Ecological Mitigation and Management Plan (EMMP)

Rev B

Land North of Coxbridge Farm, Farnham

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Report	Ecological Mitigation and Management Plan (EMMP) **Rev B**
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Client	CALA Homes (South Home Counties Ltd)
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EXECUTIVE SUMMARY

Ecosupport Ltd were commissioned by CALA Homes (South Home Counties Ltd) to produce an updated Ecological Mitigation & Management Plan (EMMP), as required by Condition 18 of the outline approval that was granted (application ref: WA/2019/0770) for the development called 'Land North of Coxbridge Farm, West Street, Farnham'.

A series of reports / surveys were carried out for the outline application by WYG Ltd and Tetra Tech. As part of this work, the following reports were produced:

- Ecological Appraisal (January, 2019) (WYG Ltd.)
- GCN eDNA Survey Letter (April, 2019) (WYG Ltd.)
- Reptile Report (July, 2019) (WYG Ltd.)
- Dormouse Presence / Likely Absence Survey Report (August, 2019) (WYG Ltd.)
- Bat Survey Report (October, 2019) (WYG Ltd.)
- Breeding Bird Survey Report (November, 2019) (WYG Ltd.)
- Ecological Mitigation and Management Plan (EMMP) (November, 2019) (WYG Ltd.)
- Technical Note (May, 2021) (Tetra Tech)
- Badger Survey Report (July, 2023) (Tetra Tech)
- Updated Technical Note (December, 2023) (Ecosupport Ltd.)

These, as well as an EMMP produced by WYG Ltd (2019), include a series of management prescriptions included within the reports to enhance the site for biodiversity. The measures within the reports have been incorporated into this report.

This management strategy covers the prescription management of the habitats within the site post-development in perpetuity (defined by Natural England as 80+ years) as well as the biodiversity mitigation and enhancements to be included within the site.

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1.0 INTRODUCTION

1.1 Aim

The aim of this report is to provide a prescription of the management of habitats in perpetuity (as defined by Natural England as 80+ years) within the site and to bring together all relevant sections of the previous ecological reports associated with the site called 'Land North of Coxbridge Farm, West Street, Farnham' and use them to inform a site-wide Ecological Mitigation & Management Plan. This will ensure the creation and management of habitats is suitable and beneficial to biodiversity within the site and all features of ecological importance are protected. This report will meet the requirement of Condition 18 of the planning approval for the site with ref WA/2019/0770 (approved June 2023). The condition states:

18) "Any reserved matters application relating to layout/landscaping (as required by condition 2) shall include an updated Ecological Mitigation and Management Plan and this shall include the following:

• The application of the DEFRA Biodiversity Metric V2.0 to the proposed development site and to design and provide ecological net gain enhancements are designed in accordance with the findings if the Net Gain Metric.
• Description and evaluation of features to be managed and created including measures to compensate for loss of proposed tree and hedge removal
• Numbers and locations of bat and bird boxes, including provision integral to the design of the new buildings.
• Aims and objectives of management
• Appropriate management options to achieve aims and objectives
• Prescriptions for management actions
• Preparation of a work schedule for securing biodiversity enhancements in perpetuity
• Details of the body or organisation responsible for implementation of the Ecological Mitigation and Management Plan
• Ongoing monitoring and remedial measures.
• Details of legal / funding mechanisms."

The management outlined within this report includes the following:

- Creation and management of species-rich meadow within ecological buffers / POS
- Creation and management of modified grassland within amenity areas / POS
- Creation and management of SUDs areas on site
- Creation and management of native trees and shrubs across site
- Creation and management of native and species rich hedgerows on site
- Retention and enhancement of existing hedgerows on site
- Provision of sensitive lighting strategy for foraging and commuting bats
- Creation of log piles for reptiles / invertebrates / bats
- Installation of Dormouse boxes
- Installation of bat bricks / boxes, bird bricks / boxes and bee bricks
- Provision of gaps within garden fencing as Hedgehog highways

The baseline assessments relevant to this report were undertaken by WYG Ltd in 2016 – 2019, Tetra Tech in 2021 - 2023 and Ecosupport Ltd in 2023.

1.2 Objectives

The following objectives are considered for this report in order to protect and enhance the ecology on site:

1. To preserve existing habitat and create and manage new habitats to provide the greatest benefit to bats, reptiles, amphibians, riparian mammals, Badgers and birds.
2. To ensure the created and enhanced habitats within the site fulfil their ecological function and remain in good condition to provide a benefit to biodiversity.
3. To protect retained hedgerows and trees and provide suitable planting compensation.
4. To create and maintain new habitat features for bats, reptiles, amphibians, riparian mammals, Badgers, Dormice and birds.
5. To detail management responsibilities and practices, including ongoing monitoring and remedial measures

1.3 Description

The site covers approximately 11.44 hectares predominantly comprised of modified grassland, dense scrub, bare ground / gravel and hardstanding bound by lines of trees and hedgerows on land associated with Coxbridge Farm, West Street, Farnham, Waverley, GU9 7AS (centered on OS grid reference SU 82727 46306) (**Fig 1**). The site is bound by residential properties to the east, woodland to the north, West Street and commercial properties to the south and adjacent grassland, gravel track and stream to the west. The wider environ is largely semi-rural, comprised of agricultural fields to the west and residential and commercial properties to the east and further south of the A31.

Figure 1. Aerial image of the site with approximate redline boundary provided and BNG land which falls outside of the application boundary yet within the interest of the applicant (blueline) (Google Satellite, 2023).

