. The land is flat and situated approximately between 113 and 117 metres above ordnance datum (m AOD). The location of the Site is shown below in **Figure 1.1**.
- 1.3

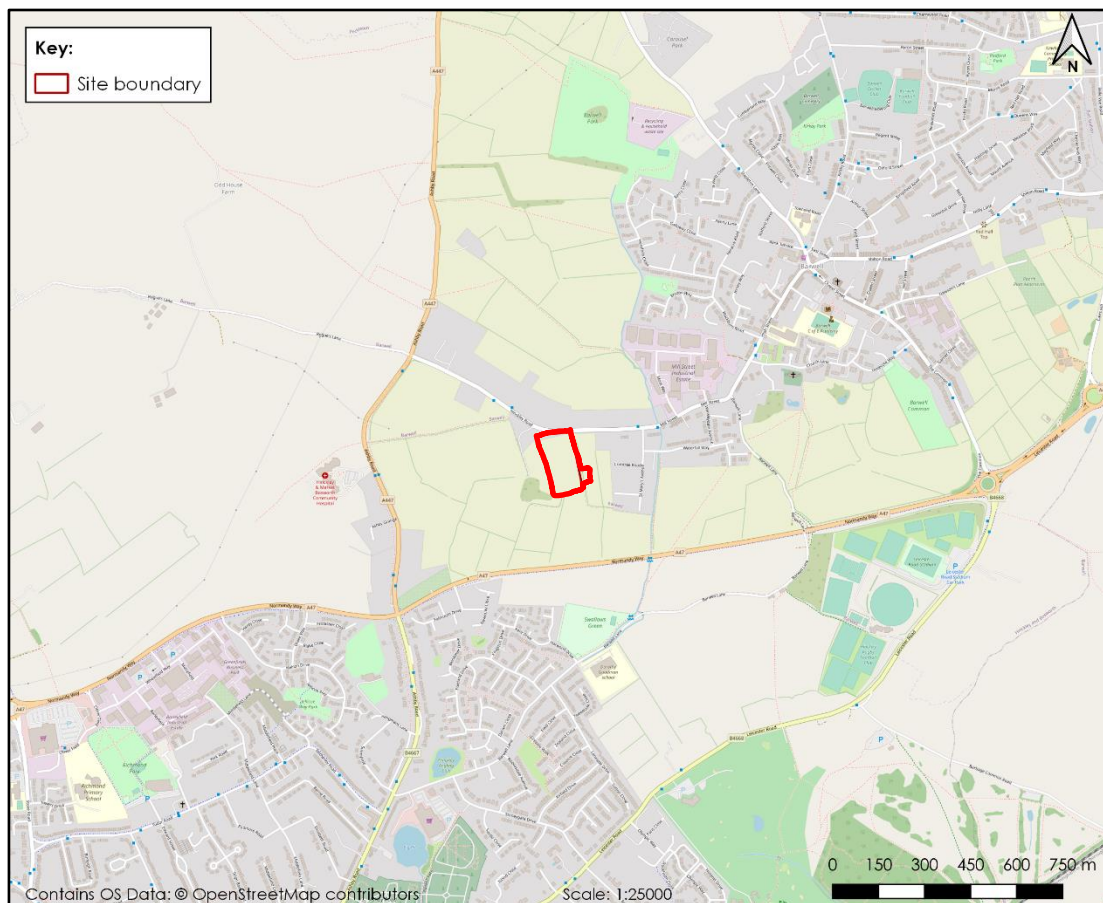


Figure 1.1: Site Location Plan

The Project

- 1.4 The proposals are for a residential development of 45 dwellings, associated landscaping, Public Open Space (POS) and SUDS/pond area.

Objectives

- 1.5 The primary purpose of this assessment is to provide a baseline of all ecological considerations and associated impacts relating to the development proposals. This will include mitigation and enhancement as appropriate.

Scope of Works

- 1.6 The ecological appraisal was informed by a desk-based study, a Site survey and previous survey reports. The approach to this EcIA follows best practice published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2019) and the British Standards Institution (BSI, 2013). Further details are provided later in this report.

Legislation and Planning Policy

- 1.7 The following legislation relates to species and habitats that could potentially occur in association with the Site:
- The Conservation of Habitats and Species Regulations 2019 (as amended);
 - The Wildlife and Countryside Act 1981 (as amended);
 - The Countryside and Rights of Way (CROW) Act 2000;
 - Natural Environment and Rural Communities (NERC) Act 2006;
 - The Protection of Badgers Act 1992;
 - Wild Mammals (Protection) Act 1996; and
 - The Hedgerow Regulations 1997.
- 1.8 Further information on the legislation relevant to this Site is provided in **Appendix 1**.
- 1.9 Consideration has also been given in this report to relevant National and Local Planning Policy as summarised below.
- 1.10 The National Planning Policy Framework (NPPF) guides Local Planning Authorities (LPAs) when developing their planning policies and considering planning applications affecting protected habitats, sites and species.
- 1.11 In respect of the natural environment, the NPPF states under Paragraph 170 that:

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

- a) *Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- b) *Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- c) *Maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- d) *Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- e) *Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- f) *Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate."*

1.12 Paragraph 174 of the NPPF also states:

"To protect and enhance biodiversity and geodiversity, plans should:

- a) *Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and steppingstones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and*
- b) *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".*

1.13 Additionally, Policy DM6 Enhancement of Biodiversity and Geological Interest of the Hinckley and Bosworth Borough Council Local Plan 2006 to 2026 states the following:

"Development proposals must demonstrate how they conserve and enhance features of nature conservation and geological value including proposals for their long-term future management.

Major developments in particular must include measures to deliver biodiversity gains through opportunities to restore, enhance and create valuable habitats, ecological networks and ecosystem services.

Proposals where the primary objective is to conserve or enhance biodiversity or geological interest will be permitted where they comply with other relevant policies in the plan.

On site features should be retained, buffered and managed favourably to maintain their ecological value, connectivity and functionality in the long-term. The removal or damage of such features shall only be acceptable where it can be demonstrated the proposal will result in no net loss of biodiversity and where the integrity of local ecological networks can be secured.

If the harm cannot be prevented, adequately mitigated against or appropriate compensation measures provided, planning permission will be refused".

1.14 Policy DM6 Safeguarding Natural and Semi-Natural Open Spaces also states:

"All developments within or affecting Natural and Semi-Natural Open Spaces should seek to retain and enhance the accessibility of the space and its recreational value whilst ensuring the biodiversity and conservation value is also enhanced.

Development within areas of Natural and Semi-Natural Open Space, as defined on the policies map, will only be considered appropriate where:

- a) The proposal relates to the enhancement of the area for recreational purposes and only where this does not lead to the loss or damage of the area's biodiversity value; or*
- b) It relates to the enhancement of the area's biodiversity or conservation value; or*
- c) It would promote the establishment and enhancement of pedestrian footpaths and cycle ways; or*
- d) If within the National Forest, it contributes to the delivery of the National Forest Strategy in line with Core Strategy Policy 21; and*
- e) If within a Green Wedge, it protects its role and function in line with Core Strategy policies 6 and 9".*

2. METHODS

Zone of Influence (ZOI)

2.1 The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:

- 5km around the Site for sites of International Importance (e.g. Special Area of Conservation [SAC], Special Protection Area [SPA], Ramsar site);
- 2km around the Site for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest [SSSI] and Local Nature Reserves [LNR]); and
- 2km around the Site for sites of County Importance (e.g. Sites of Importance for Nature Conservation [SINC]/Wildlife Sites and species records (e.g. protected, UK BAP or notable species).

2.2 The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project Site, for example where there are ecological or hydrological links beyond the Site boundaries. For this project, the zone of influence was unlikely to extend beyond the Site boundaries.

Consultation

2.3 Leicestershire and Rutland Environment Records Centre (LRERC) was contacted to request records of any locally designated sites and/or protected species from the Site and land within a 2km radius. Records more than ten years old have been largely disregarded.

2.4 In addition, the data sources listed below were also searched to gather additional ecological data of relevance to the project, including the identification of non-designated ecologically sensitive habitats such as vegetation corridors, woodlands, watercourses and standing water.

- Multi-Agency Geographic Information for the Countryside (MAGIC);
- Ordnance Survey 1:25,000 mapping; and
- Aerial imagery (Google Earth – imagery dated December 1999 to 21/04/2020).

2.5 A summary of these consultations is contained in **Table 2.1**.

Table 2.1: Outcome of Consultations

Consultee and Date of Correspondence	Non-Statutory or Statutory	What was the Consultation Regarding	Outcome of Consultation	Method of Communication
LRERC – April 2021	Non-Statutory	The location of non-statutory and statutory sites and the presence of protected and	Identification of 16 LWS within 2km.	Email link with website accessed 27/04/2021

Consultee and Date of Correspondence	Non-Statutory or Statutory	What was the Consultation Regarding	Outcome of Consultation	Method of Communication
		notable species within 2km radius	A total of 478 of protected species records were returned as detailed later in the report.	
Multi Agency Geographic Information for the Countryside (MAGIC) – April 2021	Statutory	The location of statutory sites	Identification of 1 LNR within 2km.	Website accessed 22/04/2021
Natural England Open Date – April 2021	Statutory	The location of SSSI Impact Risk Zones (IRZ)	The Site falls into 1 IRZ	Website accessed 27/04/2021

- 2.6 The desk study utilising the above data resources was undertaken according to best practice guidelines from CIEEM: Guidelines for Assessing Using and Sharing Biodiversity Data in UK (CIEEM, 2020).

Extended Phase 1 Habitat Survey

- 2.7 A Site survey was undertaken on 19th April 2021 by Amy Dowers BSc (Hons) ACIEEM. Amy has extensive experience in survey and site assessment for protected species and is appropriately qualified for the surveys based on the CIEEM competencies for species surveys (CIEEM, 2013-2017). Amy is registered to use a Class 1 Licence to survey for great crested newts.
- 2.8 The visit was completed using Phase 1 habitat survey techniques as defined in the standard methodology (JNCC, 2010).
- 2.9 The aim of the visit was to gather sufficient baseline information on the habitats within the Site in order to allow an interpretation of the ecological value of the land.
- 2.10 In addition, the methodology was extended to include a search for incidental evidence of protected/notable fauna and an assessment of the Site's potential to support protected/notable fauna. Specific consideration was given to the following species:
- Birds;
 - Bats;
 - Amphibians, including great crested newts (GCN);
 - Reptiles;
 - Badgers *Meles meles*; and
 - Priority Species, such as hedgehog *Erinaceus europaeus*.

- 2.11 Standard methodologies were used where applicable.
- 2.12 Habitats adjacent to the Site were viewed, where possible, from the Site boundaries in order to assess their potential to support protected species that could be utilising the survey Site.

LWS Assessment

- 2.13 An additional survey was undertaken on 5th July 2021 by Phillipa Mahalski MSc BSc (Hons). During this additional survey the grassland on-Site was assessed against the habitat criteria outlined in the Guidelines for the selection of Local Wildlife Sites in Leicester, Leicestershire and Rutland (Leicestershire County Council, 2011) for grasslands, specifically the criteria for mesotrophic grassland and wet grassland. Definitions of these grassland types can be found in **Appendix 2**. To qualify, mesotrophic grasslands should be at least 2500m² or 200m of linear habitat in extent in which at least seven species from List F in the selection criteria should be Occasional, Frequent, Abundant or Dominant in line with the DAFOR scale (see below for parameters), or ten species from the grassland list should be present. Wet grasslands should be seasonally flooded and at least 2500m² in extent in which at least six species from grassland lists F and G combined should be present. Grassland lists can be found in **Appendix 2**. Mixed grassland may support a mosaic of the grassland habitats described within the criteria.
- 2.14 The DAFOR values used for the assessment criteria are defined as follows:
- **Dominant:** 75-100% cover
 - **Abundant:** 25-74% cover
 - **Frequent:** 10-24% cover
 - **Occasional:** 5-9%
 - **Rare:** <5% cover and <5 individuals/clumps within the survey unit.
- 2.15 The assessment comprised a comprehensive walkover of the field to identify species included under the qualify lists and noting the distribution of each species identified in line with the DAFOR scale.

GCN eDNA

- 2.16 A Site visit was conducted by GCN Class 1 licenced Ecologist Amy Dowers BSc (Hons)ACIEEM (2018-33036-CLS-CLS) and Ben McLean on the 19th April 2021 to undertake eDNA sampling on all of the waterbodies within the Site boundary and within 500m of the Site in order to establish presence/likely absence of GCN. This was within the optimal timings for eDNA sample collection (mid-April to end of June). The weather conditions were dry, mild and sunny with a light breeze and were considered to be optimal conditions for undertaking eDNA surveys.
- 2.17 The ponds surveyed are indicated in **Figure 3.1** in **Section 3**. Water samples were taken from each pond following SureScreen Scientifics survey methodology as outlined below:

- 20 sampling sites were identified around the perimeter of the ponds spaced as evenly as possible including vegetated areas and areas likely to contain great crested newts;
- Wearing sterile gloves, 20 samples were taken using a plastic ladle from at least 10cm deep areas of water ensuring the sediment at the bottom of the pond was not disturbed;
- Each ladle full of water was then transferred to the Whirlpak bag provided and mixed thoroughly (shaken);
- 15ml of the water from the Whirlpak bag was then transferred to each of the preservative filled sample tubes using a sterile pipette and shaken vigorously;

2.18 The samples were taken immediately from the Site to the SureScreen Scientifics Laboratory in Derbyshire where they were analysed.

Survey Comments

- 2.19 In line with standard guidance, the results and recommendations within this report are valid for up to two years from the date of survey, assuming there are no significant changes to the survey Site or its immediate surroundings. Updated survey work may be required to support any future planning applications outside of this time period.
- 2.20 The Site visits were undertaken in April 2021, which is at the beginning of the main plant growing season and not all botanical species may have been identified. However, surveys at this time are sufficient for experienced surveyors to categorise the habitats present and provide an assessment of the potential for protected species. Previous specific botanical surveys (BWB, 2018b) have also been undertaken at the Site during the optimal botanical growing period (June) and therefore the timing of the survey was not therefore considered to be a constraint.
- 2.21 Full access was available to the Site during the PEA survey. Access was not available to Pond 8 during the eDNA survey (see **Figure 3.1** for pond locations). This is not considered to be a constraint to the survey effort as all other ponds were accessed during the survey and this pond returned a negative result during the previous eDNA surveys from 2018 (BWB, 2018b).

Assessment

- 2.22 The Ecological Impact Assessment has been undertaken following guidelines provided by CIEEM (CIEEM, 2019).
- 2.23 In order to assess the significance of effects, Important Ecological Features that could potentially be affected by the development have been identified and described and the potential effects quantified using a range of parameters (e.g. extent, magnitude and duration).
- 2.24 For the purposes of this assessment, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features'

or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity) (CIEEM, 2019).

- 2.25 Only where significant effects are predicted have mitigation measures been proposed, although it should be noted that a number of precautionary measures have been included and these are detailed within this document for completeness.
- 2.26 The potential for mitigation and enhancement measures were then considered to avoid, reduce or compensate for any significant adverse effects, where possible.
- 2.27 The current guidelines identify various characteristics that can be used to identify ecological resources or features likely to be important in terms of biodiversity. These include:
- naturalness;
 - animal or plant species, sub-species or varieties that are rare or uncommon, either internationally, nationally or more locally, including those that may be seasonally transient;
 - ecosystems and their component parts, which provide the habitats required by important species, populations and/or assemblages;
 - endemic species or locally distinct sub-populations of a species;
 - habitats that are rare or uncommon;
 - habitats that are effectively irreplaceable;
 - habitat diversity;
 - size of habitat or species population;
 - habitat connectivity and/or synergistic associations;
 - habitats and species in decline;
 - rich assemblages of plants and animals;
 - large populations of species or concentrations of species considered uncommon or threatened in a wider context;
 - plant communities (and their associated animals) that are considered to be typical of valued natural / semi-natural vegetation types, including examples of naturally species-poor communities; and
 - species on the edge of their range, particularly where their distribution is changing as a result of global trends and climate change.

Significance Criteria

- 2.28 Current guidelines propose the following frame of reference for defining geographic context, which should be adapted to suit local circumstances:
- International and European;
 - National;
 - Regional;

- Metropolitan, County, vice-county or other local authority-wide area; and
- Local.

3. BASELINE CONDITIONS

Designated Sites

- 3.1 There is one statutory designated site present within 2km of the Site boundary and no European designated sites within 5km of the Site.
- Burbage Common and Woods LNR is located 1.2km south-east. The site is noted for its semi-natural ancient woodland and grassland mix.
- 3.2 The Site is within two SSSI risk zones for Ensor's Pool SSSI (located over 10km south-west) and Burbage Common SSSI. The development type is not included within either SSSI's IRZ categories.
- 3.3 **Table 3.1** lists the 16 Local Wildlife sites located within 2km of the Site. Local Wildlife Sites are non-statutory sites and are a material consideration in the planning process.

Table 3.1: Non-Statutory Sites

Site Name	Approximate Distance and Direction from Site
Hinckley playing fields hedge 1 LWS	0.6km south
Barwell hedgerow LWS	0.7km north
Mature Oak, off Barwell Lane LWS	0.85m south-east
Mature Ash off Barwell Lane LWS	0.9m south-east
Little Pit Fishery LWS	1km south-west
Hinckley playing fields hedge 2 LWS	1kmm south
Burbage Common & Woods LWS	1.2km south-east
Burbage Common & Woods LWS	1.2km south-east
Little Fields Farm Meadow LWS	1.3km north
Barwell, Ash trees east of The Common LWS	1.3km east
Barwell, hedgerows east of The Common LWS	1.3km east
Barwell, grassland south-east of Leicester Road LWS	1.4km east
Barwell, hedgerow LWS	1.6km north-east
Streamside Willow LWS	1.8km south-east
Richmond School Ash, Hinckley LWS	1.9km south-west
Hinckley Rd/Main St verge, Stapleton LWS	1.9km north

- 3.4 In addition to the LWS in Table 3.1 above 13 candidate LWS were also returned as part of the desk study data within 2km of the Site. The closest candidate LWS was a hedgerow located 430m south-west of the Site.

Habitats and Botanical Species

Overview

- 3.5 The Extended Phase 1 Habitat Survey Results Map with Target Notes (TNs) is provided in **Appendix 23** with accompanying habitat descriptions below. Relevant photographs are shown in **Appendix 4**. Botanical species nomenclature follows Stace (2019).

Improved Grassland

- 3.6 The Site comprised one improved grassland field, which had been previously grazed by horses. The sward height was less than 15cm with little vegetative structure and no distinct field margins, only a few taller herb species were present such as white dead nettle *Lamium album*, common nettle *Urtica dioica* and cleavers *Galium aparine*. Species present within the fields included perennial ryegrass *Lolium perenne*, creeping buttercup *Ranunculus repens*, creeping thistle *Cirsium arvense*, cock's-foot *Dactylis glomerata*, Yorkshire-fog *Holcus lanatus*, ribwort plantain *Plantago lanceolata*, meadow grass *Poa sp.* meadow buttercup *Ranunculus acris*, dock sp. *Rumex sp.*, dandelion agg. *Taraxacum agg.* and white clover *Trifolium repens*.
- 3.7 In comparison to the previous habitat surveys undertaken in 2018 (BWB, 2018), the field was no longer horse grazed and was of similar composition with no apparent field margins. Lesser celandine *Ficaria verna* and daffodils *Narcissus sp.* were present on the boundaries of the Site. The grassland field was also assessed against the LWS criteria in 2018 (BWB, 2019b), which determined the grassland does not fall into the LWS criteria for mesotrophic/neutral grassland (Leicestershire County Council, 2011). Due to the similarity in appearance from the 2018 surveys, the grassland is not considered to have changed and is unlikely to meet the LWS criteria.

Dense scrub

- 3.8 Areas of dense bramble scrub *Rubus fruticosus agg.* had encroached onto some areas of the improved grassland field. Other areas of young, dense blackthorn *Prunus spinosa* and hawthorn *Crataegus monogyna* scrub were present adjacent to the hedgerows.

Hedgerows

- 3.9 The Site boundaries comprised hedgerows on all sides (see **Appendix 3** for locations). The hedgerows were a range of different heights and widths with some mature trees present. All of the hedgerows appeared to have not had any management for an unknown number of years and had become overgrown with one spanning up to 10m in width. The hedgerows comprised hawthorn, blackthorn, field maple *Acer campestre*, ash *Fraxinus excelsior* and oak *Quercus sp.*

- 3.10 All of the hedgerows within the Site are considered to comprised over 80% woody native species and therefore are Habitats of Principal Importance as listed on Section 41 of the NERC Act (2006).
- 3.11 The hedgerows were also assessed against the LWS hedgerow criteria in 2018 (BWB, 2019b), which determined the hedgerows do not fall into the LWS criteria for hedgerows (Leicestershire County Council, 2011). The hedgerows are not considered to have changed and no new species were identified during the 2021 survey. The hedgerows are therefore considered unlikely to meet the LWS requirements due to the lack of diversity of species required over a 30m stretch of hedgerow.

Local Wildlife Site Criteria Assessment

- 3.12 The improved grassland field was assessed against the criteria outlined in the Leicester, Leicestershire and Rutland Guidelines for Local Wildlife Site Selection. Species recorded on-Site comprised abundant (**A**) meadow buttercup and common sorrel with occasional (**O**) red clover.

Protected / Notable Species

Amphibians

- 3.13 The desk study identified a total of 20 records of amphibians within 2km of the Site including:
- 4 records of great crested newts *Tristurus cristatus*, the closest recorded is 1km south-west and were most recently recorded in 2018;
 - 11 records of smooth newts *Lissotriton vulgaris*, the closest recorded is 589m south-east and were most recently recorded in 2016;
 - 3 records of common frog *Rana temporaria*, the closest recorded is 846m north and were most recently recorded in 2019; and,
 - 2 records of common toad *Bufo bufo*, the closest recorded is 1113m south-west and were most recently recorded in 2013.
- 3.14 A search of aerial photography and OS maps showed a total of 9 potential breeding ponds within 500m of the Site with the closest pond located adjacent to the south-eastern boundary of the Site, see Error! Reference source not found. for the locations.
- 3.15 Habitats on-Site were grassland, scrub and hedgerows which were considered to provided optimal habitat for foraging and refuging GCN and other amphibians. Common toad are a Species of Principal Importance listed under Section 41 of the NERC Act (2006).
- 3.16 An update Habitat Subtlety Index (HSI) assessment of the ponds within 500m of the Site was not undertaken during the update 2021 surveys, as the ponds were considered not to have changed significantly since the surveys in 2018. See the previous report by BWB (2018b) for the previous results. The undertaking of GCN eDNA surveys is also considered to be a more robust method in comparison to using HSI assessments as an indicator for GCN presence/likely absence.

- 3.17 GCN environmental DNA (eDNA) surveys of all of the waterbodies within 500m (where access was available) was undertaken on the 19th of April 2021. Pond 9, located just outside the 500m Site buffer was also tested due to its direct habitat links to the Site.
- 3.18 As per the 2018 surveys Ponds 2 and 7 were dry at the time of sampling. All of the remaining ponds posts tested negative for GCN eDNA in 2018 (BWB, 2018b).
- 3.19 The results of the updated eDNA surveys all returned negative results for the presence of GCN eDNA (see **Appendix 5**). Based on these results, the previous survey results and lack of new desk study records within 500m of the Site, the presence of GCN within the Site is considered unlikely. As such, this species will not be considered further in this report.

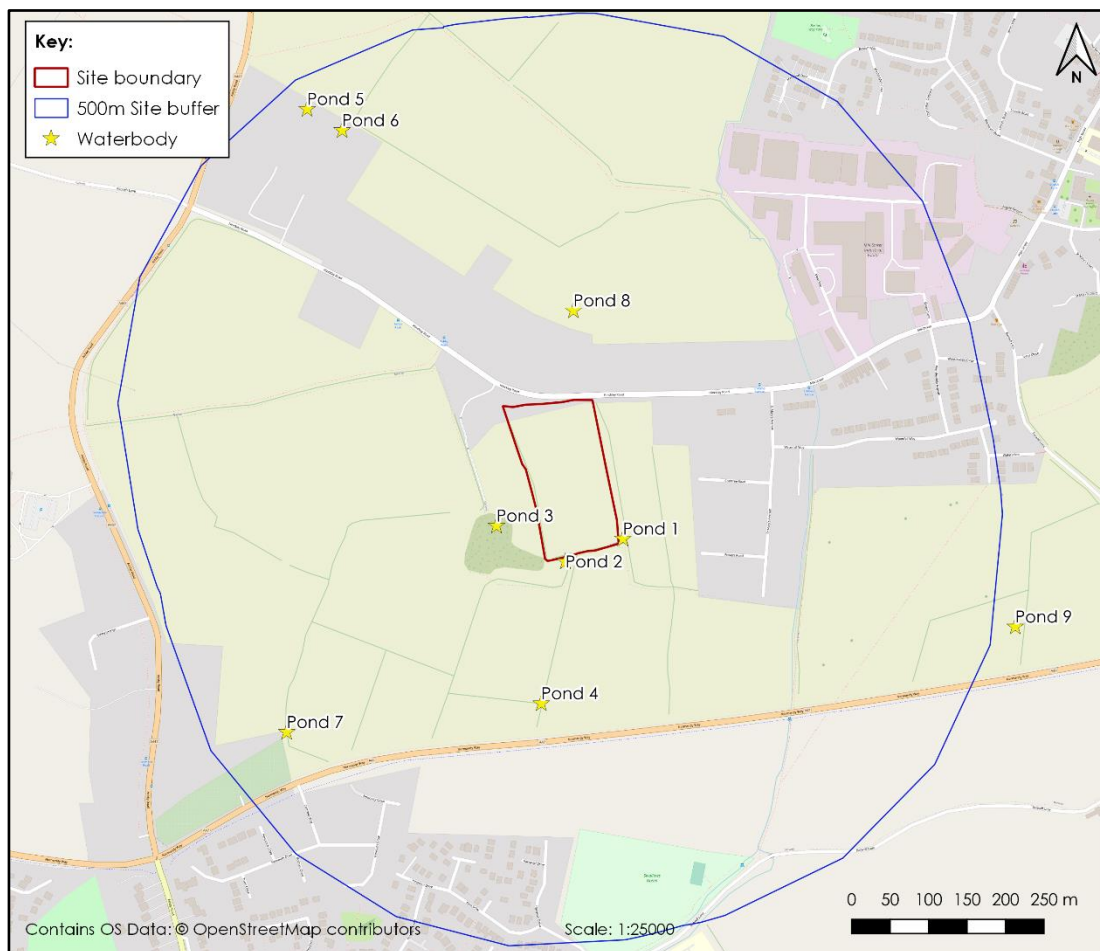


Figure 3.1: 500m Buffer and Pond Location Plan

Badgers

- 3.20 There were four desk study records of badger within 2km of the Site, the exact location and type of these records is confidential.
- 3.21 No evidence of badgers was found on-Site during the survey including hairs, latrines, footprints or setts. The Site was generally considered to be suboptimal for sett excavation due to its predominantly flat nature.

- 3.22 The habitats on-Site such as the grassland field and hedgerows were considered to provide suitable foraging habitat for badgers, and it cannot be ruled out that they may cross the Site periodically.

Bats

- 3.23 There were a total of 93 desk study records of bats returned within 2km of the Site. A list of the species recorded, most recent date recorded, locations and type of records is shown within **Table 3.2**.

Table 3.2: Bat Species Records

Species	Number of Records	Most Recent Date Recorded	Distance and Direction
Unknown	7	2017	0.1km north
Soprano Pipistrelle <i>Pipistrellus pygmaeus</i>	9	2019	0.3km west
Common Pipistrelle <i>Pipistrellus pipistrellus</i>	29	2019	0.3km west
Noctule <i>Nyctalus noctula</i>	17	2017	0.6km west
Leisler's <i>Nyctalus leisleri</i>	5	2016	0.7km south
Brown Long-eared Bat <i>Plecotus auritus</i>	6	2017	0.7km south
Pipistrelle Bat species <i>Pipistrellus sp.</i>	8	2017	1.1km east
Nyctalus Bat species <i>Nyctalus sp.</i>	5	2017	1.2km east
Myotis Bat species <i>Myotis sp.</i>	4	2017	1.3km east
Barbastelle <i>Barbastella barbastellus</i>	1	2016	1.3km south-west
Nathusius's Pipistrelle <i>Pipistrellus nathusii</i>	2	2016	1.3km south-west

- 3.24 No buildings were recorded within the Site at the time of the survey. The trees on-Site were assessed for their suitability to support roosting bats. Potential roosting features were recorded within two of the hedgerow trees:

- A mature ash tree (TN1) with a rotten limb with a crack was located on the western Site boundary. This tree was assessed as providing **low** suitability to support roosting bats.

- Another mature ash (TN2), located on the eastern boundary of the Site adjacent to the pond. Features included woodpecker holes, open rot and a potentially trunk cavity. This tree was assessed as providing **high** suitability to support roosting bats.

3.25 See **Appendix 3** for the location of the trees.

3.26 The grassland on-Site was unlikely to attract a large abundance of insect prey required to support large numbers of bats. The boundary habitats offered the best opportunities for foraging and commuting bats. The Site was considered to offer **low suitability** for foraging and commuting bats as per the Bat Conservation Trust good practice guidelines (Collins, 2016).

Birds

3.27 The habitats on-Site such as the hedgerows, grassland and trees offered some suitable foraging and breeding opportunities for common and widespread birds species. An important assemblage was considered unlikely due to the limited habitats present and small size of the Site. The boundary hedgerow habitats offered the best opportunities.

3.28 There were a total of 226 desk study records of birds of 27 species returned within 2km of the Site. The species, date most recently recorded, distance and detection are listed in **Table 3.3**.

Table 3.3: Bird Species Records

Species	Number of Records	Most Recent Date Recorded	Distance and Direction	Conservation Status and Protection
Marsh tit <i>Poecile palustris</i>	4	2019	0.4km north-east	BoCC red
House sparrow <i>Passer domesticus</i>	9	2017	0.5km north-west	BoCC red, S41
Bullfinch <i>Pyrrhula pyrrhula</i>	16	2019	0.8km west	BoCC Amber
Linnet <i>Linaria cannabina</i>	3	2015	0.5km north-west	BoCC red
Swift <i>Apus apus</i>	36	2020	0.5km east	BoCc amber, LBAP
Reed bunting <i>Emberiza schoeniclus</i>	3	2013	0.5km north-west	BoCC amber, S41
Redwing <i>Turdus iliacus</i>	11	2019	0.7km south-east	BoCC red, Sch1
Yellowhammer <i>Emberiza citrinella</i>	3	2012	0.7km north	BoCC red, S41
Yellowhammer <i>Emberiza citrinella</i>	3	2012	0.7km north	BoCC red, S41

Species	Number of Records	Most Recent Date Recorded	Distance and Direction	Conservation Status and Protection
Skylark <i>Alauda arvensis</i>	5	2019	0.8km north-west	BoCC red, S41
Song thrush <i>Turdus philomelos</i>	10	2018	0.8km west	BoCC red
Swallow <i>Hirundo rustica</i>	5	2017	0.8km north-west	LBAP
Dunnock <i>Prunella modularis</i>	12	2018	0.8km west	BoCC amber
Wren <i>Troglodytes troglodytes</i>	9	2017	0.9km east	N/A
Starling <i>Sturnus vulgaris</i>	4	2017	0.9km south-west	BoCC red
Hawfinch <i>Coccothraustes coccothraustes</i>	75	2018	1.5km south-east	BoCC red, S41
Hobby <i>Falco subbuteo</i>	1	2012	1.1km north-east	Sch1
House martin <i>Delichon urbicum</i>	2	2017	1.1km north-east	BoCC red, S4, LBAP
Tree sparrow <i>Passer montanus</i>	1	2017	1.4km east	BoCC red, S41
Fieldfare <i>Turdus pilaris</i>	6	2019	1.5km south-east	BoCC red, Sch1
Grey partridge <i>Perdix perdix</i>	1	2019	1.5km south-east	BoCC red, S41
Greylag goose <i>Anser anser</i>	1	2018	1.5km south-east	BoCC amber, Sch1
House martin <i>Delichon urbicum</i>	2	2017	1.1km north-east	BoCC red, S4, LBAP
Lesser redpoll <i>Acanthis cabaret</i>	2	2015	1.5km south-east	BoCC red, S41
Peregrine <i>Falco peregrinus</i>	1	2019	1.5km south-east	Sch1
Red kite <i>Milvus milvus</i>	1	2018	1.5km south-east	Sch1
Ring ouzel <i>Turdus torquatus</i>	3	2016	1.5km south-east	BoCC red, S41

Species	Number of Records	Most Recent Date Recorded	Distance and Direction	Conservation Status and Protection
Spotted flycatcher <i>Muscicapa striata</i>	1	2019	1.5km south-east	BoCC red, S41
Yellow wagtail <i>Motacilla flava</i>	1	2011	1.7km north-east	BoCC red
Key: BoCC amber: The British Trust for Ornithology (BTO) Birds of Conservation Concern (BoCC) amber list species. BoCC red: BTO BoCC red list species. S41: listed as a Species of Principal Importance on Section 41 of the NERC Act (2006). Sch1: species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). LBAP: Priority species on the local Biodiversity Action Plan.				