2.0 BASELINE DATA

2.1 Designated Sites

2.1.1 Internationally Designated

There are no internationally designated sites located within 2 km of the site. ***Notwithstanding this, the site is located beyond 400 m but within 5 km buffer for Wealden Heath SPA Phase I. Additionally, the site is located within the recreational zone of influence 5 km buffer for Thames Basin Heaths SPA.***

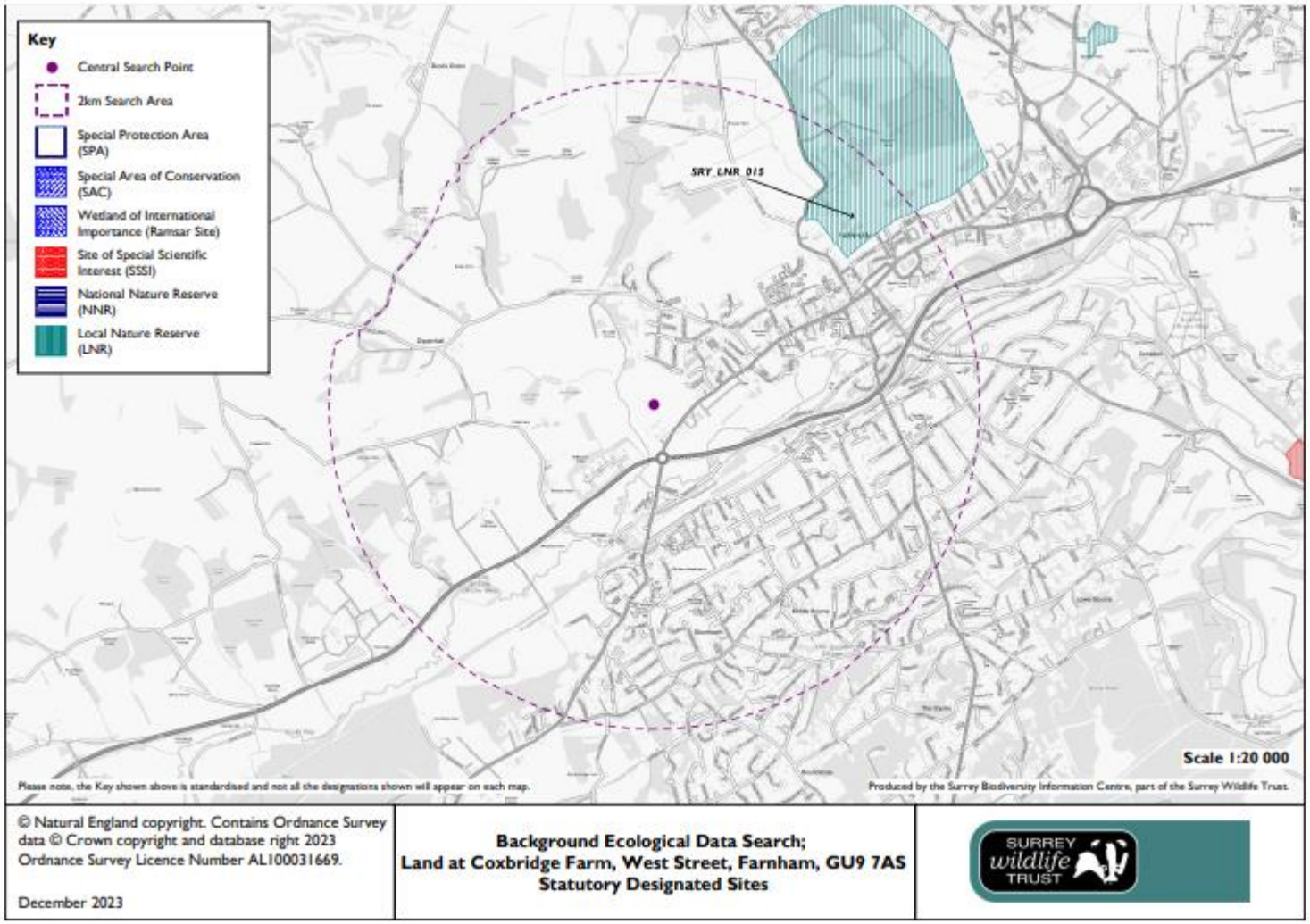
2.1.2 Nationally Designated

The nationally designated sites identified by Surrey Biodiversity Information Centre (SBIC) are shown in **Fig 2** with a summary of these sites presented in **Table 1**.

Table 1. Nationally designated sites located within 2 km as shown in the **Fig 2** map provided by SBIC.

Site Code (SBIC)	Name	Designation(s)	Distance to Site
SRY_LNR_015	Farnham Park	Local Nature Reserve (LNR)	1.27 km NE

Figure 2. Statutory nationally designated sites located within 2 km of the site as provided by SBIC.



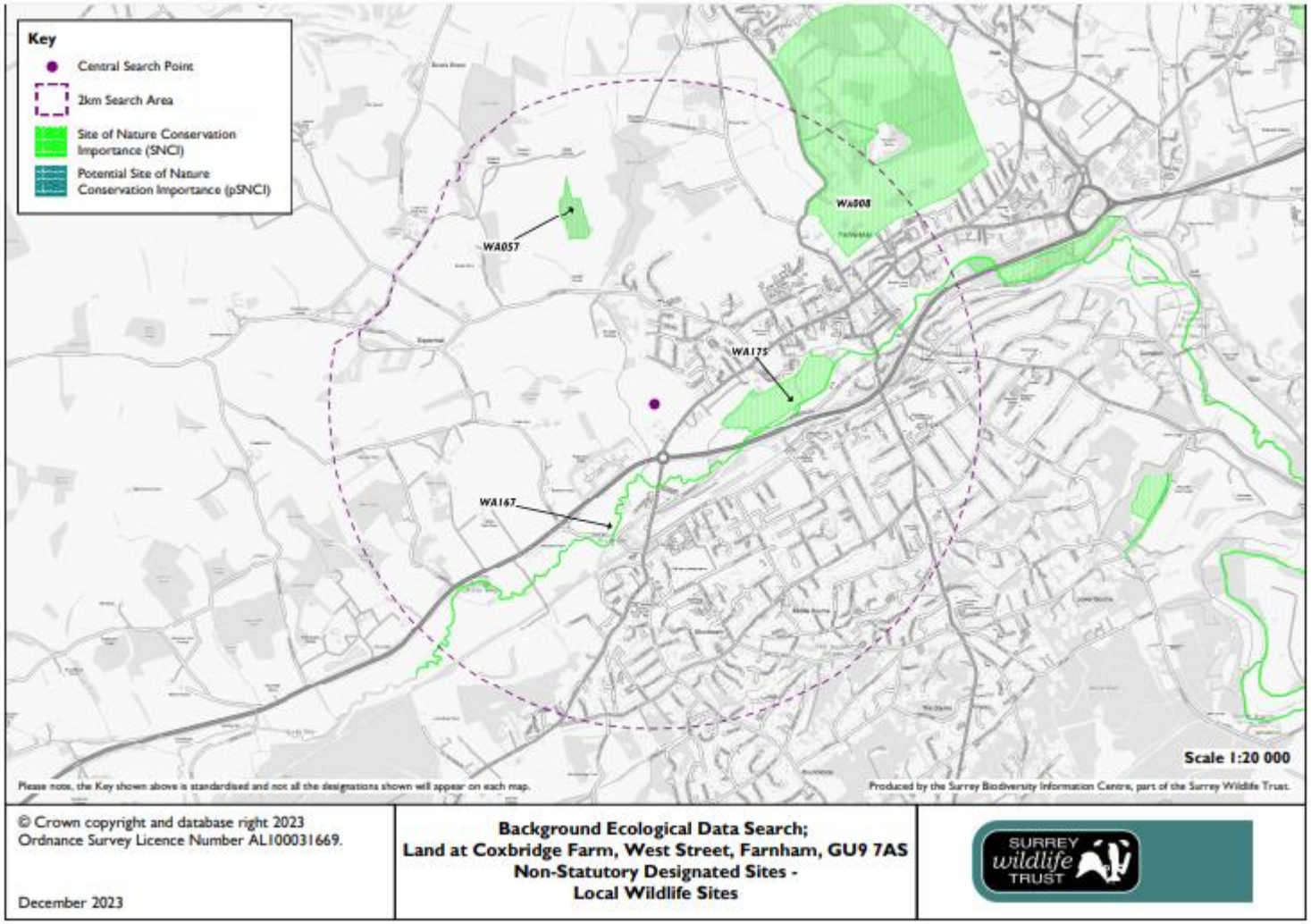
2.1.3 Locally Designated

The locally designated sites identified by Surrey Biodiversity Information Centre (SBIC) are shown in **Fig 3** with a summary of these sites presented in **Table 2**.

Table 2. Summary of locally designated sites within 2 km of the site as provided by SBIC and shown in **Fig 3** below.

Site Code (as per Fig 3)	**Site Name / Designation**	**Habitats Present / Reason for Designation**	**Distance to Site**
WA008	Farnham Park Site of Nature Conservation Importance (SNCI)	An exceptional population of notable amphibian species in six out of the seven ponds present on the site. Also, a high quality invertebrate site with notable species present in ponds and other notable insects with affinities to ancient pasture woodlands. NB. Site boundaries exclude the Rangers House and gardens but include the golf course.	1.27 km NE
WA057	Copse Woodland West of Claypit Wood SNCI	4.5 ha of species-rich, spring line woodland, supporting a rich range of vegetation community types, 19 ancient woodland indicators were noted	0.84 km N
WA167	River Wey – North (Waverley) SNCI	This branch of the River Wey does not currently fall in to the top 10% of UK Waterways on the grounds of the number of macro invertebrate species present but it is still of significant interest as it contains a rich diversity of aquatic and marginal flora. There is also a dense in stream fauna which includes the only Surrey site for a notable species of Odonata as well as other species which appear in Annex II of E.C Directive 92/43/EEC	0.32 km SE
WA175	Bishop's Meadow SNCI	Selected for its species rich grassland habitat supporting 17 plant species typical of grassland of conservation interest in Surrey. The site is well used by the local community.	0.22 km SE

Figure 3. Non-statutory locally designated sites located within 2 km as provided by SBIC.



2.2 Habitats

An initial walkover of the site was conducted in September 2018 by WYG Ltd., with two updated walkovers of the site conducted in May 2021 and July 2023 (as part of condition 17) by Tetra Tech. An updated walkover was undertaken on 30th November 2023 by Ecosupport Ltd. In summary, these walkovers had found the following habitat types (using the UK Habs Habitat Definitions Version 2.0 (UKHab Ltd., 2023) and with locations indicated in **Appendix B**):

- Modified grassland (g4) – cattle grazed (101) with bare ground (510) and tall forbs (16) (**Figs 4a - c**)
- Blackthorn scrub (**Fig 4d**)
- Bramble scrub
- Developed land; sealed surface (u1b) (**Fig 5a**)
- Artificial unvegetated, unsealed surface (u1c) (**Fig 5b**)
- Native hedgerow (h2a) – with trees (11) and ditch (50) (**Fig 5c**)
- Non-native and ornamental hedgerow (h2b) (**Fig 5d**)

Figure 4a - d. View of the habitats on site (from left to right): 2a) modified grassland grazed by cattle, (2b) bare ground, (2c) area of rough grassland and tall forbs and, (2d) Blackthorn scrub in north-eastern corner of site (taken November, 2023)

Figure 5a - d. View of the habitats on site (from left to right: 3a). Developed land; sealed surface, 3b), dirt and gravel track in centre of site, 3c), native hedgerow with trees associated with a dry ditch and 3d) Leylandii hedgerow (taken November, 2023)

2.3 Reptiles

2.3.1 Pre-existing Information

Surrey Biodiversity Information Centre (SBIC) provided 16 records of common reptile species from within 2 km of the site, comprised of Slow Worm (*Anguis fragilis*) (13 records), Common Lizard (*Zootoca vivipara*) (1 record) and Grass Snake (*Natrix helvetica*) (2 records).

2.3.2 Reptile surveys

A suite of presence / likely absence surveys for reptiles was undertaken between April – May 2019 by WYG Ltd, this was an updated survey effort after a suite of surveys conducted in 2016 by WYG Ltd identified no reptiles as present on site. The survey effort by WYG Ltd (2019) identified the following:

"*No reptiles were recorded during any visit to the site and therefore no mitigation or enhancement measures will be required to protect the species group or their population status in the local area*".

2.3.3 Updated Walkover

Reptiles require open habitats with a deep and diverse vegetation structure. Scrub and grass tussocks are also preferable (Edgar et al., 2010). It was considered that the site provided habitat suitable to support reptiles along the field margins. The 2019 survey work concluded the ***likely absence*** of common reptile species as none were observed during the survey effort.

The grassland on site provides the same structure and heterogeneity that was present during the initial survey effort, as a result of its management regime (actively grazed). It is considered that areas of rough grassland or sub-optimal areas of hedgerow understorey or dense scrub may hold some potential for reptile presence.