- 3.29 Six of the species in **Table 3.3** above are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), with 10 listed as Species of Principal Importance under Section 41 of the NERC Act (2006). Swift, swallow and house martins are priority species on the Leicester, Leicestershire and Rutland Biodiversity Action Plan (LRERC, 2016).
- 3.30 Common and widespread species including blackbird *Turdus merula*, wood pigeon *Columba palumbus*, carrion crow *Corvus corone*, magpie *Pica pica*, great tit *Parus major*, buzzard *Buteo buteo* and chiffchaff *Phylloscopus collybita* were recorded during the Site visit. In addition starling, house sparrow were also recorded on-Site during the Site visit. A nest was identified within one of the trees adjacent to the eastern Site boundary, see TN3 in **Appendix 3** for the location.

Reptiles

- 3.31 There were a total of four desk study records of grass snake *Natrix Helvetica* within 2km of the Site. The closest record was located 1.4km south east of the Site with the most recent record from 2018.
- 3.32 No reptiles or evidence of reptiles was recorded on-Site. The Site lacked structural diversity but did contain some suitable refugia/hibernacula at the bases of the hedgerows. No suitable egg laying material was present. The Site was connected to the wider habitats to the south which could offer more suitable habitats for reptiles.
- 3.33 Reptiles were considered unlikely to be present on-Site, however it cannot be ruled out that reptiles may occasionally cross the site and utilise the Site for refuge.
- 3.34 Reptiles are protected under the Wildlife and Countryside Act 1981 (as amended) from injury and killing.

Brown hare

- 3.35 The desk study returned five records of brown hare within 2km of the Site. The closest record is located approximately 340m north of the Site, however the grid reference

provided is only 4 digits and the accurate location within 1km of the Site is not known. The most recent record is from 2020 located south-east of the Site in Elmsthorpe.

- 3.36 Brown hare are a Species of Principal Importance listed under Section 41 of the NERC Act (2006) due to population declines as a result in changing farming practices and hunting pressures.
- 3.37 No brown hare, or evidence of brown hare was identified during the survey. The Site is considered suitable to support for brown hare due to the presence of grassland and hedgerows which offer suitable foraging and refuging habitats for this species.

Hedgehog

- 3.38 The desk study returned 21 records of hedgehog within 2km of the Site. The closest record is located adjacent to the north of the Site along Hinckley Road. The most recent record is from 2020 located south-west of the Site in Hinckley.
- 3.39 Hedgehogs are a Species of Principal Importance listed under Section 41 of the NERC Act (2006) due to species decline as a result of continued development and habitat fragmentation.
- 3.40 No hedgehogs or evidence of hedgehogs was identified during the survey. The Site is considered suitable to support hedgehogs due to the presence of grassland and hedgerows which offer suitable foraging and refuging/hibernating habitats for this species.

Invertebrates

- 3.41 The desk study returned three records for moths *lepidoptera* within 2km of the Site including cinnabar *Tyria jacobaeae* and blood-vein *Timandra camae*. The most recent record is from 2019 and the closest record is located 1.3km south west of the Site.
- 3.42 The desk study also returned seven records of other invertebrates including harlequin ladybird *Harmonia axyridis* and signal crayfish *Pacifastacus leniusculus* within 2km of the Site. The closest record is located 1.3km south west of the Site with the most recent record from 2019. Signal crayfish is an invasive species listed on schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Other Species

- 3.43 The desk study data returned two records of Chinese muntjac deer *Muntiacus reevesi* from 2016 and 2017 located approximately 1.3km north east and south east of the Site. This species is listed as an invasive species on Scheduled 9 of the Wildlife and Countryside Act 1891 (as amended).
- 3.44 The records centre also returned one record of polecat *Mustela putorius* located 1.1km south west, dated from 2018.

- 3.45 The Site was considered to provide sub-optimal habitats for both of these species, but it cannot be ruled out that these species are present within the vicinity of the Site they may occasionally cross over the Site.

4. ASSESSMENT OF EFFECTS

- 4.1 This section identifies the effects on habitats and species during different stages of the development, prior to any mitigation measures.

Designated Sites

- 4.2 Impacts to Designated sites are considered unlikely due to all Sites located over 1km from the Site. The development type is also not within any SSSI risk category. Best practice techniques with regards to pollution prevention should be observed throughout the development.

Habitats

Improved Grassland and Dense Scrub

- 4.3 The improved grassland and dense scrub are considered to be common and widespread habitats and will be lost to facilitate the development. The only impacts the loss of this habitat will have are minor negative impacts on species which may utilise this habitat for foraging and nesting purposes. Impacts for each species have been assessed below.

Local Wildlife Site Assessment

- 4.4 In order to meet the criteria of a LWS as defined by the guidelines (Leicestershire County Council, 2011) the survey site must contain a minimum of seven species on the mesotrophic grassland list F. Three species from this list were recorded on-Site at the time of the survey. It is therefore considered that the field does not meet the criteria of a LWS and significant impacts are not therefore anticipated.

Hedgerows

- 4.5 All of the hedgerows on the Site boundaries are Habitats of Principal Importance. One section of hedgerow on the northern boundary will be removed to facilitate access into the Site. The eastern boundary hedgerow will also be removed. All other hedgerows will be retained but are likely to be impacted during the construction phase through heavy machinery and ground disturbance. This would be a minor negative impact at the local level.

Pond

- 4.6 The pond present in the south-eastern corner of the Site will be remodelled as part of the development. No impact is anticipated as part of this work. However, if this is done with advice from the ecologist there is the potential for a minor positive impact at a local level.

Protected Species

Amphibians

- 4.7 Due to the suitability of the habitats on-Site, and the close proximity to Pond 1 the presence of amphibians (common frog, common toad and smooth newt) is considered to be likely. In the absence of mitigation measures, the injury and trapping of these species during the construction phase was considered likely. This would be a minor negative effect at the local level.

Badgers

- 4.8 It cannot be ruled out that badgers may periodically cross the Site and become injured in open excavations during the construction phase. This would be a minor negative effect at the local level.
- 4.9 Badgers are transient in nature and can excavate a sett at any time.

Bats

- 4.10 Two of the mature trees on-Site were noted as having features suitable for roosting bats. Impacts to these trees through construction methods and/or lighting may negatively impact roosting bats where they are present. This would be a negative effect at a local level.
- 4.11 The boundary hedgerows will be retained within the development proposals. Increased lighting on these features as a result of the construction or operational phase of the development has potential to disrupt foraging and commuting bats in the absence of suitable mitigation. This would be a minor negative effect at the local level.

Birds

- 4.12 Common and widespread species of nesting birds will potentially be disturbed or harmed during vegetation clearance. This would be a minor negative effect at the local level.
- 4.13 There is also the potential for ground nesting birds to be disturbed or harmed during vegetation clearance, including ground clearance, should the habitats become suitable to support ground nesting birds between now and the construction phase. This would be a minor negative effect at the county level to ground nesting species such as skylark, as these species are not common and widespread.

Reptiles

- 4.14 Reptiles may cross the Site occasionally and could become trapped in open excavations during the construction phase. The vegetation removal and site clearance works may impact refuging reptiles if present. This would be a minor negative effect at the local level.

Invertebrates

- 4.15 Common and widespread invertebrate species will be negatively impacted at the local level through habitat destruction and loss.

Brown hare, Hedgehog and Other Species

- 4.16 Brown hare, hedgehogs and other species such as deer may cross the Site occasionally or periodically and may also use the hedgerow boundaries of the Site for refuge. Brown hare, hedgehog and other species all have the potential to become injured or trapped in open excavations during the construction phase. This would be a minor negative effect at the local level.

Nature Conservation Evaluation

- 4.17 The valuation of the nature conservation interest of the ecological features present on the Site and whether or not they require consideration of mitigation measures and further assessment is summarised in **Table 4.1**.

Table 4.1: Nature Conservation Evaluation

Receptor	Important Ecological Feature	Potential for Impact	Scale of Potential Impact	Subject to Further Consideration
SITES				
Impact Risk Zone for Ensor's Pool SSSI and Burbage Common SSSI	Yes – nationally designated Sites	No – none present within 5km of the Site. Do not fall into any of the Impact Risk Categories	No Impact	No
Burbage Common and Woods LNR	Yes – Burbage Common and Woods LNR	No – unlikely to be impacts as located over 1km from the Site	No Impact	No
LWS and pLWS	Yes – designated for their county importance	No – unlikely to be impacts as located over 500m from the Site	No Impact	No
HABITATS				
Improved Grassland	No – common and widespread habitat	Yes – habitat lost to facilitate the development	Negligible impact	No

Receptor	Important Ecological Feature	Potential for Impact	Scale of Potential Impact	Subject to Further Consideration
Dense Scrub	No – common and widespread habitat	Yes – habitat lost to facilitate the development	Negligible impact	No
Hedgerows	Yes – value to species	Yes – impact to habitat during construction	Minor negative effect at the local level	Yes
SPECIES				
Amphibians	Yes – Common toad are a SPI	Yes – potential for injury and killing of species	Minor negative effect at the local level	Yes
Badgers	Yes – protected from harm	Yes – potential for injury and killing of species	Minor negative effect at the local level	Yes
Bats	Yes – protected from disturbance	Yes – potential for disturbance to roosts, foraging and commuting habitats	Minor negative effect at the local level	Yes
Birds	Yes – protected during nesting	Yes – potential for destruction and disturbance of nests	Minor negative effect at the local to county level	Yes
Reptiles	Yes – protected from harm	Yes – potential for injury and killing of species	Minor negative effect at the local level	Yes
Brown hare	Yes – protected from harm	Yes – potential for injury and killing of species	Minor negative effect at the local level	Yes
Hedgehog	Yes – protected from harm	Yes – potential for injury and killing of species	Minor negative effect at the local level	Yes
Invertebrates	Yes – provide a vital part of the ecosystem	Yes – habitat destruction and loss	Minor negative effect at the local level	Yes
Other Species	No – all mammals are protected from harm	Yes – potential for injury and killing of species	Negligible impact	Yes

4.18 Therefore, the ecological receptors which require further consideration are as follows:

- Hedgerows;
- Amphibians;
- Badgers;
- Bats;
- Birds;
- Reptiles;
- Brown hare;
- Hedgehog;
- Invertebrates; and
- Other species.

5. MITIGATION MEASURES

Hedgerows

- 5.1 The retained hedgerows should be protected during construction through the use of root protection zone fencing as per best practice outlined by British Standard 5837:2012.
- 5.2 The eastern boundary hedgerow that is to be removed should be replaced with a hedgerow of at least equivalent length with a variety of native woody species.

Amphibians

- 5.3 The presence of common amphibians within the Site is considered likely. Mitigation measure to protect common amphibians during the vegetation clearance works and during the construction works will be required. The measures outlined below for reptiles and mammals are considered suitable to protect common amphibians during the vegetation clearance and construction works.
- 5.4 If during any stage of the development common amphibians are identified within the Site, the amphibians should be carefully picked up (wearing gloves) and relocated to a safe place nearby, outside of the working footprint.
- 5.5 Modified dropped kerbs will be placed in strategic locations across the development to allow any amphibians to move across the Site and not become trapped on the roads or within the drains. The locations of these dropped kerbs will be provided within the BEMP.

Badgers

- 5.6 As a matter of good practice, any trenches dug as part of construction work should be covered over at night, or left with a ramp or sloping end, to prevent mammals from falling in and becoming trapped. Similarly, any pipes over 200mm in diameter should be capped off at night. All chemicals and machinery should be stored securely to prevent accidental harm to badgers.
- 5.7 Where works are to be delayed longer than 6 months, a pre commencement check for badgers should be undertaken prior to the works.
- 5.8 Should a suspected badger sett be encountered at any point in the works, all works within 30m of the suspected sett should cease and an ecologist contacted for further advice.

Bats

- 5.9 The development will include a sensitive lighting scheme and retain dark corridors across the boundaries of the Site. Any new lighting associated with the development will follow best practice guidelines outlined in Bats and Artificial Lighting in the UK (2018) to maintain suitable commuting habitats, particularly across the retained hedgerows and any new landscaped areas such as the Public Open Space (POS).

Birds

- 5.10 As all species of birds receive legal protection whilst nesting. Vegetation clearance will be undertaken outside of the breeding bird season (March to August inclusive). Work outside of this period should still be preceded by a nesting bird survey carried out by contractors, as some species can nest all year round. If it is necessary to conduct Site clearance within the nesting bird season (March to August inclusive), any works to suitable vegetation should be preceded by a nesting bird check conducted by a Suitably Qualified Ecologist (SQE). Where active nests are encountered, a standoff zone will be erected, and the nests will remain unaffected until all chicks have fledged.
- 5.11 The improved grassland should be kept at its current length, under 15cm and regularly mown during the botanical growing season to discourage it from being utilised by ground nesting birds.

Reptiles

- 5.12 The improved grassland should be kept at its current length, under 15cm and regularly mown during the botanical growing season to maintain unsuitability for reptiles.
- 5.13 Where the grassland is allowed to grow and for the removal of the areas of scrub, precautionary clearance measures will be required. This will likely entail a two-phase vegetation clearance supervised by an SQE. The two-phase clearance can only be undertaken during the reptile active season (March to October inclusive) during suitable weather conditions (temperatures between 9-18°C, no strong winds, no rain). Vegetation will be undertaken in two phases, with the first phase taking the vegetation to approximately 20cm. The following phase can be conducted 24hours after and will remove all vegetation. No arisings should be allowed to accumulate within the Site as this will create suitable habitat piles for reptiles.
- 5.14 During the vegetation clearance works the base of the hedgerow to be removed, any dense areas of vegetation such as brambles or piles of deadwood as well as any brash and log piles or other suitable habitat piles should be checked and searched by hand for reptiles prior to their removal.

Brown Hare

- 5.15 If a brown hare is identified during the Site clearance works, then all works should stop within the vicinity of the brown hare. The hare should be left to disburse naturally out of the Site and not chased, as this can lead to injury and mortality.
- 5.16 As with badgers, any trenches dug as part of construction work should be covered over at night, or left with a ramp or sloping end, to prevent brown hare from falling in and becoming trapped. Similarly, any pipes over 200mm in diameter should be capped off at night.

Hedgehog

- 5.17 During the site clearance works, the base of the hedgerow to be removed, any dense areas of vegetation such as brambles or piles of deadwood as well as any brash and log piles or other suitable habitat piles should be checked and searched by hand for hedgehogs prior to their removal.
- 5.18 As with badgers, any trenches dug as part of construction work should be covered over at night, or left with a ramp or sloping end, to prevent hedgehogs from falling in and becoming trapped. Similarly, any pipes over 200mm in diameter should be capped off at night.
- 5.19 If a hedgehog is found during then the British Hedgehog Preservation Society should be contacted for advice on what to do with the hedgehog, as depending on the time of year the hedgehog is found care advice may differ. This is due to the risks associated with disturbance of hedgehogs during hibernation or when they have young as disturbance during these periods can lead to mortality.
- British Hedgehog Preservation Society Tel: 01584 890 801
- 5.20 The introduction of dropped curbs across the Site will facilitate hedgehog dispersal, allowing them access and egress into and out of road systems.

Invertebrates

- 5.21 No specific mitigation measures for invertebrates are required.

Other Species

- 5.22 As with badgers, any trenches dug as part of construction work should be covered over at night, or left with a ramp or sloping end, to prevent other species from falling in and becoming trapped. Similarly, any pipes over 200mm in diameter should be capped off at night.

6. RESIDUAL EFFECTS

6.1 With the mitigation measures outlined above, no residual effects are envisaged.

7. COMPENSATION AND ENHANCEMENT MEASURES

General

Biodiversity Net Gain

- 7.1 Biodiversity Net Gain was written into the NPPF in 2019 and is currently being written into a number of Local Plans. There is no current set percent of net gain requirement, however the new Environment Bill passed through parliament sets out that all developments need to achieve 10% net gain. The landscaping scheme will be designed to maximise the biodiversity present on the Site. However, it is likely that a receptor site will be required to offset any losses in biodiversity as the constraints of the development may prevent on-site BNG being achieved.

Biodiversity Enhancement and Management Plan (BEMP)

- 7.2 All mitigation measures outlined above, and the compensation and enhancement measures outlined below will be provided in more detail as part of a Biodiversity Enhancement and Management Plan (BEMP).

Habitats

- 7.3 To compensate for the loss of a small section of H2 on the northern boundary of the Site (lost to facilitate access into the Site) the retained hedgerows should be enhanced and 'gapped' up with native species wherever possible.
- 7.4 Enhancements to the hedgerows should also include a wildlife friendly management routine to provide as many benefits to species as possible.
- 7.5 Details of the management routine and species planting should form part of the BEMP document.

Amphibians

- 7.6 Common toads are a Species of Principal Importance listed under Section 41 of the NERC Act (2006). The NPPF (2019) requires all development to protect and aid in the recovery of priority species.
- 7.7 The loss of the improved grassland and scrub habitats will be compensated for by the creation of wildflower meadow areas. This wildflower meadow will provide more benefits and a better-quality habitat than what is currently present at the Site.
- 7.8 Pond 1 will also be enhanced to benefit amphibians, such as the planting of more suitable egg laying plants and cover for amphibians.
- 7.9 Log and brash piles will be created across the development in suitable areas to provide additional suitable refuge and hibernation habitats for amphibians.