2.4 Great Crested Newts

2.4.1 Pre-existing Information

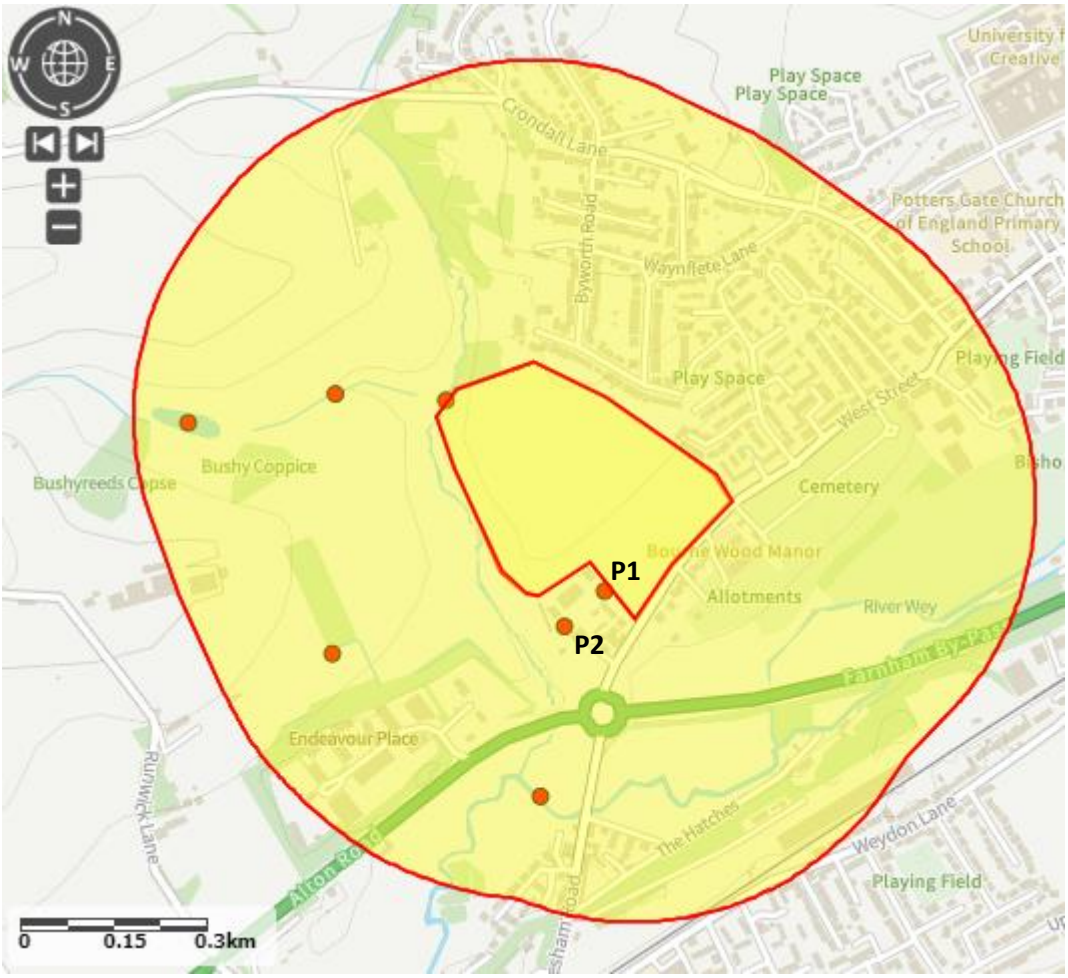
Surrey Biodiversity Information Centre (SBIC) provided 2 records of Great Crested Newt (GCN) (*Triturus cristatus*) presence from within the 2 km search radius, both of which were from 2014 (**Fig 6**). ***NB These records also are present on Magic Maps under 'Great Crested Newt Class Survey Licence Returns (England)' layer, approximately 1.64 km north of site.***

Figure 6. Screenshot of the GCN records as provided by SBIC (red pins) from within 2 km of the site (blueline).

2.4.2 Water bodies within 500 m

The closest waterbody located within 500 m of the site is a pond situated 7 m to the southwest of site (**Fig 7**). In addition to this, 3 ponds, the River Wey, a stream and 1 drainage ditch are situated within 500 m of the site to the west.

Figure 7. View of the water bodies within 500 m of site (Magic Maps, 2023).



2.4.3 eDNA Survey

WYG Ltd conducted an environmental DNA (eDNA) survey on "P1" and "P2" (see **Fig 7** above), the remaining suitable waterbodies were inaccessible during the walkover. The eDNA survey was conducted by WYG Ltd. During the eDNA test, 20 evenly spaced sample sites were identified around the pond's perimeter, and one ladle of pond water was collected from each of the pre-identified sites. The samples were then mixed along with preservatives following guidance from SureScreen Scientifics and sent for eDNA analysis. WYG Ltd noted the following result "*Results from the SureScreen Scientifics eDNA testing service were returned on 7th May 2019. Both ponds were found to be* ***negative*** *for GCN eDNA, therefore it can be concluded that GCN are absent from these ponds*." (2019).

2.4.4 Updated Walkover

Similar to reptiles, GCN require habitats which provide opportunities for foraging and sheltering, including "*rough (especially tussocky) grassland, scrub and woodland*" (Froglife, 2001). It was considered that the site provided habitat suitable to support GCN along the unmanaged field margins, areas of scrub and connectivity to the woodland along the northern boundary. The 2019 survey work concluded the ***likely absence*** of GCN as negative eDNA results were returned during the survey effort. The grassland on site provides the same structure and heterogeneity that was present during the initial survey effort, as a result of its

management regime (actively grazed). It is considered that areas of rough grassland or sub-optimal areas of hedgerow understorey or dense scrub may hold some potential for GCN presence.

2.5 Bats

2.5.1 Pre-existing Information

The data request from Surrey Biodiversity Information Centre (SBIC) returned the following records within 2 km of the site (**Table 3**).

Table 3. List of Bat records within 2 km of the site provided by SBIC.