- 7.10 The BEMP will detail the locations of the log and brash piles as well as the type of seed mixes, locations of the wildflower meadows and details of the pond enhancements along with management regimes were required.

Bats

- 7.11 Opportunities for roosting bats will be integrated into at least one third of the new buildings (a total of at least 8 boxes) as well as attached onto retained mature trees on the site boundaries.
- 7.12 The bat boxes integrated into the buildings should be positioned as close to the eaves as possible and positioned in locations sheltered from strong winds and away from direct sunlight for a significant proportion of the day, usually south to south-west.
- 7.13 The bat boxes installed onto the trees should be placed at least 2-6m high and positioned in similar locations as the integrated boxes.
- 7.14 The BEMP document will specify the locations and types of boxes to be installed across the development.

Birds

- 7.15 Opportunities for nesting birds will be incorporated into the final masterplan. At least one third (a total of 8) of all new buildings should have integrated bird boxes.
- 7.16 Specifically designed boxes for swifts, swallows, house martins, starlings and house sparrow should be installed, focussing on those species whose populations are declining, are most likely to be associated with the built environment, as well as are known to be present within the area or part of the Local Biodiversity Action Plan.
- 7.17 A number of general purposes boxes should also be installed on retained trees across the boundaries of the Site. A total of 10 boxes are recommended to be installed.
- 7.18 Bird boxes should be installed two to four metres above ground on the buildings and trees and should offer unobstructed fly-in access. Where possible the boxes should face between north and east, thus avoiding full sun and prevailing wind.
- 7.19 Where possible any landscaping requirements, such as front gardens should include native species which will provide foraging resources for birds, such as fruit, nut and berry producing trees and shrubs.
- 7.20 The BEMP document will specify the locations and types of boxes to be installed across the development.

Reptiles

- 7.21 Log and brash piles will be created across the development in suitable areas to provide additional suitable refuge and hibernation habitats for reptiles. In addition, a grass clippings pile should be created from any cuttings undertaken as part of the grassland

management routine for the Site. This grass clippings pile will provide additional habitat enhancements for grass snake by providing suitable egg laying habitat.

- 7.22 The creation of wildflower meadows within the development is also considered to provide suitable habitats for reptiles.
- 7.23 The BEMP document will provide location details of the grass clippings pile and brash and log piles.

Brown Hare

- 7.24 The creation of wildflower meadows within the development will provide suitable habitats for brown hare. The wildflower meadows should be open to the boundary hedgerows to allow brown hare to access these areas and not be closed off with fences.

Hedgehog

- 7.25 To aid in species recovery, as per the recommendations of the NPPF (2019) a hedgehog highway will be created across the Site. The hedgehog highway will include suitably sized gaps or holes measuring 13cm by 13cm in fencing or include hedgerow planting or railings instead of closed board fencing wherever possible.
- 7.26 In addition, all new residents should receive a suitable leaflet detailing the purpose and function of the hedgehog highway and other ways to help hedgehogs. The distribution of such leaflets will aid in the prevention of people blocking up the linked highway which would result in a loss of habitat for hedgehogs.
- 7.27 The BEMP will detail the locations of the hedgehog highway access points across the development.

Invertebrates

- 7.28 The development will provide new habitats for invertebrates through the provision of suitable invertebrate houses or "bug hotels". At least 4 'bug houses/hotels' will be installed across the development. These 'bug houses' will benefit a range of species and be placed in strategic locations across the development to provide maximum benefits for invertebrates.
- 7.29 Where possible any ornamental planting should include native and nectar producing species to benefit pollinators.
- 7.30 The planting of wildflower areas, pond enhancements and creation of brash and log piles will also benefit invertebrates.
- 7.31 The BEMP document will specify the locations and types of boxes to be installed across the development as well as provide a recommended species planting list.

Other Species

- 7.32 The compensation and enhancement measures outlined above for all species are also considered to benefit other species which may be located within the vicinity of the Site.

8. CUMULATIVE EFFECTS

- 8.1 The outcome of the Ecological Impact Assessment is that there will be no Residual Effects. Therefore, the proposed works will not contribute to any impacts from related/nearby proposed developments and Cumulative Effects are not relevant.

9. SUMMARY

9.1 **Table 9.1** contains a summary of the likely significant effects of the development relating to the construction phase, the completed development and cumulative effects.

Table 9.1: Summary

Receptor	Potential Effect	Significance of Effect Without Mitigation	Mitigation Measures	Residual Effects
SITES				
Impact Risk Zone for Ensor's Pool SSSI and Burbage Common SSSI	Negligible Impacts – development type does not fall into a risk category	No Impact	N/A	No Impact
Burbage Common and Woods LNR	Negligible Impacts – located over 1km from the Site	No Impact	N/A	No Impact
LWS and pLWS	Negligible Impacts – located over 500m from the Site	No Impact	N/A	No Impact
HABITATS				
Improved Grassland	Total loss of habitat	Impact species only. Minor negative effect at the local level.	Maintain grassland under 15cm. Native planting scheme.	Negligible
Dense Scrub	Total loss of habitat	Impact species only. Minor negative effect at the local level.	Timed vegetation clearance. Native planting scheme	Negligible
Hedgerows	Loss of small section to facilitate access road	Impact species only. Minor negative effect at the local level.	Timed vegetation clearance. Hedgerow enhancements.	Negligible
SPECIES				
Amphibians	Potential impacts during site clearance and construction to common amphibians	Injury and killing of species. Minor negative effect at the local level.	Creation of habitats, habitat enhancements. Good practice measures during construction	Positive impact at the local level

Receptor	Potential Effect	Significance of Effect Without Mitigation	Mitigation Measures	Residual Effects
Badgers	Impacts during construction	Injury and killing of species. Minor negative effect at the local level.	Good practice measures during construction.	Negligible impacts
Bats	Impacts through increase of lighting	Disturbance of foraging, commuting and roosting habitat. Minor negative effect at the local level.	Sensitive lighting scheme. New roosting opportunities	Positive impact at the local level
Birds	Destruction and disturbance of nesting birds	Destruction and disturbance of nests. Minor negative effect at local level, potential to be county level	Timed vegetation clearance. New nesting opportunities for a range of species	Positive impact at the local level
Reptiles	Potential impacts during site clearance and construction	Injury and killing of species. Minor negative effect at the local level.	Grassland to be kept short pre-construction. Creation of habitats, habitat enhancements. Good practice measures during construction	Negligible impacts
Brown hare	Impacts during site clearance and construction and potential loss of foraging habitat	Injury and killing of species. Minor negative effect at the local level.	Good practice measures during construction	Negligible impacts
Hedgehog	Impacts during site clearance and construction and potential loss of foraging habitat	Injury and killing of species. Minor negative effect at the local level.	Good practice measures during construction. Creation of hedgehog highway	Positive impact at the local level
Invertebrates	Loss of habitat	Minor negative effect at the local level.	Habitat creation and enhancements	Negligible impacts

Receptor	Potential Effect	Significance of Effect Without Mitigation	Mitigation Measures	Residual Effects
Other Species	Impacts during site clearance and construction and potential loss of foraging habitat	Injury and killing of species. Minor negative effect at the local level.	Good practice measures during construction	Negligible impacts

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APPENDICES

Appendix 1: Relevant Legislation

The following text provides information on the key legislation, which is applicable to this survey.

The main wildlife legislation relevant in the UK is as follows:

European Legislation

The relevant sections of the EC Directives and international conventions are summarised below:

- EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitat Directive 1992) as amended (92/43/EEC)

The Directive requires Member States to introduce a range of measures including the protection of species listed in the Annexes. The 189 habitats listed in Annex I of the Directive and the 788 species listed in Annex II, are to be protected by means of a network of sites. Once adopted, these are designated by Member States as Special Areas of Conservation (SACs), and along with Special Protection Areas (SPAs) classified under the EC Birds Directive. The Habitats Directive introduces the precautionary principle; that disturbance to the designated sites can only be permitted having ascertained no adverse effect on the integrity of the Site.

- EC Directive on the Conservation of Wild Birds (Birds Directive 1979) as amended (79/409/EEC)

The main provisions of the Directive includes; the maintenance of the favorable conservation status of all wild bird species across their distributional range.

- Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)

The Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.

UK Legislation

The sections of UK legislation considered to be of relevance include:

- The Conservation (Natural Habitats, and c.) Regulations (Amendment) (EU Exit) 2019 (as amended)

This transposes the Habitats Directive into national law. The Regulations provide for the designation and protection of 'European sites', and the protection of 'European protected species.

- The Wildlife and Countryside Act 1981 (as amended) (WCA)

This consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive) in Great Britain.

- The Countryside and Rights of Way Act 2000 (CRoW)

This act strengthens wildlife enforcement legislation.

- The Protection of Badgers Act 1992

This act affords protection to badgers and their setts including the destruction or obstructing access to a sett.

- Wild Mammals Protection Act 1996

This act provides protection to all wild species of mammal in the UK and is more related to mammal welfare but is directly applicable during any site clearance or other works to a site which could harm mammals.

- Natural Environment and Rural Communities Act 2006 (NERC Act)

This act formed Natural England which places a duty on all public authorities, including local planning authorities to consider biodiversity. This Act also requires a list of species of habitats composed by the Secretary of State to help provide specific conservation targets. These species are known as Priority Species or Species of Principal Importance (SPI). These habitats are known as Priority habitats or Habitats of Principal Importance (HPI). Both SPI and HPI are listed under Section 41 of this Act. The NPPF also affords protection to these HPI's and SPI's.

- UK Post-2010 Biodiversity Framework

In addition, species and habitats listed on the UK Post-2010 Biodiversity Framework (formally the UK BAP) are also considered. Details on these species and habitats can be found at: <http://jncc.defra.gov.uk/page-5705>.

Species-Specific Legislation

Species specific legislation is provided in the Table below:

Species-Specific Wildlife Legislation

Plants	Sch. 8 Wildlife and Countryside Act 1981 (as amended) Some species are SPI - Section 41 NERC Act.	• Pick; • Uproot; • Trade; • Possess (for trade) any wild plant listed.
Breeding birds	Wildlife and Countryside Act 1981 (as amended).	• Kill; • Injure; • Take; any wild bird, their eggs or nest (with the exception of those on Sch. 2).
Specially protected birds	Sch. 1 Wildlife and Countryside Act 1981 (as amended).	As above but includes: • Disturbing birds at their nest, or their dependent young.

Badgers	The Protection of Badgers Act 1992.	• Wilfully kill, injure, take, or cruelly ill-treat a badger, or attempt to do so; • Possess any dead badger or any part of, or anything derived from, a dead badger; • Intentionally or recklessly interfere with a sett by disturbing badgers whilst they are occupying a sett, damaging or destroying a sett, causing a dog to enter a sett, or obstructing access to it. A badger sett is defined in the legislation as “any structure or place, which displays signs indicating current use by a badger”.
Bats	Sch. 5 Wildlife and Countryside Act 1981 (as amended). Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019 (as amended).	• Intentionally or deliberately kill, injure or capture (or take) bats; • Deliberately disturb bats (whether in a roost or not); • Recklessly disturb roosting bats or obstruct access to their roosts; • Damage or destroy bat roosts.
Common reptiles	Sch. 5 Wildlife and Countryside Act 1981 (as amended). Countryside and Rights of Way Act 2000.	Deliberate or reckless: • Killing; • Injuring • Sale.
Common amphibians	Sch. 5 and Sch. 9 Wildlife and Countryside Act 1981 (as amended). Countryside and Rights of Way Act 2000.	• Sell; • Transport; and • Advertise for sale.
Great crested newt	Sch. 5 Wildlife and Countryside Act 1981 (as amended). Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019 (as amended).	• Kill; • Injure; • Disturb • Destroy or obstruct access to any place used for rest or shelter.
Hedgehogs	SPI – Section 41 NERC Act Wild Mammals Protection Act 1996.	Protection from harm, injury Intent to harm.
Other mammals	Wild Mammals Protection Act 1996.	Protection from harm, injury Intent to harm.
Invasive species (animal and plant)	Sch. 9 Wildlife and Countryside Act 1981 (as amended).	Release of any animal, plant or microorganism not native to the UK. Sale. Cause or allow to spread.

Protected Sites

A network of protected sites, at varying levels, have been put in place across the UK. Further details are provided below;

International Importance

- Natura 2000

Natura 2000 is the name of the European Union-wide network of nature conservation-sites established under the EC Habitats and Birds Directives. This network will comprise Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

- Special Areas of Conservation (SAC)

SACs are designated under the EC Habitats Directive. The Directive applies to the UK and the overseas territory of Gibraltar. SACs are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs in terrestrial areas and territorial marine waters out to 12 nautical miles are designated under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). New and/or amended Habitats Regulations are shortly to be introduced to provide a mechanism for the designation of SACs and SPAs in UK offshore waters (from 12-200 nm).

National Importance

- Sites of Special Scientific Interest (SSSI)

The SSSI series has developed since 1949 as the national suite of sites providing statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features. Most SSSIs are privately-owned or managed; others are owned or managed by public bodies or non-government organisations. The SSSIs designation may extend into intertidal areas out to the jurisdictional limit of local authorities, generally Mean Low Water in England and Northern Ireland; Mean Low Water of Spring tides in Scotland. In Wales, the limit is Mean Low Water for SSSIs notified before 2002, and, for more recent notifications, the limit of Lowest Astronomical Tides, where the features of interest extend down to LAT. There is no provision for marine SSSIs beyond low water mark. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs have been renotified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and the Nature Conservation (Scotland) Act 2004.

Regional/Local Importance

- Wildlife Sites

Local authorities for any given area may designate certain areas as being of local conservation interest. The criteria for inclusion, and the level of protection provided, if any, may vary between areas. Most individual counties have a similar scheme, although they do vary.

These sites, which may be given various titles such as 'Listed Wildlife Sites' (LWS), 'County Wildlife Sites' (CWS), 'Local Nature Conservation-sites' (LNCS), 'Sites of Importance for Nature Conservation' (SINCs), or 'Sites of Nature Conservation Importance' (SNICIs), together with statutory designations, are defined in local and structure plans under the Town and Country Planning system and are a material consideration when planning applications are being determined.

Appendix 2: LWS Criteria for Leicestershire

8 Grasslands

Changes in agricultural practices have severely reduced the herb-rich grassland that was once widespread in Leicestershire and Rutland. Consequently, calcareous and neutral grassland are both listed as priority habitats within the Leicestershire and Rutland Biodiversity Action Plan, while acid grassland is covered by the Heath Grassland Action Plan. With the demise of agricultural grasslands, roadside verges have become important refuges for some plant species and these are covered by the Roadside Verge Action Plan. Herb-rich grassland is a fragile habitat and, in most cases, impossible to recreate or restore once it has been damaged. Consequently, the protection of grassland LWS is an essential component of any nature conservation strategy.

There are several types of grassland represented in Leicestershire and Rutland, but some have survived agricultural changes better than others and so require different site size thresholds. Grass verges often support the only herb-rich grassland left in an area. These linear grasslands are often small in extent - less than 10 metres wide - but are rich in species. Roadside verges are particularly important for calcareous grassland. Many have been designated as roadside verge nature reserves.

LLRBAP: **neutral grassland**
UKBAP: **lowland meadows (priority habitat)**
 neutral grassland (broad habitat)

Mesotrophic or Neutral grassland is the commonest grassland in Leicestershire and Rutland and is found over neutral and nearly neutral soils throughout the two counties. Traditionally, much of this grassland would have been managed as hay meadow, resulting in a very rich and diverse flora. However, species-rich mesotrophic grassland can also occur in permanent pasture, churchyards, golf courses or even infrequently managed rough grassland. The most important factor governing the richness of mesotrophic grasslands is their sensitivity to agricultural and horticultural improvements such as ploughing, re-seeding, drainage and the application of herbicides, pesticides and inorganic fertilisers.

LLRBAP: **(no category)**
UKBAP: **coastal and floodplain grazing marsh (priority habitat)**

Wet grassland is found in floodplains or where there is impeded drainage. It is also frequently associated with springs and flushes. It is often less rich in plant species than drier grasslands, but nevertheless, it is valuable for its own specialist flora.

LLRBAP: **(no category)**
UKBAP: **acid grassland (broad habitat)**

Acid grassland in Leicestershire is naturally poor in plant species. It may occur in association with bare ground and rock outcrops. It may also contain heather and other ericaceous shrubs and can grade into heathland. Although invasion by bracken has led to losses of this habitat, it can survive amongst bracken.

LLRBAP: calcareous grassland
UKBAP: lowland calcareous grassland (priority habitat)
 calcareous grassland (broad habitat)

Most **calcareous grassland** in Leicestershire and Rutland is of recent origin and is associated with quarries, railway embankments and other post-industrial sites. It is often found in a mosaic with mesotrophic grassland, bare ground and early successional communities.

LLRBAP: (no category)
UKBAP: (no category)

Mixed grassland may support a mosaic of mesotrophic, wet, acid and calcareous grassland types depending on the underlying substrate, hydrology, aspect and other physical features of the site. Quarries, spoil tips, railways and other post-industrial sites often support mixed grassland habitats of great diversity.

As well as being important for plants, herb-rich grasslands support valuable animal populations which often depend on the surrounding hedges for nesting and hibernation sites. Consequently, surrounding hedges should be included in the LWS boundary.

The DAFOR values used in these criteria correspond to the following ranges of percentage cover:

D	75-100% cover
A	25-74% cover
F	10-24% cover
O	5-9% cover
R	<5% cover and < 5 individuals / clumps within the survey unit

Primary criteria

Mesotrophic grasslands should be at least 2500m² or 200m of linear habitat in extent in which at least 7 species from list F should be Occasional, Frequent, Abundant or Dominant or at least 10 species from grassland list F should be present.

LIST F - Mesotrophic grassland species	
<i>Agrimonia eupatoria</i>	Agrimony
<i>Alchemilla</i> sp.	Lady's mantle
<i>Betonica officinalis</i>	Betony
<i>Campanula rotundifolia</i>	Harebell
<i>Carex binervis</i>	Green-ribbed Sedge
<i>Carex caryophyllea</i>	Spring-sedge
<i>Carex flacca</i>	Glaucous Sedge
<i>Carex nigra</i>	Common Sedge
<i>Carex leporina</i>	Oval Sedge
<i>Carex pallescens</i>	Pale Sedge
<i>Carex panicea</i>	Carnation Sedge
<i>Carex spicata</i>	Spiked Sedge
<i>Centaurea nigra</i>	Knapweed
<i>Conopodium majus</i>	Pignut
<i>Filipendula ulmaria</i>	Meadow sweet
<i>Filipendula vulgaris</i>	Dropwort
<i>Galium verum</i>	Lady's bedstraw

<i>Knautia arvensis</i>	Field scabious
<i>Lathyrus pratensis</i>	Meadow vetchling
<i>Leontodon hispidus</i>	Rough Hawkbit
<i>Leucanthemum vulgare</i>	Ox-eye daisy
<i>Lotus corniculatus</i>	Birdsfoot trefoil
<i>Luzula campestris</i>	Field woodrush
<i>Ononis</i> sp.	Rest-harrow
<i>Pimpinella saxifraga</i>	Burnet saxifrage
<i>Potentilla erecta</i>	Tormentil
<i>Primula veris</i>	Cowslip
<i>Ranunculus acris</i>	Meadow buttercup
<i>Ranunculus bulbosus</i>	Bulbous buttercup
<i>Rhinanthus minor</i>	Yellow rattle
<i>Rumex acetosa</i>	Sorrel
<i>Sanguisorba officinalis</i>	Great burnet
<i>Saxifraga granulata</i>	Meadow saxifrage
<i>Scorzoneroide autumnalis</i>	Autumnal Hawkbit
<i>Silaum silaus</i>	Pepper saxifrage
<i>Succisa pratensis</i>	Devil's-bit scabious
<i>Trifolium pratense</i>	Red clover

Wet grasslands should be seasonally flooded and at least 2500m² in extent in which at least 6 species from grassland lists F and G combined should be present.

LIST G - Wet grassland species	
<i>Achillea ptarmica</i>	Sneezewort
<i>Angelica sylvestris</i>	Wild Angelica
<i>Caltha palustris</i>	Marsh Marigold
<i>Cardamine pratensis</i>	Cuckoo flower or Lady's Smock
<i>Carex acuta</i>	Slender Tufted-sedge
<i>Carex acutiformis</i>	Lesser Pond-sedge
<i>Carex disticha</i>	Brown Sedge
<i>Carex otrubae</i>	False Fox-sedge
<i>Carex riparia</i>	Greater Pond-sedge
<i>Cirsium palustre</i>	Marsh Thistle
<i>Galium palustre</i>	Marsh Bedstraw
<i>Juncus acutiflorus</i>	Sharp-flowered Rush
<i>Juncus articulatus</i>	Jointed Rush
<i>Juncus bufonius</i>	Toad Rush
<i>Juncus bulbosus</i>	Bulbous Rush
<i>Juncus conglomeratus</i>	Compact Rush
<i>Juncus effusus</i>	Soft-rush
<i>Juncus inflexus</i>	Hard Rush
<i>Juncus tenuis</i>	Slender Rush
<i>Lotus pedunculatus</i>	Greater bird's-foot trefoil
<i>Silene flos-cuculi</i>	Ragged robin
<i>Oenanthe fistulosa</i>	Tubular water dropwort
<i>Pulicaria dysenterica</i>	Common fleabane
<i>Ranunculus flammula</i>	Lesser spearwort
<i>Thalictrum flavum</i>	Common meadow rue
<i>Triglochin palustre</i>	Marsh arrow-grass

Appendix 3: Extended Phase 1 Habitat Plan



Target Notes:
TN1 - Tree with bat roost potential
TN2 - Tree with bat roost potential
TN3 - Nest

- Notes
1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
 2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
 3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
 4. Any discrepancies noted on site are to be reported to the engineer immediately.

- Key
- Site boundary - burial ground
 - Dense scrub
 - Improved grassland
 - Native species poor hedgerow
 - Target note
 - ★ Waterbody

PD1	29.04.21	PRELIMINARY ISSUE	AD	PM
Rev	Date	Details of issues/ revision	Drw	Rev

Issues & Revisions	
☐ Birmingham 0121 233 3322 ☐ Leeds 0113 233 8000 ☐ London 0207 407 2879 ☐ Manchester 0161 233 4260 ☒ Nottingham 0115 924 1100 www.bwbconsulting.com	

Client
Fort Estates Limited

Project Title
Land at Crabtree Farm - Burial Ground (West)

Drawing Title
Phase 1 Habitat Map

Drawn:	AD	Reviewed:	PM
BWB Ref:	NTP2073	Date:	02.11.22
		Scale@A3:	1:1500

Drawing Status	
Final	
Project - Originator - Zone - Level - Type - Role - Number	
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Status	Rev
S2	P02

Appendix 4: Site Photographs

Photograph 1: Improved Grassland



Photograph 2: Western Hedgerow H2



Photograph 3: Dense scrub



Photograph 4: Pond 1



Photograph 5: TN1



Photograph 6: TN2



Appendix 5: Full eDNA Survey Results

Folio No: E9334
Report No: 1
Purchase Order: NTP2073
Client: BWB CONSULTING
Contact: Amy Dowers

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 20/04/2021
Date Reported: 03/05/2021
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
2135	POND 3	SP 43537 96117	Pass	Pass	Pass	Negative	0
2137	POND 1	SP 43702 93127	Pass	Pass	Pass	Negative	0
2138	POND 6	SP 43331 96655	Pass	Pass	Pass	Negative	0
2139	POND 5	SP 43237 96681	Pass	Pass	Pass	Negative	0
2142	POND 9	SP 44211 96047	Pass	Pass	Pass	Negative	0
2143	POND 4	SP 43596 95911	Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com



Reported by: Chris Troth

Approved by: Chris Troth

METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

INTERPRETATION OF RESULTS

- SIC:** **Sample Integrity Check** [Pass/Fail]
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.
- DC:** **Degradation Check** [Pass/Fail]
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.
- IC:** **Inhibition Check** [Pass/Fail]
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.
- Result:** **Presence of GCN eDNA** [Positive/Negative/Inconclusive]
Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.
Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.
Negative: GCN eDNA was not detected or is below the threshold detection level and the test result



should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.





Annex B:

**BWB Environment. Land at Crabtree Farm East, Hinckley Road, Barwell.
Biodiversity Net Gain and Local Wildlife Site Assessment.
November 2021.**

ENVIRONMENT

Land at Crabtree Farm East
Hinckley Road
Barwell

Biodiversity Net Gain and Local Wildlife
Site Assessment

ENVIRONMENT

Land at Crabtree Farm East
Hinckley Road
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November 2021

DOCUMENT ISSUE RECORD

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EXECUTIVE SUMMARY

This Biodiversity Net Gain (BNG) Assessment has been undertaken in respect of the Site at Land at Crabtree Farm East, Barwell, Leicestershire. The Site is proposed for a residential development of 51 dwellings, associated landscaping and Public Open Space (POS).

The habitats present on-Site are considered to be widespread and common, with the majority of the Site comprising modified grassland. The main habitats of value are considered to be the trees and hedgerows which will be retained as part of the development.

The grassland on-Site was assessed against the LWS criteria outlined for Leicester, Leicestershire and Rutland (Leicester City Council, 2011). The grassland was not considered to meet the LWS criteria.

The habitat types within the Site included grassland – modified grassland, heathland and shrub – bramble scrub and Urban – Developed land; sealed surface. All of the habitats scored a 'poor condition' for each of the condition assessments undertaken.

The Site habitat baseline provides a total of 5.02 habitat units with a total area of 2.25ha and the Site hedgerow habitats baseline provides a total of 3.93 hedgerow units with a total length of 0.7km.

The results of the Biodiversity Net Gain assessment for the Site area showed that the post-development habitats proposed for the Site would result in a change of -2.15 habitat units resulting in an overall change of -42.83%.

The results of the biodiversity net gain assessment of linear features (hedgerow) demonstrated that the post-development linear features retained and enhanced as part of the development for the Site would result in a gain of 1.08 hedgerow units resulting in an overall net gain of 27.44%.

It is considered the loss in biodiversity units cannot be offset on-Site therefore the development will seek to offset this loss through financial contribution.

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Appendix 1: Site Survey Plan
Appendix 2: Habitat Enhancement and Creation Plan
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1. INTRODUCTION

Instruction

- 1.1 This Biodiversity Net Gain (BNG) and Local Wildlife Site (LWS) Assessment has been undertaken in respect of the Site at Crabtree Farm East, Barwell. It has been produced following comments from Leicestershire City Councils Planning Ecologist on the 18th June 2021.

Site Description

- 1.2 The Site is located on land south of Hinckley Road and west of Crabtree Road, on the southern outskirts of Barwell in south-west Leicestershire. The Site itself comprises two modified grassland fields, with patches of dense scrub and hedgerows with mature trees. The Site is surrounded by a mosaic of agricultural land and residential estates. The Site is approximately 2.25 hectares (ha) in extent and is centred on grid reference SP 43739 96183. The land is flat and situated approximately between 113 and 117 metres above ordnance datum (m AOD).
- 1.3 The location of the Site is shown below in **Figure 1.1**.

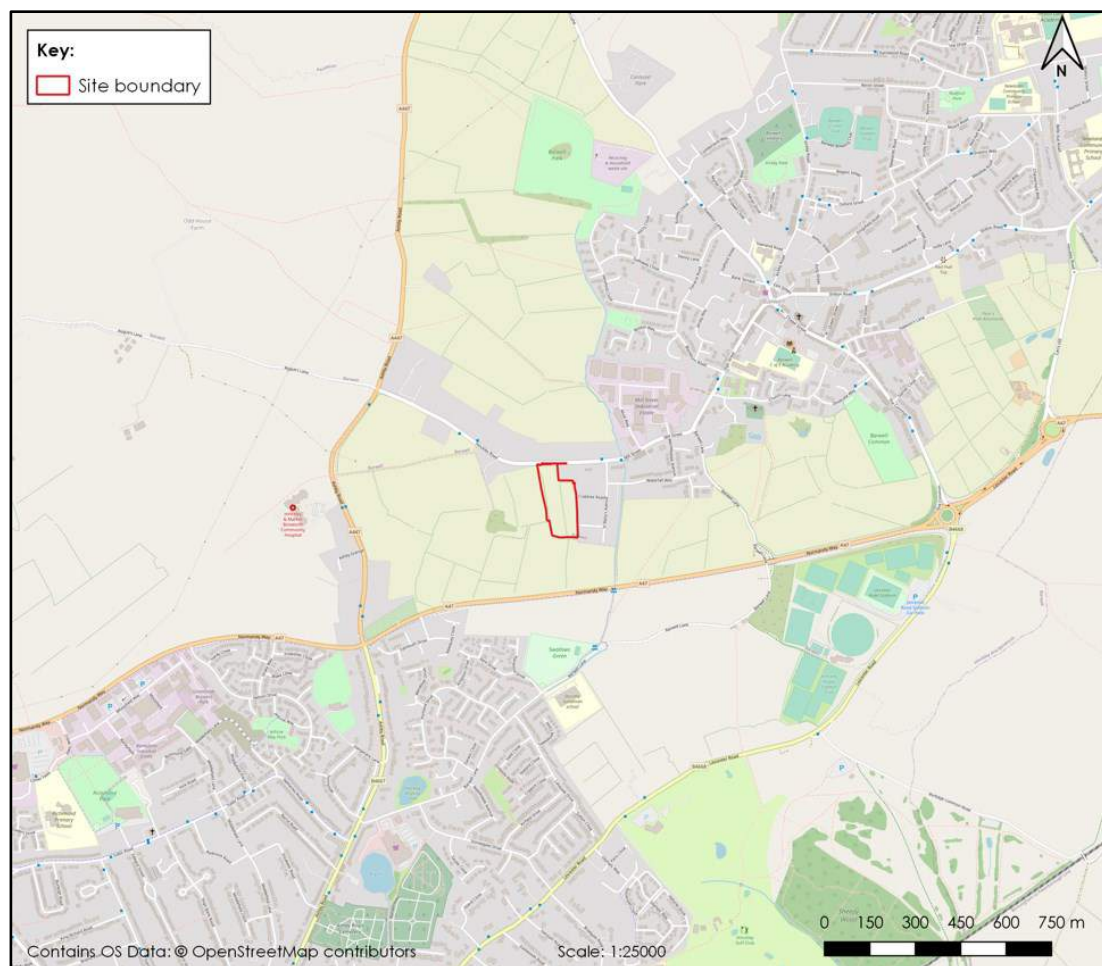


Figure 1.1: Site Location Plan

The Project

- 1.4 Current proposals are for a residential development of 51 dwellings, associated landscaping and Public Open Space (POS).
- 1.5 The Biodiversity Metric is the latest tool developed by Natural England as a way of measuring and assigning numerical value to the habitats present within a Site and the changes which will occur as a result of development or land management. This version of the Biodiversity Metric (Version 2.0) provides the value of habitats as a 'baseline' score, which is then assessed against the post-development habitat score which are retained, enhanced or created on-Site post-development. The two scores are then compared to provide an overall change in biodiversity units for the Site.
- 1.6 The two outputs of the Biodiversity Metric for terrestrial habitats are:
 - Area Habitat Biodiversity Units (AHBU) - Habitat area such as grassland, woodland or other areas of habitats which are measured in hectares (ha); and
 - Hedgerow Biodiversity Unit' (HBU) - Linear features such as hedgerows or lines of trees which are measured in kilometres (km).

Objectives

- 1.7 The primary purpose of the baseline BNG Assessment is to provide an overview as to the existing habitats present at the Site and the value assigned to these habitats using the Biodiversity Metric Calculation Tool (Defra Beta version 2.0).
- 1.8 The report will also provide an overview of the Biodiversity Net Gain Good Practice Principles (Baker, Hoskin & Butterworth, 2019), legislation, and planning policy as well as recommendations on how to achieve a high BNG score.
- 1.9 In addition, this report also aims to provide the results of the detailed botanical survey of the Site and an assessment of the Site in line with the Guidelines for the selection of Local Wildlife Sites in Leicester, Leicestershire and Rutland (Leicestershire County Council, 2011).

Scope of Works

- 1.10 The Biodiversity Metric and LWS assessment was informed by a desk-based study and a Site survey.
- 1.11 The approach to the BNG assessment follows the Biodiversity Net Gain: Good practice principles for development published by CIEEM, IEMA, CIRIA, UK (2019), which have been provided later in this report.

Legislation and Planning Policy

The Environment Bill

- 1.12 The Government's Environment Bill is currently under parliamentary review and is likely to be mandated in the coming months. The Environment Bill seeks to make a minimum requirement for 10% biodiversity net gain mandatory for all developments by utilising a biodiversity metric or similar process to provide measurable evidence of biodiversity net gains and to secure long-term management of these habitats in order to provide an overall increase in biodiversity.

National Planning Policy Framework

- 1.13 The National Planning Policy Framework (NPPF) (2021) guides Local Planning Authorities (LPAs) when developing their planning policies and considering planning applications affecting protected habitats, sites and species.

- 1.14 Planning Policy Statement 15: Conserving and enhancing the natural environment of the NPPF recognises that, planning policies and decisions should contribute to and enhance the natural and local environment. Section D of Paragraph 174 states:

"Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; In respect of the natural environment."