Taxon Name	Species Name	Number of Records	Further Information
Plecotus auritus	Brown Long-eared Bat	5	iRecord recordings and consultancy submissions
Pipistrellus pipistrellus	Common Pipistrelle	20	Natural England roost visits, consultancy submissions, iRecord recordings and Bishop's Meadow Trust
Myotis daubentonii	Daubenton's Bat	1	Bishop's Meadow Trust
Myotis spp.	Myotis Bat species	1	Consultancy submission
Nyctalus noctula	Noctule Bat	6	Consultancy submission, iRecord recordings and Bishop's Meadow Trust
Pipistrellus spp.	Pipistrelle Bat species	4	Natural England roost visit, consultancy submissions and iRecord recordings
Eptesicus serotinus	Serotine	2	Consultancy submission
Pipistrellus pygmaeus	Soprano Pipistrelle	13	Consultancy submissions, iRecord recordings and Bishop's Meadow Trust

2.5.2 Activity Surveys

A number of surveys were undertaken on site to establish the usage of the site by foraging and commuting bats. The results of these surveys are summarised below. Walked transects and static detector deployments (referred to as 'passive detectors') were undertaken during August, September and October 2016 and April, August and October 2019 by WYG Ltd who made the following evaluations:

2.5.2.1 2016 Activity Surveys

"Three species of bat were recorded during the surveys undertaken in August, September and October 2016. These were predominantly common pipistrelle and soprano pipistrelle with the occasional noctule."

2.5.2.2 2019 Activity Surveys

"Three species of bat were recorded during the survey. These were common pipistrelle, soprano pipistrelle and noctule. During the survey, bats were observed foraging and commuting along the hedgerows and grassland across the site."

"The automated bat detector deployed on site recorded at least five bat species between August and October 2016. The automated bat detector deployed between April and October 2019 recorded at least six bat species. Passes recorded were strongly dominated by common pipistrelle and soprano pipistrelle, with occasional passes by noctule, serotine, myotis species and brown long-eared."

"The site was found to be of value at a ***district, local or parish level*** *for foraging and commuting bats based on the Wray et al. (2010) method. It was considered that the low numbers of recordings of unknown myotis species, serotine and noctule during all surveys, were of low significance to the overall value of the site. Therefore, these records were not used to assess the value of the site."*

2.5.3 Updated Walkover

Whilst the site is dominated by short sward modified grassland, the site is bounded and bisected by mature tree lines / hedgerows which connects to additional linear habitats in the wider landscape. These habitat features provide a continuous linear corridor for local commuting bats as well as likely to support a rich supply of invertebrates for local foraging bats. Furthermore, the site borders residential properties and could therefore provide an important foraging area for any nearby roosts upon emergence. The site was previously assessed as ***moderate potential*** to be utilised by foraging and commuting bats, during the updated walkover no changes to this habitat was noted and taking into account the previous survey results from Phase 2 work by WYG Ltd in 2019, therefore it is still considered to be of '***District, Local or Parish level of value***' for this species.

2.5.4 Roosts

2.5.4.1 Preliminary Roost Assessment (trees)

A Preliminary Roost Assessment (PRA) of the trees on site was undertaken during the initial walkover by WYG Ltd, which identified a single Field Maple (*Acer campestre*) as having ***low potential*** for roosting bats due to the presence of a knot hole on a west facing limb (although this tree is to be retained under the current proposals). During the updated walkover,

A single tree was identified as requiring removal due to health and safety concerns as per the '*BS5837 Tree Survey Assessment'* conducted by Indigo Ltd Surveys in September 2023. ***During the updated walkover, this Ash (Fraxinus excelsior) tree had coincidentally been partially felled as was under private ownership adjacent to the site.*** Potential Roosting Features (PRF's) were noted at the base of the tree due to poor health which has resulted in a "*large cavity at basal union"* (Indigo Ltd Surveys, 2023) (**Fig 8**) – this is assessed as a PRF-I in line with current guidance by BCT (Collins (ed) 2023). A ***PRF-I*** is described as "*PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.*". All other trees on site are understood to be retained under current proposals.

Figure 8. View of the Ash tree which had been felled presumably by the neighbouring landowner due to health and safety concerns (taken November, 2023).

2.6 Dormice

2.6.1 Pre-existing Information

Surrey Biodiversity Information Centre (SBIC) provided 2 records of Hazel Dormouse (*Muscardinus avellanarius*) presence from within the 2 km search radius, one from 2020 (2.0 km to the south-west) and another from 2013 (1.5 km to the south-west). In addition to this, using Magic Maps a granted European Protected Species Licence (EPSL) application was noted 1.9 km to the south-west (under ref: **2017-27692-EPS-MIT**). Finally, using freely available resources, 4 records of Hazel Dormice were returned from 2013 (all from 1.8 km to the south-west). ***NB All records of Hazel Dormice within 2 km of site were returned to the south-west within habitat separated from habitat on site by the A31.***

2.6.2 Dormouse Surveys

A nest tube survey covering the site was undertaken by WYG Ltd. covering August – November 2016. A total of 75 tubes were placed within all suitable habitats found within the site and the surrounding area at approximately 20 m intervals as per Bright et al., (2006). During all survey visits, no evidence of Dormice were identified in any of the tubes on site.

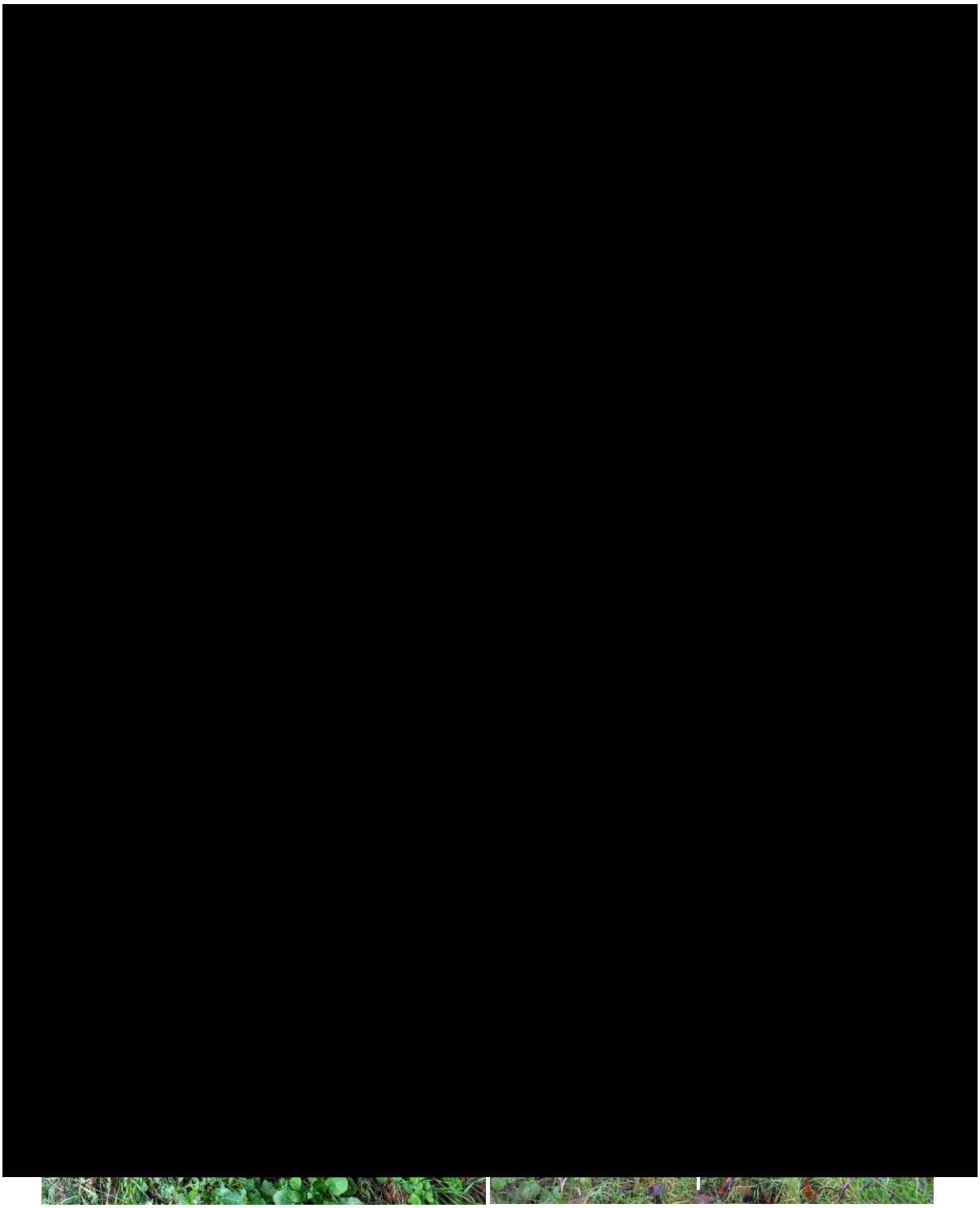
2.6.3 Updated Walkover

The updated walkover assessed the native hedgerows around the site boundary and bisecting the site are still considered favourable for Dormice. The suitable Dormice habitat present on site is connected to further woodland and hedgerows within the wider site. Taking this into consideration, alongside the absence of local records connected to site and the absence of Dormice during the 2016 surveys, the habitats on site are considered to be of ***low potential*** for Dormice.

2.7 Badgers

2.7.1 Pre-existing Information

Surrey Biodiversity Information Centre (SBIC) provided no records of Badger (*Meles meles*) presence from within 2 km of the site.



2.8 Birds

2.8.1 Pre-existing Information

Surrey Biodiversity Information Centre (SBIC) provided a large number of records of protected bird species from within 2 km of the site including (but not limited to) the following species: Barn Owl (*Tyto alba*) (1 record), Dunnock (*Prunella modularis*) (11 records), Fieldfare (*Turdus pilaris*) (1 record), Goldcrest (*Regulus regulus*) (2 records), Kingfisher (*Alcedo atthis*) (7 records), Redwing (*Turdus iliacus*) (5 records), Sand Martin (*Riparia riparia*) (1 record),

Stonechat (*Saxicola rubicola*) (1 record), Tawny Owl (*Strix aluco*) (3 records), Waxwing (*Bombycilla garrulus*) (1 record) and Wren (*Troglodytes troglodytes*) (20 records).

2.8.2 Breeding Bird Surveys

Due to the number of local records, suitable vegetation on and surrounding site, it was therefore recommended that a full breeding bird survey was undertaken March – June. This was conducted in 2019, and it was concluded that "*the site has been assessed as having 'local importance' for breeding birds (in accordance with Fuller et al., 1980) due to the number of species to be considered breeding. Four red listed species were recorded during the surveys. These were Starling; Song Thrush; House Sparrow and Mistle Thrush*." (WYG Ltd., 2019).

2.8.3 Updated Walkover

The hedgerows, dense scrub and scattered trees on site, as well as the unmanaged field margins, do provide suitable nesting opportunities for breeding and nesting birds. Therefore, the site is considered to have ***potential*** for breeding and nesting birds.