- 1.15 Section B of Paragraph 179 states:

"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".

- 1.16 Section D of Paragraph 180 also states:

"Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate".

Local Planning Policy

- 1.17 Local Planning Authorities are also producing new Local Plan documents or Local Planning Frameworks which set out a local authority's requirement for biodiversity net gain. In some areas these can exceed the 10% requirement of the proposed Environment Bill's net gain requirement.
- 1.18 The Site falls into Hinckley and Bosworth Borough Council which have local plans and strategies. Currently there are no adopted local planning policies or requirements which

set out any requirements for biodiversity net gain (Hinckley and Bosworth Borough Council, 2009).

- 1.19 The Leicester, Leicestershire and Rutland Biodiversity Action Plan (BAP) states that: 'Meeting LWS criteria for designation is synonymous with being a local BAP habitat' with the Guidelines for the selection of Local Wildlife Sites (previously known as Sites of Importance for Nature Conservation or SINCs) in Leicester, Leicestershire and Rutland stating that, in conjunction with Sites of Special Scientific Interest (SSSI), LWSs in the county are 'the most important place for wildlife' with the LWSs being fundamental contributors in the implementation of the local BAP.

2. METHODS

UK Habitat Classification Survey and Local Wildlife Site Criteria Assessment

- 2.1 A Site survey was undertaken on 5th July 2021 by Phillipa Mahalski MSc BSc (Hons). The visit was completed using the UK Habitat Classification (UKHab) (Butcher *et. al.*, 2020) and recorded all botanical species present. The Site was then assessed against the Local Wildlife Site Criteria for grasslands as set out in the Guidelines for the selection of Local Wildlife Sites in Leicester, Leicestershire and Rutland (Leicestershire County Council, 2011).

Habitat Condition Assessment

- 2.2 The condition assessment was undertaken on the 5th of July 2021 by Phillipa Mahalski MSc BSc (Hons). During the survey, data was collected on the habitats' conditions using standard condition assessment criteria (Crosher *et. al.*, 2019). Data was dependant on the habitat type and included factors such as percentage cover of certain species within the habitat. This approach is considered to be standard practice to calculate the biodiversity value of the Site.

Biodiversity Net Gain Good Practice Principles

- 2.3 CIRIA, CIEEM and IEMA developed The Biodiversity Net Gain Good Practice Principles in 2016 which has then been used to produce a more in-depth document (Baker, Hoskin & Butterworth, 2019) detailing the ten main good practice principles for achieving biodiversity net gain. In order for net gain to be achieved, these principles must be met.
- 2.4 The ten good practice principals are summarised in in **Table 2.1**.

Table 2.1: The Good Practice Principles

Principal	In Practice
1. Apply the mitigation hierarchy	Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.
2. Avoid losing biodiversity that cannot be offset elsewhere	Avoid impacts on irreplaceable biodiversity i.e. statutory designated sites such as SSSI's – these impacts cannot be offset to achieve net gain.
3. Be inclusive and equitable	Engage stakeholders early and involve them in designing, implementing, monitoring and evaluating the approach to net gain. Achieve net gain in partnership with stakeholders where possible.
4. Address risk	Mitigate difficulty, uncertainty and other risk to achieving net gain. Apply well accepted ways to add contingency when calculating biodiversity losses and gain in order to account for any remaining risk, as well as to compensate for the time between the losses occurring and the gains being fully realised.

Principal	In Practice
5. Make a measurable net gain contribution	Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.
6. Achieve the best outcomes for biodiversity	Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly justified choices when: • Delivering compensation that is ecologically equivalent in type, amount, and condition and that accounts for the location and timing of biodiversity losses. • Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation. • Achieving net gain locally to the development while also contributing towards nature conservation priorities at local, regional and national levels. • Enhancing existing or creating new habitat. • Enhancing ecological connectivity by creating more, bigger, better and joined areas for biodiversity.
7. Be additional	Achieve nature conservation outcomes that demonstrably exceed existing obligations, i.e. do not deliver something that would occur anyway.
8. Create a net gain legacy	Ensure net gain generates long term benefits by: • Engaging stakeholders and jointly agreeing practical solutions that secure net gain in perpetuity. • Planning for adaptive management and securing dedicated funding for long term management. • Designing net gain for biodiversity to be resilient to external factors, especially climate change. • Mitigating risks for other land uses. • Avoiding displacing harmful activities from one location to another. • Supporting local level management of net gain activities.
9. Optimize sustainability	Prioritise BNG and where possible optimise the wider environmental benefits for a sustainable society and economy
10. Be transparent	Communicate all net gain activities in a transparent and timely manner, sharing the learning with all stakeholders.

Biodiversity Metric

- 2.5 The Biodiversity Metric Calculation Tool Version 2.0 Beta Test (Natural England, 2019) was used to calculate the ecological baseline of the Site using the methodology as described above. The habitat types, conditions and areas were input into the metric to form the Site's habitat baseline. In addition to the habitat types, areas and conditions, the biodiversity metric calculation tool also requires information relating to the ecological connectivity and strategic significance of the Site. These categories are described in more detail below.

- 2.6 Habitats are assigned distinctiveness bands. These are based on an assessment of the distinguishing features of a habitat or linear feature, including consideration of species richness, rarity (at local, regional, national and international scales), and the degree to which a habitat supports species rarely found in other habitats. The distinctiveness band of each habitat is preassigned in the metric calculation tool and are based on the UK habitat classification system.

Ecological Connectivity

- 2.7 The metric calculation tool takes into consideration ecological connectivity. This part of the metric is rule-based, with the habitat's connectivity score based on the habitat type and its distinctiveness, as per the Connectivity Tool Guidance (Natural England, 2019a). This is summarised in **Table 2.2** below.

Table 2.2: Overview of the Habitat Connectivity Scores and Rules

Habitat Distinctiveness	Connectivity Score	Rule / Comments
N/A	High	In the Version 2.0 of the metric, no habitats can be scored as having a high connectivity score.
High or very high	Medium	Only habitats of very high or high distinctiveness can score medium.
Medium	Low	Habitats of medium or low distinctiveness automatically have a low connectivity score.
Low	Low	
N/A	Low or N/A	Some habitat types of low or negligible ecological value do not have any connectivity score or score automatically as poor.

Strategic Significance

- 2.8 The metric calculation tool takes into consideration Strategic Significance. Strategic Significance can be defined as the spatial location of a habitat in relation to preferred locations for biodiversity. This is broken down into three categories for input into the calculator as described below:
- Within area formally identified in local strategy – the Site or habitat type is within the local planning documents or frameworks,
 - Location ecologically desirable but not in local strategy
 - Area/compensation not in local strategy/no local strategy
- 2.9 The following data sources and resources were searched to gather information on the strategic significance of the Site and its habitats:
- Multi-Agency Geographic Information for the Countryside (MAGIC);
 - Leicestershire and Rutland Environment Records Centre (LRERC);
 - Hinckley and Bosworth Borough Council Core Strategy adopted 2009.

LWS Assessment

- 2.10 The grassland on-Site was assessed against the habitat criteria outlined in the Guidelines for the selection of Local Wildlife Sites in Leicester, Leicestershire and Rutland (Leicestershire County Council, 2011) for grasslands, specifically the criteria for mesotrophic grassland and wet grassland. Definitions of these grassland types can be found in **Appendix 3**. To qualify, mesotrophic grasslands should be at least 2500m² or 200m of linear habitat in extent in which at least seven species from List F in the selection criteria should be Occasional, Frequent, Abundant or Dominant in line with the DAFOR scale (see below for parameters), or ten species from the grassland list should be present. Wet grasslands should be seasonally flooded and at least 2500m² in extent in which at least six species from grassland lists F and G combined should be present. Grassland lists can be found in **Appendix 3**. Mixed grassland may support a mosaic of the grassland habitats described within the criteria.
- 2.11 The DAFOR values used for the assessment criteria are defined as follows:
- **Dominant:** 75-100% cover
 - **Abundant:** 25-74% cover
 - **Frequent:** 10-24% cover
 - **Occasional:** 5-9%
 - **Rare:** <5% cover and <5 individuals/clumps within the survey unit.
- 2.12 The assessment comprised a comprehensive walkover of the fields looking for species included under the qualify lists and noting the distribution of each species identified in line with the DAFOR scale.

Survey Comments

- 2.13 In line with standard guidance, the results and recommendations within this report are valid for up to two years from the date of survey, assuming there are no significant changes to the survey Site or its immediate surroundings. Updated survey work may be required to support any future biodiversity metrics and planning applications outside of this time period.
- 2.14 The biodiversity net gain assessment was undertaken on the 5th of July 2021 just prior to the release of the updated DEFRA metric version 3.0 on the 7th of July 2021. As stated by DEFRA (2021) due to the initial assessment being undertaken using the condition assessment criteria for Version 2.0, the full assessment will be completed using the 2.0 beta version of the metric as the biodiversity units generated in metric Version 2.0 may differ to those generated in metric Version 3.0.

3. RESULTS

Habitat Survey

- 3.1 The results of the survey are described below with the locations of the habitats and hedgerows described shown on the Site Plan found in **Appendix 1** of this report.

Grassland – Modified Grassland

- 3.2 The majority of the Site comprised modified grassland used for the production of animal feed. Species included perennial rye grass *Lolium perenne*, Yorkshire fog *Holcus lanatus*, timothy grass *Phleum pratense*, cocks foot *Dactylis glomerata*, smooth meadow grass *Poa pratensis*, crested dogs tail *Cynosurus cristatus*, meadow foxtail *Alopecurus pratensis*, white clover *Trifolium repens*, red clover *Trifolium pratense*, creeping buttercup *Ranunculus repens*, meadow buttercup *Ranunculus acris*, chickweed *Stellaria media*, broadleaf plantain *Plantago major*, broad-leaved dock *Rumex obtusifolius*, creeping thistle *Cirsium arvense*, common nettle *Urtica dioica*, common hogweed *Heracleum sphondylium*, cow parsley *Anthriscus sylvestris*, redshank *Persicaria maculosa* and common knotgrass *Polygonum aviculare*.

Heathland and Shrub – Dense Bramble

- 3.3 A large patch of dense bramble scrub *Rubus fruticosus* agg. was recorded along the northern boundary of Field 2, with smaller patches of bramble scrub located along the northern and southern boundaries of Field 1.

Urban – Developed Land; sealed Surface

- 3.4 A small section of Hinckley Road is included in the Site boundary to the north.

Native Hedgerows with Trees

- 3.5 Five hedgerows were recorded on-Site at the time of the survey. The hedgerows varied in width and height, with limited evidence of a regular management routine. Hedgerows comprised hawthorn, blackthorn, field maple *Acer campestre*, ash *Fraxinus excelsior* and oak *Quercus* sp..

Habitat Condition Assessment

- 3.6 **Table 3.1** provides an overview of the habitat condition assessment including the areas, the habitat type and results of the condition assessment. A more detailed description of the habitat condition assessment results has been provided for each habitat type below.

Table 3.1: Habitat Condition Assessment Summary

UK Habitat Type	Condition Assessment Result	Area (hectare)
Grassland – Modified grassland	Poor	1.98

Heathland and Shrub – Dense Bramble	Poor	0.27
Urban – Developed land; sealed surface	N/A - Other	0.01
Total Site Area:		2.25

Grassland – Modified grassland

3.7 The grassland was assessed as 'poor', as it meets the description provided within the grassland condition assessment criteria for poor which states:

- 'Agricultural grassland is characterised by vegetation dominated by a few fast-growing grasses on fertile, neutral soils. Is frequently characterised by an abundance of rye-grass *Lolium* spp. (above 25% cover) and white clover *Trifolium repens*. These grasslands are typically either managed as pasture or mown regularly for silage production or in non-agricultural contexts for recreation and amenity purposes; they are often periodically re-sown and are maintained by fertiliser treatment and weed control. They may also be temporary and sown as part of the rotation of arable crops, but they are only included in the broad habitat type if they are more than one year old'; and,

Heathland and shrub – Bramble Scrub

3.8 The scrub was assessed as 'poor' as it fails the condition assessment for good and moderate condition. It falls into the poor condition criteria due to the following:

- The single woody species cover is greater than 75%;
- The age range is missing some size classes;
- Single aged scrub present; and
- Fails all of the condition criteria.

Urban – Developed Land; sealed Surface

3.9 Urban – Developed land; sealed surface does not require a condition assessment as the habitat is fixed at N/A - Other for the condition score in the metric.

Hedgerow Condition Assessment

3.10 **Table 3.1** provides details of the hedgerow condition assessment including the length, the hedgerow type and results of the condition assessment.

Table 3.2: Hedgerow Condition Assessment

Habitat type	Assessment Criteria Met / Failed	Assumed Condition
--------------	----------------------------------	-------------------

Native hedgerow with Trees (1)	A1 Height - Pass A2 Width - Pass B1 Gap hedge base - Pass B2 Gap hedge canopy continuity - Fail C1 Undisturbed ground and perennial vegetation - Fail C2 Undesirable perennial vegetation - Fail D1 Invasive and neophyte species - Pass D2 Current damage - Pass	Moderate
Native hedgerow with Trees (2)	A1 Height - Pass A2 Width - Pass B1 Gap hedge base - Pass B2 Gap hedge canopy continuity - Fail C1 Undisturbed ground and perennial vegetation - Fail C2 Undesirable perennial vegetation - Fail D1 Invasive and neophyte species - Pass D2 Current damage - Pass	Moderate
Native hedgerow with Trees (3)	A1 Height - Pass A2 Width - Pass B1 Gap hedge base - Pass B2 Gap hedge canopy continuity - Pass C1 Undisturbed ground and perennial vegetation - Pass C2 Undesirable perennial vegetation - Fails D1 Invasive and neophyte species - Pass D2 Current damage - Pass	Good
Native hedgerow with Trees (4)	A1 Height - Pass A2 Width - Pass B1 Gap hedge base - Pass B2 Gap hedge canopy continuity - Fail C1 Undisturbed ground and perennial vegetation - Fail C2 Undesirable perennial vegetation - Fail D1 Invasive and neophyte species - Pass D2 Current damage - Pass	Moderate
Native hedgerow with Trees (5)	A1 Height - Pass A2 Width - Pass B1 Gap hedge base - Pass B2 Gap hedge canopy continuity - Fail C1 Undisturbed ground and perennial vegetation - Pass C2 Undesirable perennial vegetation - Pass D1 Invasive and neophyte species - Pass D2 Current damage - Pass	Good

Biodiversity Net Gain Good Practice Principles

- 3.11 **Table 3.3** below provides an overview of how the development and biodiversity metric process will meet the Biodiversity Net Gain Good Practice Principles (Baker *et al.*, 2019).

Table 3.3: Overview of the Biodiversity Net Gain Good Practice Principles

Principal	Discussion
1. Apply the mitigation hierarchy	In order to facilitate the development, the majority of habitats on-Site will be lost. The loss of these habitats will be mitigated for through native wildflower, scrub and tree planting and financial contribution. Retained habitats such as hedgerows will be

	enhanced through native species plugging, with further native hedgerow planting proposed in the final layout for the Site. In conjunction, compensation for species such as hedgehog highways will be implemented at the Site.
2. Avoid losing biodiversity that cannot be offset elsewhere	There was no irreplaceable biodiversity within the Site.
3. Be inclusive and equitable	An Ecological Impact Assessment (EclA) has been produced (BWB, 2021) which accurately outlines the potential impacts of the development which will be submitted to the Local Planning Authority and will be publicly available on the online Public Access planning portal to any interested parties.
4. Address risk	The EclA produced for the Site (BWB, 2021) identifies any risks and outlines the required mitigation to eliminate risk. This will be submitted alongside the BNG and LWS assessment.
5. Make a measurable net gain contribution	Hinckley and Bosworth Borough Council does not have a currently adopted local plan which sets out the percentage increase of biodiversity. Net gain contributions will be met through a combination of on-Site planting schemes and financial contribution.
6. Achieve the best outcomes for biodiversity	The landscaping design for the Site considers the best outcomes for biodiversity and includes native species planting.
7. Be additional	The habitats on-Site are of limited ecological value. The final landscaping design for the Site include the addition of wildflower planting, native scrub and tree planting and additional lengths of hedgerow.
8. Create a net gain legacy	Although the Site does not meet the net gain requirements, it is understood that an Ecological Management Plan will be produced for the Site to ensure that the proposed landscaping is managed and maintained for 30 years. In conjunction, a financial contribution will be made to account for the loss of biodiversity units on-Site. This will be secured through a Section 106 agreement.
9. Optimise sustainability	The development will be required to meet the Code for Sustainable Homes at a minimum of Code level 6 (Hinckley and Bosworth Borough Council, 2009).
10. Be transparent	This report outlines all limitations, methodology and results in relation to the biodiversity metric. In addition, the EclA (BWB, 2021) accurately outlines the potential impacts of the development and will be submitted to the Local Planning Authority and will be publicly available on the online Public Access planning portal to any interested parties.

Biodiversity Metric

- 3.12 The following sections provide an overview of the baseline Site results including the ecological connectivity scores, strategic significance and baseline Site score.

Ecological Connectivity

- 3.13 **Table 3.4** provides a summary of the Ecological connectivity scores of the habitats within the Site which was used to inform the Biodiversity Metric Calculator Tool.

Table 3.4: Summary of Ecological Connectivity

UK Habitat Type	Ecological Connectivity Score
-----------------	-------------------------------

Grassland – Modified grassland	Low
Heathland and Shrub – Dense Bramble	Low
Urban – Developed Land; Sealed Surface	N/A - Other
Native Hedgerow with Trees	Low

Strategic Significance

- 3.14 The Site is classed as having 'low' strategic significance as the area is not formally identified in a local strategy.

Baseline Habitat Score

- 3.15 The baseline habitat score of the Site has been calculated using the information above for habitat types, habitat areas, habitat condition, ecological connectivity and strategic significance. **Table 3.5** below provides a summary of the Sites baseline unit score, as detailed within the Biodiversity Metric 2.0 Calculation Tool which should be read in conjunction with this document.

Table 3.5: Summary of Baseline Habitat Score

UK Habitat Type	Habitat Area (Ha)	Habitat Units
Grassland – Modified grassland	1.97	3.94
Heathland and Shrub – Dense Bramble	0.27	1.08
Urban – Developed Land; Sealed Surface	0.01	0.00
Total:	2.25	5.02

- 3.16 **Table 3.5** shows the Site baseline provides a total of 5.02 habitat units with a total area of 2.25ha.

Hedgerow and Line of Trees Baseline Score

- 3.17 The hedgerow baseline score is shown in **Table 3.6** below.

Table 3.6: Summary of Baseline Hedgerow and Line of Trees Score

Ecological Baseline			
Hedgerow Type	Length (km)	Condition	Total hedgerow units
Native Hedgerow with Trees	0.2	Moderate	0.88
Native Hedgerow with Trees	0.09	Moderate	0.396
Native Hedgerow with Trees	0.14	Good	0.924
Native Hedgerow with Trees	0.07	Moderate	0.308
Native Hedgerow with Trees	0.25	Good	1.815

TOTAL	0.75		3.93
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- 3.18 **Table 3.6:** Summary of Baseline Hedgerow and Line of Trees Score shows the Site baseline provides a total of 3.93 hedgerow units with a total length of 0.75 km.

Post-Development Habitat Score

- 3.19 The habitats to be created on-Site post-development include areas of wildflower planting, native scrub planting, amenity grassland and native tree planting will be incorporated into the final landscaping scheme for the Site. Sections of the existing grassland will be enhanced as part of the development.
- 3.20 **Table 3.7** below provides a summary of the Sites post-development areas, with **Table 3.8** providing a summary of the Sites post-development habitat unit score, as detailed in the metric which should be read in conjunction with this document. The post development scheme for the Site is shown in **Appendix 2**.

Table 3.7: Summary of Post-Development Habitat Areas

UK Habitat Type	Habitat Retained (Ha)	Habitat Created (Ha)	Habitat Enhanced (Ha)	Total Area
Grassland – Neutral Grassland	-	0.03	-	0.03
Grassland – Neutral Grassland	-	0.09	-	0.09
Grassland – Modified grassland	-	-	0.17	0.17
Heathland and Shrub – Mixed Scrub	-	0.09	-	0.09
Urban – Amenity Grassland	-	0.17	-	0.17
Urban – Developed Land; Sealed Surface	0.01	1.69	-	1.7
Urban – Street tree	-	0.11	-	0.11
Total:	0.01	0.49	0.17	2.36

Table 3.8: Summary of Post-Development Habitat Units

Habitat Type	Habitat Retained	Habitat Created	Habitat Enhanced	
Grassland – Neutral Grassland	-	0.17	-	
Grassland – Neutral Grassland	-	0.50	-	
Grassland – Modified grassland	-	-	1.05	
Heathland and Shrub – Mixed Scrub	-	0.65	-	
Urban – Amenity Grassland	-	0.61	-	
Urban – Developed Land; Sealed Surface	0.00	0.00	-	
Urban – Street tree	-	0.17	-	Total
Total:	0.00	2.10	1.05	2.87

- 3.21 The total area of the post-development habitat (2.36 ha) is larger than the baseline total (2.25 ha) due to the metric double counting areas for the urban street trees.
- 3.22 The baseline score of the habitats within the Site totals 5.02 habitat units with the on-Site post-development habitat intervention units totalling 2.87. The development will therefore result in an overall unit change of -2.15 habitat units meaning overall net change of -42.83%.

Post-Development Hedgerow Score

- 3.23 All the hedgerows will be retained as part of the development aside from Hedgerow 5 which will be lost. To mitigate for this loss, native hedgerow planting will be undertaken parallel to Hedgerows 3 and 4, with additional areas of native hedgerow planting to be undertaken along the northern boundary of Field 2 and around the proposed area of Public Open Space.
- 3.24 **Table 3.9** below provides a summary of the Sites post-development linear features, with **Table 3.10** providing a summary of the Sites post-development hedgerow unit score, as detailed in the Biodiversity Metric Calculator Tool which should be read in conjunction with this document. The post development scheme for the Site is shown in **Appendix 2**.

Table 3.9: Summary of Post-Development Linear Features

UK Habitat Type	Habitat Retained (km)	Habitat Created (km)	Habitat Enhanced (km)	
Native Species Rich Hedgerow	-	0.37	-	
Native Hedgerow with Trees	-	-	0.2	
Native Hedgerow with Trees	-	-	0.09	
Native Hedgerow with Trees	0.14	-	-	
Native Hedgerow with Trees	0.05	-	-	
Native Hedgerow with Trees	0.06	-	-	
Total:	0.25	0.37	0.29	Total Length (km)
				0.91

Table 3.10: Summary of Post-Development Hedgerow Units

Habitat Type	Habitat Retained	Habitat Created	Habitat Enhanced	
Native Species Rich Hedgerow	-	2.08	-	
Native Hedgerow with Trees	-	-	1.00	
Native Hedgerow with Trees	-	-	0.49	
Native Hedgerow with Trees	0.84	-	-	
Native Hedgerow with Trees	0.2	-	-	
Native Hedgerow with Trees	0.396	-	-	
Total:	1.44	2.08	1.49	Total Units
				5.01

- 3.25 The total length of the post-development hedgerows is 0.91km.

- 3.26 The baseline score of the hedgerows within the Site totals 3.93 hedgerow units with the on-Site post-development hedgerow units totalling 5.01. The development will therefore result in an overall unit change of 1.08 hedgerow units meaning overall net change 27.44%.

Local Wildlife Site Criteria Assessment

- 3.27 The Site comprised two fields, the location of which can be seen in **Appendix B**. The results of the assessment are outlined below including the criteria met and DAFOR score for each species. Botanical species nomenclature follows Stace (2019).

Field 1

- 3.28 Species recorded which are listed under the LWS criteria for mesotrophic grassland in Field 1 were abundant meadow buttercup and common sorrel. Red clover was recorded occasionally.
- 3.29 No species listed under the wet grassland criteria were recorded in this field.

Field 2

- 3.30 Species recorded which are listed under the LWS criteria for mesotrophic grassland in Field 1 were abundant meadow buttercup and common sorrel with frequent red clover.
- 3.31 Species recorded on-Site which are listed under the wet grassland criteria comprised a small area of localised jointed rush, soft rush, hard rush, toad rush and compact rush. These species were assessed as rare in line with the DAFOR scale.

4. DISCUSSION AND RECOMMENDATIONS

Biodiversity Net Gain

- 4.1 The habitats within the Site are common and widespread with the total area of the Site measuring 2.25ha. The habitats present within the Site were all assessed as being of poor condition with modified grassland being the largest habitat area recorded. Hedgerows 3 and 5 were assessed as being of 'good' condition, with Hedgerows 1, 2 and 4 assessed as being of 'moderate' condition.
- 4.2 The Site has a baseline score of **5.02** habitat units and **3.93** hedgerow units.
- 4.3 The majority of the habitats present on-Site will be lost to facilitate the development. Four of the hedgerows (H1,2, 3 and 4) will be retained as part of the scheme with additional native hedgerow planting incorporated to mitigate for the loss of Hedgerow 5. Additionally, wildflower planting, native scrub planting, amenity grassland planting and native tree planting will be undertaken at the Site. The wildflower meadows will need to be subject to intensive management during the seven-year establishment period to achieve the target condition of 'moderate'. The amenity grassland will also need some more detailed management to achieve a 'moderate' condition, as to achieve this a species rich or floristic seed mix will be utilised.
- 4.4 The residential front gardens were inputted as amenity grassland within the metric. Back gardens have been excluded from the calculation so as to account proportionately for the potential for residents to make alterations to their gardens. It is considered that the inclusion of front gardens is appropriate for the purpose of the metric.
- 4.5 A detailed habitat management plan will be required for the Site outlining suitable seed mixes to be used for new planting and enhancements, alongside appropriate management techniques required to achieve and maintain the post development condition scores assigned in the metric.
- 4.6 The results of the biodiversity net gain assessment for the habitat areas demonstrated that the post-development habitats proposed for the Site would result in a net change of -2.15habitat units resulting in an overall net change of -42.83%.

Financial Contribution

- 4.7 Due to the small nature of the Site, it is not possible to achieve net gain on-Site for this development. As such, the development will seek to achieve net gain by financial contribution. Where possible, this will be agreed with Leicestershire County Council. Where the council do not have the capacity to provide an avenue for financial contribution, the development will seek to secure this through a third-party organisation such as The Environment Bank.
- 4.8 Depending on the approach agreed, a Section 106 agreement may be required.

Local Wildlife Site Assessment

- 4.9 Both fields lacked the species diversity and densities to be classed as a LWS under the Leicestershire assessment criteria. Whilst Field 2 had the diversity of species required, the densities of the species was considered Rare and therefore does not meet the qualifying criteria.

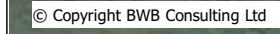
5. CONCLUSION

- 5.1 The habitats present on-Site are considered to be widespread and common, with the majority of the Site comprising modified grassland. The main habitats of value are considered to be the trees and hedgerows. The majority of the hedgerows will be retained in the final scheme, with the loss of Hedgerow 5 compensated through native hedgerow planting.
- 5.2 The development will result in an overall net change of -2.15 habitat units. It is not considered possible to offset this loss on-Site and therefore a financial contribution will likely be required.
- 5.3 The development will result in a net increase of hedgerow units with a net gain of 1.08 hedgerow units.
- 5.4 A management plan should be produced for the Site to ensure the habitats and hedgerows proposed for the final landscaping at the Site are achieved to the assigned condition and maintained appropriately.
- 5.5 Neither of the fields on-Site meet the LWS criteria for Leicester, Leicestershire and Rutland.

6. REFERENCES

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Appendix 1: Site Survey Plan



1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

- Site boundary
- Native species poor hedgerow
- Fence
- Dense scrub
- Improved grassland

P01	09.11.2021	PRELIMINARY ISSUE		AD	PM
Rev	Date	Details of issues/ revision		Drw	Rev

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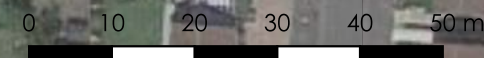
**Land at Crabtree Farm East
Hinckley Road,
Barwell**

Baseline Habitat Plan

Drawn:	AD		Reviewed:	PM	
BWB Ref:	NTP2073	Date:	09.11.21	Scale@A3:	1:1500

Final

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
CRF-BWB-ZZ-XX-DR-LE-0001	S2	P01



Appendix 2: Habitat Enhancement and Creation Plan



- Notes
1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
 2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
 3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
 4. Any discrepancies noted on site are to be reported to the engineer immediately.

- Key
- Retained and enhanced hedgerow
 - Native species rich hedgerow
 - Wildflower meadow creation
 - Native scrub planting
 - Hedgerow grassland creation
 - Retained and enhanced grassland

Rev	Date	Details of issues/ revision	AD	PM
P01	09.11.2021	PRELIMINARY ISSUE		

Issues & Revisions

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Project Title

**Land at Crabtree Farm East
Hinckley Road,
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Drawing Title

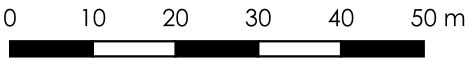
**Habitat Creation and
Enhancement Plan**

Drawn:	AD	Reviewed:	PM
BWB Ref:	NTP2073	Date:	09.11.21

Drawing Status

Final

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
CRF-BWB-ZZ-XX-DR-LE-0002	S2	P01



Appendix 3: Local Wildlife Site Selection Criteria

8 Grasslands

Changes in agricultural practices have severely reduced the herb-rich grassland that was once widespread in Leicestershire and Rutland. Consequently, calcareous and neutral grassland are both listed as priority habitats within the Leicestershire and Rutland Biodiversity Action Plan, while acid grassland is covered by the Heath Grassland Action Plan. With the demise of agricultural grasslands, roadside verges have become important refuges for some plant species and these are covered by the Roadside Verge Action Plan. Herb-rich grassland is a fragile habitat and, in most cases, impossible to recreate or restore once it has been damaged. Consequently, the protection of grassland LWS is an essential component of any nature conservation strategy.

There are several types of grassland represented in Leicestershire and Rutland, but some have survived agricultural changes better than others and so require different site size thresholds. Grass verges often support the only herb-rich grassland left in an area. These linear grasslands are often small in extent - less than 10 metres wide - but are rich in species. Roadside verges are particularly important for calcareous grassland. Many have been designated as roadside verge nature reserves.

LLRBAP: **neutral grassland**
UKBAP: **lowland meadows (priority habitat)**
 neutral grassland (broad habitat)

Mesotrophic or Neutral grassland is the commonest grassland in Leicestershire and Rutland and is found over neutral and nearly neutral soils throughout the two counties. Traditionally, much of this grassland would have been managed as hay meadow, resulting in a very rich and diverse flora. However, species-rich mesotrophic grassland can also occur in permanent pasture, churchyards, golf courses or even infrequently managed rough grassland. The most important factor governing the richness of mesotrophic grasslands is their sensitivity to agricultural and horticultural improvements such as ploughing, re-seeding, drainage and the application of herbicides, pesticides and inorganic fertilisers.

LLRBAP: **(no category)**
UKBAP: **coastal and floodplain grazing marsh (priority habitat)**

Wet grassland is found in floodplains or where there is impeded drainage. It is also frequently associated with springs and flushes. It is often less rich in plant species than drier grasslands, but nevertheless, it is valuable for its own specialist flora.

LLRBAP: **(no category)**
UKBAP: **acid grassland (broad habitat)**

Acid grassland in Leicestershire is naturally poor in plant species. It may occur in association with bare ground and rock outcrops. It may also contain heather and other ericaceous shrubs and can grade into heathland. Although invasion by bracken has led to losses of this habitat, it can survive amongst bracken.

LLRBAP: calcareous grassland
UKBAP: lowland calcareous grassland (priority habitat)
 calcareous grassland (broad habitat)

Most **calcareous grassland** in Leicestershire and Rutland is of recent origin and is associated with quarries, railway embankments and other post-industrial sites. It is often found in a mosaic with mesotrophic grassland, bare ground and early successional communities.

LLRBAP: (no category)
UKBAP: (no category)

Mixed grassland may support a mosaic of mesotrophic, wet, acid and calcareous grassland types depending on the underlying substrate, hydrology, aspect and other physical features of the site. Quarries, spoil tips, railways and other post-industrial sites often support mixed grassland habitats of great diversity.

As well as being important for plants, herb-rich grasslands support valuable animal populations which often depend on the surrounding hedges for nesting and hibernation sites. Consequently, surrounding hedges should be included in the LWS boundary.

The DAFOR values used in these criteria correspond to the following ranges of percentage cover:

D	75-100% cover
A	25-74% cover
F	10-24% cover
O	5-9% cover
R	<5% cover and < 5 individuals / clumps within the survey unit

Primary criteria

Mesotrophic grasslands should be at least 2500m² or 200m of linear habitat in extent in which at least 7 species from list F should be Occasional, Frequent, Abundant or Dominant or at least 10 species from grassland list F should be present.