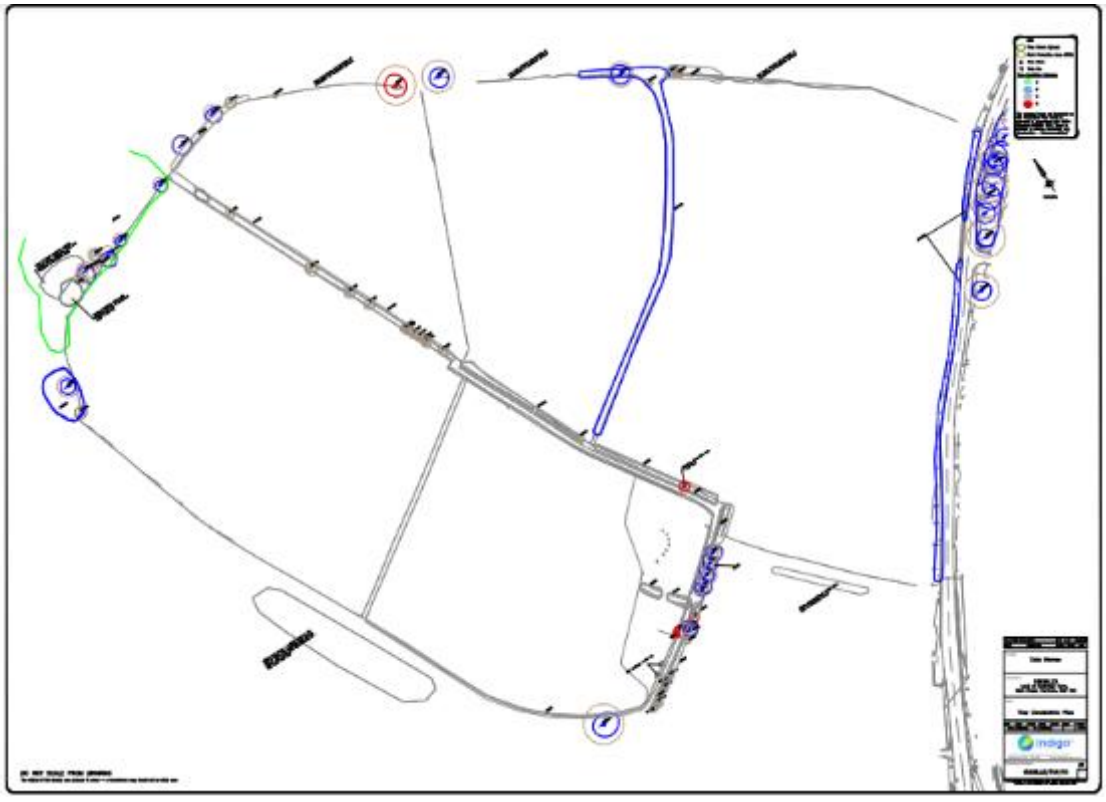
3.0 MITIGATION, COMPENSATION AND ENHANCEMENTS

The chapter addresses the relevant mitigation, compensation and enhancement required to provide appropriate protection to species found within the site. Mitigation refers to measures that can be undertaken to avoid or reduce ecological impacts. Compensation refers to measures taken in order to offset potential significant impacts and finally enhancements result in a net gain for ecology. Measures relating to habitat creation and management are addressed in **Section 5.0**.

3.1 Protection of Woodland, Hedgerows and Trees

The woodland along the northern boundary, existing hedgerows and trees that will be retained will be protected from damage during the works (including during the archaeological works as detailed in **Fig 13**). They will be protected using the methods outlined within the '*BS5837 Tree Survey Assessment*' provided by Indigo Surveys Ltd (2023). A tree constraints plan has been provided within this document by Indigo Surveys Ltd (Plan Ref: 18538.23/TCP/01 – as below **Fig 10**).

Figure 10. Tree constraints plan as provided by Indigo Surveys Ltd (2023), RPA as indicated by the grey dashed lines.



Indigo Surveys Ltd note the following regarding tree protection on site: "*The design and layout of the site is to incorporate the essential components of retained trees (crown and rooting area) and provide a suitable level of clearance to allow for their long term safe retention, i.e. RPA protection and crown clearance as well as for any new tree(s) being planted.*

Depending on the level of tree retention/removal, the protection methods for the retained trees is likely to vary. However, ***it is likely that a combination of construction restrictions be used with protective barrier fencing (to protect RPAs)****."*

Such fencing will also provide protection for wildlife species that may be using the woodland and retained hedgerows as well as the margins of the site including bats, birds, invertebrates, and other mammals. No vehicles will enter the protective ring fencing and no materials will be stored within their circumference; access will only be granted with authorisation from the relevant LPA. All protective fencing must be in place prior to any construction machinery arriving on site, before any works on site get underway, and will remain in place until all work is completed. This will minimise the level of disturbance within the woodland, boundary habitat / buffer areas during the works and ensure the habitats and any wildlife species that may be using them are protected.

3.2 Bats

3.2.1 Trees

3.2.1.1 Roosts

Should the partially felled Ash tree on the north-eastern boundary be felled to ground level, it is recommended prior to this being undertaken the tree is subject to further assessment through endoscoping of potential features to accurately assess the suitability of the feature (PRF-I or PRF-M as per BCT). ***NB It must be noted this tree is under private ownership***.

> *If the PRF is ruled as PRF-I:* If ruled as a PRF-I, it is recommended the tree is to be soft-felled, with any Ivy carefully pulled back and checked for bats prior to felling. The existing cavities/crevices/voids that may support roosting bats, as well as any additional ones which are uncovered during works, will require further assessment through endoscoping of potential features and felling under the supervision of a suitability qualified ecologist.
>
> *If the PRF is ruled as PRF-M:* Should the Ash tree be considered to be of moderate – high potential (or PRF-M present) to support roosting bats, further survey visits are required comprising of separate dusk emergence surveys (as per the survey effort requirements from BCT 2023 **Table 4**). These surveys will be completed between May – September. This will include the use of NVA's (Night Vision Aid) to cover the entire tree.

Table 4. Recommended minimum number of survey visits (from Table 7.1, BCT 2023).

Low Roost Suitability	**Moderate Roost Suitability**	**High Roost Suitability / Known Roost**
One dusk emergence survey visit between May – August.	Two separate dusk emergence survey visits between May – September, with at least one between May – August. Surveys must be three weeks apart.	Three separate dusk emergence survey visits between May – September, with at least two between May – August. Surveys must be three weeks apart.

It is understood that no additional mature trees other than the above require removal to facilitate the proposed development. It is however understood that some of the trees may require remedial works for health and safety purposes. A full assessment of each tree to undergo remedial works must be undertaken by an ecologist prior to these tree works commencing, with further survey works potentially required should PRF's be present on the affected trees.

3.2.2 Maintaining Connectivity

Many bat species are reluctant to leave the cover of features such as tree lines and hedges as they move between their roost and foraging grounds. Fragmentation of the landscape can therefore be a serious issue for bats. To address these issues, key areas of suitable habitats for foraging and commuting bats are being retained along with enhancements provided to increase invertebrate biomass (further described in **Section 5.0**). This includes the provision of meadow grassland within the ecological buffer with new native tree / shrub planting and SUDs areas created on site planted up with marginal native aquatic vegetation.

3.2.3 Lighting

MMA Lighting Consultancy (2024) have prepared a Lighting Impact Assessment for the site in conjunction with Ecosupport Ltd. In order to avoid adverse impacts on foraging and commuting bats, the lighting on site follows the recommendations outlined below and, consequently, *"There will be no light spill onto the northern and western boundaries with light spill onto the retained hedgerows largely limited to less than 1 lux"* (MMA, 2024).