LIST F - Mesotrophic grassland species	
<i>Agrimonia eupatoria</i>	Agrimony
<i>Alchemilla</i> sp.	Lady's mantle
<i>Betonica officinalis</i>	Betony
<i>Campanula rotundifolia</i>	Harebell
<i>Carex binervis</i>	Green-ribbed Sedge
<i>Carex caryophyllea</i>	Spring-sedge
<i>Carex flacca</i>	Glaucous Sedge
<i>Carex nigra</i>	Common Sedge
<i>Carex leporina</i>	Oval Sedge
<i>Carex pallescens</i>	Pale Sedge
<i>Carex panicea</i>	Carnation Sedge
<i>Carex spicata</i>	Spiked Sedge
<i>Centaurea nigra</i>	Knapweed
<i>Conopodium majus</i>	Pignut
<i>Filipendula ulmaria</i>	Meadow sweet
<i>Filipendula vulgaris</i>	Dropwort
<i>Galium verum</i>	Lady's bedstraw

<i>Knautia arvensis</i>	Field scabious
<i>Lathyrus pratensis</i>	Meadow vetchling
<i>Leontodon hispidus</i>	Rough Hawkbit
<i>Leucanthemum vulgare</i>	Ox-eye daisy
<i>Lotus corniculatus</i>	Birdsfoot trefoil
<i>Luzula campestris</i>	Field woodrush
<i>Ononis</i> sp.	Rest-harrow
<i>Pimpinella saxifraga</i>	Burnet saxifrage
<i>Potentilla erecta</i>	Tormentil
<i>Primula veris</i>	Cowslip
<i>Ranunculus acris</i>	Meadow buttercup
<i>Ranunculus bulbosus</i>	Bulbous buttercup
<i>Rhinanthus minor</i>	Yellow rattle
<i>Rumex acetosa</i>	Sorrel
<i>Sanguisorba officinalis</i>	Great burnet
<i>Saxifraga granulata</i>	Meadow saxifrage
<i>Scorzonoides autumnalis</i>	Autumnal Hawkbit
<i>Silaum silaus</i>	Pepper saxifrage
<i>Succisa pratensis</i>	Devil's-bit scabious
<i>Trifolium pratense</i>	Red clover

Wet grasslands should be seasonally flooded and at least 2500m² in extent in which at least 6 species from grassland lists F and G combined should be present.

LIST G - Wet grassland species	
<i>Achillea ptarmica</i>	Sneezewort
<i>Angelica sylvestris</i>	Wild Angelica
<i>Caltha palustris</i>	Marsh Marigold
<i>Cardamine pratensis</i>	Cuckoo flower or Lady's Smock
<i>Carex acuta</i>	Slender Tufted-sedge
<i>Carex acutiformis</i>	Lesser Pond-sedge
<i>Carex disticha</i>	Brown Sedge
<i>Carex otrubae</i>	False Fox-sedge
<i>Carex riparia</i>	Greater Pond-sedge
<i>Cirsium palustre</i>	Marsh Thistle
<i>Galium palustre</i>	Marsh Bedstraw
<i>Juncus acutiflorus</i>	Sharp-flowered Rush
<i>Juncus articulatus</i>	Jointed Rush
<i>Juncus bufonius</i>	Toad Rush
<i>Juncus bulbosus</i>	Bulbous Rush
<i>Juncus conglomeratus</i>	Compact Rush
<i>Juncus effusus</i>	Soft-rush
<i>Juncus inflexus</i>	Hard Rush
<i>Juncus tenuis</i>	Slender Rush
<i>Lotus pedunculatus</i>	Greater bird's-foot trefoil
<i>Silene flos-cuculi</i>	Ragged robin
<i>Oenanthe fistulosa</i>	Tubular water dropwort
<i>Pulicaria dysenterica</i>	Common fleabane
<i>Ranunculus flammula</i>	Lesser spearwort
<i>Thalictrum flavum</i>	Common meadow rue
<i>Triglochin palustre</i>	Marsh arrow-grass

Annex C:

FPCR.

Updated Biodiversity Net Gain Assessment.

01 December 2023.

1.0 TECHNICAL NOTE - BIODIVERSITY NET GAIN ASSESSMENT

Introduction

- 1.1 FPCR Environment and Design Ltd. (FPCR) were commissioned by Fort Estates Ltd. to complete an update biodiversity offsetting assessment of the Phase C Site Layout Plan (Geoff Perry Associates Ltd. drawing ref: A951 011) and the Landscape Plans (East Midlands Landscaping Ltd. drawing ref: EML FE 1245 01-07) for Phase C of the proposed development located within the western field A at Crabtree Farm, Barwell (hereafter referred to as the 'site').
- 1.2 This Technical Note summarises the calculations and provides details regarding any assumptions made to inform this assessment.

Background

- 1.3 The Ecological Impact Assessment (EclA) provided by BWB¹ was used to inform this assessment as well as further site visits undertaken by FPCR on 14th July 2022 and 30th November 2023 to update the habitat condition assessments in line with the UK Habitat Classification (UKHab) survey technique² and condition assessments to support the Biodiversity Metric 4.0³.
- 1.4 The current application follows the previous approved full planning application (Leicestershire County Council Planning Ref: 22/01053/FUL) and comprises the first of two phases. Current proposals are for the construction of up to 14 dwellings with garages, associated driveways, open space, landscaping, drainage and LEAP.

Methodology

- 1.1 Natural England's published biodiversity net gain metric is an MS Excel spreadsheet that is used to quantify the predicted net-change in biodiversity value ("biodiversity units") of a proposed development site before and after development. It treats the flat "habitats" and linear features "hedgerows" separately, and is based on pre-determined values, along with published written guidance, set by a Natural England-led team of experts. The BNG assessment was undertaken in accordance with the Defra Biodiversity Metric 4.0. This was the current metric at the time of survey, with Natural England (NE) guidance⁴ stating '*You should use the most current published version of the Biodiversity Metric, unless specified otherwise by the consenting body*'.
- 1.2 The site boundary, results of the habitat surveys undertaken by BWB in April 2021 and FPCR in July 2022 & November 2023, Site Layout Plan (Geoff Perry Associates Ltd. drawing ref: A951 011) and the Landscape Plans (East Midlands Landscaping Ltd. drawing ref: EML FE 1245 01-07) for Phase C were used to inform this assessment.
- 1.3 The development site was mapped and divided into existing habitat criteria. Habitats were defined using the UK Habitat Classification, with further information providing habitat area, distinctiveness and condition, which are used to calculate the value of each habitat.

¹ BWB (2021) Land at Crabtree Farm West, Hinckley Road, Barwell. Ecological Impact Assessment

² Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. 2020. *The UK Habitat Classification User Manual 1.1* <http://www.ukhab.org> [Accessed 29/22/2023].

³ Natural England (2023) The Biodiversity Metric 4.0 -Technical Annex 1 – Condition Assessment Sheets and Methodology [Online] Available at: <https://publications.naturalengland.org.uk/publication/6049804846366720> [Accessed 29/22/2023]

⁴ Nash, M., Irvine R., and Panks S., (April 2022) Biodiversity Metric 3.1 Frequently Asked Question. Natural England [Online]. Available from: <https://publications.naturalengland.org.uk/publication/6049804846366720> [Accessed 29/22/2023].

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- 1.4 The condition assessments were undertaken using the relevant Condition Assessment Criteria within the DEFRA Biodiversity Metric 4.0 – Technical Annex 1 – Condition Assessment Sheets².
- 1.5 Full details of the calculation methodology are provided in Biodiversity Metric 4.0 – User Guide⁵.

2.0 BASELINE CONDITIONS

Baseline Habitats

- 2.1 As identified within the Ecological Position Statement for Phase C (FPCR, November 2023), the site comprised part of a single field compartment which supported modified grassland with small areas of tall ruderal vegetation, a small area of bramble scrub. Native hedgerows were present at the boundaries.
- 2.2 Baseline habitats are provided within Table 1 below and are depicted on Figure 1: Biodiversity Net Gain Baseline Habitats. The full habitat descriptions are provided within the separate Preliminary Ecological Appraisal Report. The metric valued the baseline habitats at 2.56 units and baseline hedgerow units at 1.02 units. The metric summary is provided at section 4.0 and the full metric is provided separately.

Ecological Strategic Significance

- 2.3 The site is located on the edge of existing residential environments, with fairly limited connectivity to areas of offsite habitat or designated sites. As detailed within the EcIA report by BWB, six Local Wildlife Sites (LWS) lie within a 1km radius of the site. The nearest comprises Hinckley Playing Fields hedge 1 LWS located approximately 0.6km south and the nearest statutory designated site comprises Burbage Common and Woods Local Nature Reserve (LNR) located 1.2km to the south-east. As there is limited direct habitat connectivity to these designations and the site is located within an urbanised and agricultural areas, all habitats within the site have been assigned a low strategy multiplier.

Table 1: Summary of Existing Baseline Habitat Value

Habitat type	Area (ha)	Distinctiveness	Condition	Biodiversity units
Grassland: Modified Grassland	0.6374	Low	Modified	2.55
Heathland and shrub: Bramble Scrub	0.0026	Medium	Poor	0.01
Total	0.64			2.56

Please note there may be minor discrepancies (rounding errors) between the columns and the totals, however, the numbers duplicate those presented within the matrix calculator. The total provided also excludes individual trees.

Hedgerows

- 1.6 A single native hedgerow (H4) ran along the eastern boundary and a native hedgerow with trees and a ditch ran along the northern boundary (H2).
- 1.7 Hedgerow H4 is to be retained in its entirety and a small section of hedgerow H2 is to be removed to facilitate the main access road.
- 1.8 The hedgerow type and associated details plus the biodiversity units for each hedgerow on site have been calculated and are presented in Table 2 below. Hedgerow locations are indicated on Figure 1.

⁵ Natural England (2023) The Biodiversity Metric 4.0 User Guide[Online] Available at: <https://publications.naturalengland.org.uk/publication/6049804846366720> [Accessed 29/08/2023]

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Table 2: Biodiversity Units: Existing On-Site Habitats

Habitat	Length (km)	Distinctiveness	Condition	Biodiversity Units
Native hedgerow with trees – associated with bank or ditch H2	0.055	Medium	Moderate	0.66
Native hedgerow H4	0.091	Low	Moderate	0.036
Totals	0.15			1.02

Please note there may be minor discrepancies (rounding errors) between the columns and the totals, however, the numbers duplicate those presented within the matrix calculator.

3.0 PROPOSED DESIGN

Habitats

Habitat Creation

Habitat creation is shown in Figure 2 and the biodiversity units for each habitat on the site have been calculated and are presented in Table 3. Green infrastructure proposals include the creation of a range of habitats around the peripheries of the site that will be managed for their biodiversity value including an attenuation facility which will be sensitively designed to hold areas of permanent standing water with marginal planting, species-rich grassland and mixed scrub. Formal grasslands around the site peripheries will be seeded with a diverse flowering lawn mix, and while management will prioritise their amenity character, it will be reduced somewhat to ensure these areas provide some botanical interest, particularly during the spring/summer months.

- 3.1 Around the proposed dwellings, habitat creation will prioritise ornamental planting and amenity grassland turfs which will be managed primarily for their amenity value. Nevertheless, planting a diverse range of ornamental plants will provide some interest for wildlife, particularly pollinators that can take advantage of flowering species.

Table 3: Biodiversity Units: Proposed On-Site Habitats

Habitat type	Area (ha)	Distinctiveness	Condition	Biodiversity units
Grassland: Modified Grassland	0.0253	Low	Moderate	0.05
Grassland: Other neutral grassland	0.1162	Medium	Moderate	0.78
Heathland and shrub: Mixed scrub	0.0185	Medium	Moderate	0.12
Ponds (non-priority habitat)	0.0367	Medium	Moderate	0.26
Urban: Developed land; sealed surface	0.3505	V. Low	N/A - Other	0.00
Urban: Introduced Shrub	0.0103	Low	Poor	0.02
Urban: Vegetated Garden	0.0745	Low	Poor	0.14
Individual trees: Urban Tree	0.0163	Medium	Poor	0.05
Total	0.62			1.43

Hedgerows

Retained Hedgerows

- 3.2 The vast majority of the hedgerows are to be retained in their entirety and maintained through a commitment towards their long-term management with the aim of maximising their biodiversity value. The following measures will be employed within the site to maintain the biodiversity value of the retained hedgerow:

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- The retained hedgerow will be subjected to reduced management to encourage the establishment of tall, bushy hedgerows;
- Fertiliser use will be prohibited within grasslands adjacent to hedgerows to prevent nutrient enrichment as a result of the Site management operations; and
- A minimum of 1m adjacent the hedgerow will be managed as 'undisturbed' ground where possible within the Site boundary.

Hedgerow Creation

- 3.3 The focus of management for the single species hedgerows will be for their ornamental value and these features are automatically allocated a score of 1 (poor condition). In total, 0.052km of ornamental hedgerows will be planted generating a total of 0.05 Units.

4.0 RESULTS AND CONCLUSION

- 4.1 The habitat retention, enhancement and creation proposals highlighted within this report have all been inputted into the Biodiversity Metric 4.0. Table 4 provides a summary of the headline results of the biodiversity metric 4.0 assessment completed for the proposals. The full metric has been provided separately.

Table 4: Biodiversity Metric 3.0 Headline Results – Current Site

Baseline	Habitat Units	2.56
	Hedgerow Units	1.02
Post-Intervention	Habitat Units	1.46
	Hedgerow Units	0.92
Total Net Unit Change	Habitat Units	-1.10
	Hedgerow Units	-0.11
Total Net Percentage Change	Habitat Units	-42.97%
	Hedgerow Units	-10.33%

- 4.2 Based on proposing habitats that are readily achievable and common place in residential development of this type, the BNG calculations will result in a net loss of -1.10 habitat units, representing a 6.69% loss. This is largely due to the loss of grassland habitats, which cannot be compensated/offset within the scheme and typical for a site of this size.
- 4.3 The proposed development retains the boundary hedgerows, although 0.01km of hedgerow will be lost to facilitate access roads. The loss of the tree line and no hedgerow creation will lead to a loss of 0.11 hedgerow units, equating to a 10.33% loss in the site's hedgerow resource.
- 4.4 Overall, the proposed development does not have the capacity to result in a biodiversity net-gain in terms of habitats. The development shall therefore seek to provide compensation through a financial contribution, or third part biobank provider, to be secured through planning obligations such as a S106 or through an appropriately worded condition.

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Crabtree Farm, Barwell. Phase C - 14 dwellings

Headline Results

Scroll down for final results ▲

Return to
results menu

On-site baseline

Habitat units	2.56
Hedgerow units	1.02
Watercourse units	0.00

On-site post-intervention

(Including habitat retention, creation & enhancement)

Habitat units	1.46
Hedgerow units	0.92
Watercourse units	0.00

On-site net change

(units & percentage)

Habitat units	-1.10
Hedgerow units	-0.11
Watercourse units	0.00

-42.97%

On-site net gain is less than target set ▲

-10.33%

On-site net gain is less than target set ▲

0.00%

Off-site baseline

Habitat units	0.00
Hedgerow units	0.00
Watercourse units	0.00

Off-site post-intervention

(Including habitat retention, creation & enhancement)

Habitat units	0.00
Hedgerow units	0.00
Watercourse units	0.00

Off-site net change

(units & percentage)

Habitat units	0.00
Hedgerow units	0.00
Watercourse units	0.00

0.00%

0.00%

0.00%

Combined net unit change

(Including all on-site & off-site habitat retention, creation & enhancement)

Habitat units	-1.10
Hedgerow units	-0.11
Watercourse units	0.00

Spatial risk multiplier (SRM) deductions

Habitat units	0.00
Hedgerow units	0.00
Watercourse units	0.00

FINAL RESULTS

Total net unit change

(Including all on-site & off-site habitat retention, creation & enhancement)

Habitat units	-1.10
Hedgerow units	-0.11
Watercourse units	0.00

Total net % change

(Including all on-site & off-site habitat retention, creation & enhancement)

Habitat units	-42.97%
Hedgerow units	-10.33%
Watercourse units	0.00%

Total net gain achieved is less than target set ▲

Total net gain achieved is less than target set ▲

Trading rules satisfied?

No - Check Trading Summaries ▲

Unit Type	Target	Baseline Units	Units Required	Unit Deficit
Habitat units	10.00%	2.56	2.82	1.36
Hedgerow units	10.00%	1.02	1.13	0.21
Watercourse units	10.00%	0.00	0.00	0.00

Unit requirement met or surpassed ✓



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Key

 **Site Boundary Phase C**

Baseline Habitats

 **Bramble scrub**

 **Modified grassland**

Baseline Hedgerows

 **Native hedgerow H4**

 **Native hedgerow with trees - associated with bank or ditch H2**



client
Fort Estates Ltd.
project
Crabwell Farm, Barwell
Phase C - West Field 14 Dwellings
drawing title
BASELINE HABITATS

scale @ A3
1:600
drawn
HEH
issue date
1/12/2023

drawing / figure number
Figure 1



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Key

- Site Boundary Phase C**
- Proposed Habitats**
 - Developed land; sealed surface**
 - Introduced shrub**
 - Mixed scrub**
 - Modified grassland**
 - Other neutral grassland**
 - Ponds (non-priority habitat)**
 - Vegetated garden**
- Proposed Hedgerows**
 - Non-native and ornamental hedgerow**
 - Native hedgerow - H4**
 - Native hedgerow with trees - associated with bank or ditch - H2**
- Proposed Trees**
 - Proposed Small Urban Tree**