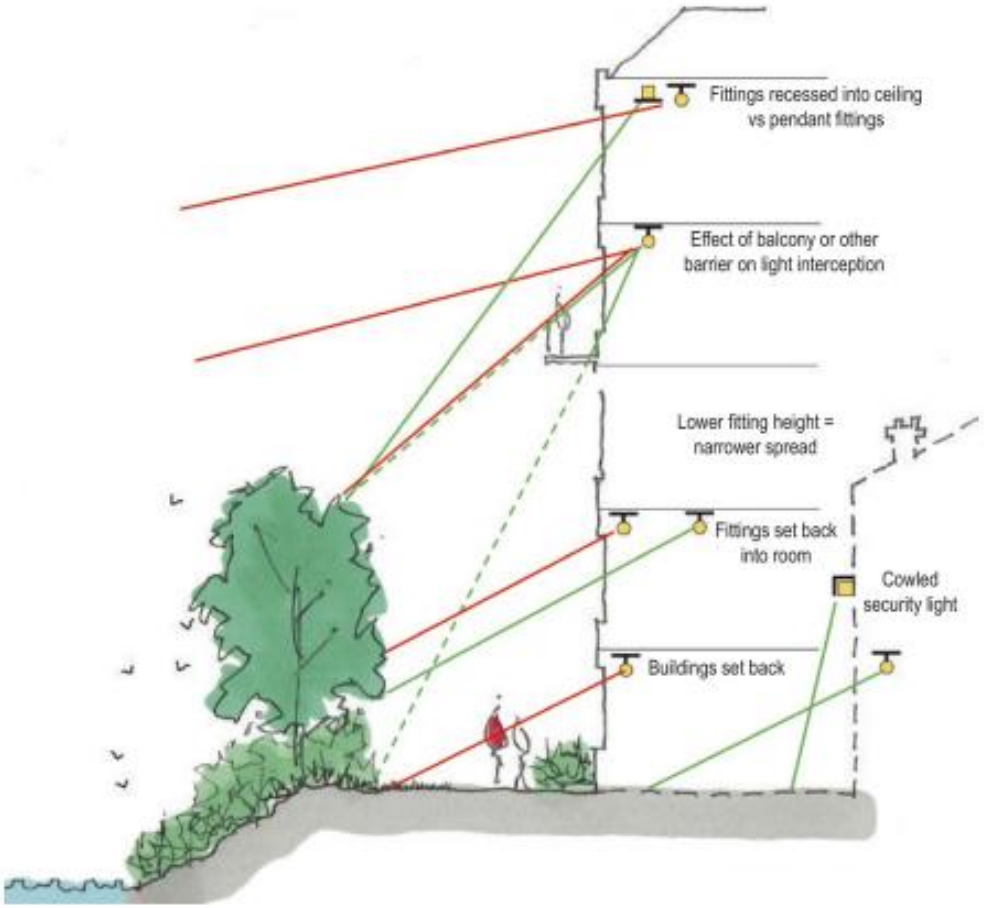
The lighting on site will comply with the following newly published *Guidance Note 08/23 Bats and Artificial Lighting at night* (ILP / BCT, 2023) produced via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), which outlines the latest recommendations to minimise the impacts of increased artificial lighting on bats. The key recommendations within this document have been outlined below and will be implemented as far as is practicable:

'Light sources, lamps, LEDs and their fittings come in a myriad of different specifications which a lighting professional can help to select. However, the following should be considered when choosing luminaires and their potential impact on Key Habitats and features:

- *All luminaires will lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used*
- *LED luminaires will be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability*
- *A warm white light source (2700Kelvin or lower) will be adopted to reduce blue light component*
- *Light sources will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012)*
- *Internal luminaires can be recessed (as opposed to using a pendant fitting - See* **Fig 11***) where installed in proximity to windows to reduce glare and light spill*

- *Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges (see Case Study 1)*
- *Column heights will be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards*
- *Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01*
- *Luminaires will always be mounted horizontally, with no light output above 90° and/or no upward tilt*
- *Where appropriate, external security lighting will be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate*
- *Use of a Central Management System (CMS) with additional web-enabled devices to light on demand Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS*
- *The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues. See Case Study 6*
- *Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely'*

Figure 11. Internal lighting mitigation options (ILP 2023).



NB. The use of bollard lighting on this site is considered acceptable due to the installation of shields which will prevent upwards light spill.

3.2.4 Enhancement Bat Bricks / Boxes

Each dwelling will incorporate at least 1 No Ibstock bat bricks (**Fig 12**) integrated within the external brick work. These features are entirely self-contained and available in a variety of different colours to match different construction materials. They should ideally be placed on an elevation which will benefit from some degree of sunlight exposure and be located away from windows (as set out within the accompanying Landscape Planting Plan and Cala Urban Wildlife Strategy).

Figure 12. Ibstock bat brick 'B' which will be integrated into the gable walls of each new dwelling on site (at least 320 No).

In addition to the integrated bat boxes, the following woodcrete models will also be erected on suitable retained trees around the site's boundary as recommended within the *Ecological Mitigation and Management Plan (EMMP)* by WYG Ltd (2019) (***NB Similar alternative models may be appropriate as approved by an ecologist***):

- 3 No Schwegler 2F Bat Box (or General Purpose Woodcrete bat box)
- 2 No Schwegler 1FF With Built-In Wooden Rear Panel (or Vivara Pro Chambord bat box or Elisa bat box)
- 2 No Schwegler 2FN Bat Box

The woodcrete bat boxes will be erected by or under the supervision of an ecologists to ensure they are placed in the most appropriate / effective locations. The indicative location of these habitat features are shown in the Plan attached in **Appendix A.**

3.3 Reptiles & GCN

3.3.1 Passive Dispersal

Due to the very small area of suitable habitat for reptiles in the context of the wider site and the absence of reptiles / GCN recorded, it is considered that the most suitable form of mitigation would be passive dispersal into retained habitat within the site borders as a precaution. This will involve all suitable habitat for reptiles / GCN (rough grassland / dense scrub) to be strimmed in two phases under the supervision of an Ecological Clerk of Works (ECoW). The first cut will be down to a height no lower than 30 cm with lines cut towards the site boundaries to encourage any reptiles into the boundary habitats, with a second cut (the following day) taking it right down to ground level. Any leaf piles that required removal will be sensitively transferred into the existing leaf piles within the retained boundary of the site to ensure that any reptiles concealed within the grass cuttings are safely moved and to provide an ongoing area of refuge for reptiles on site. Any reptiles discovered during the sensitive works will be immediately moved to the retained compost heap within the northern most corner of the site. This work will be done immediately before any ground works to prevent

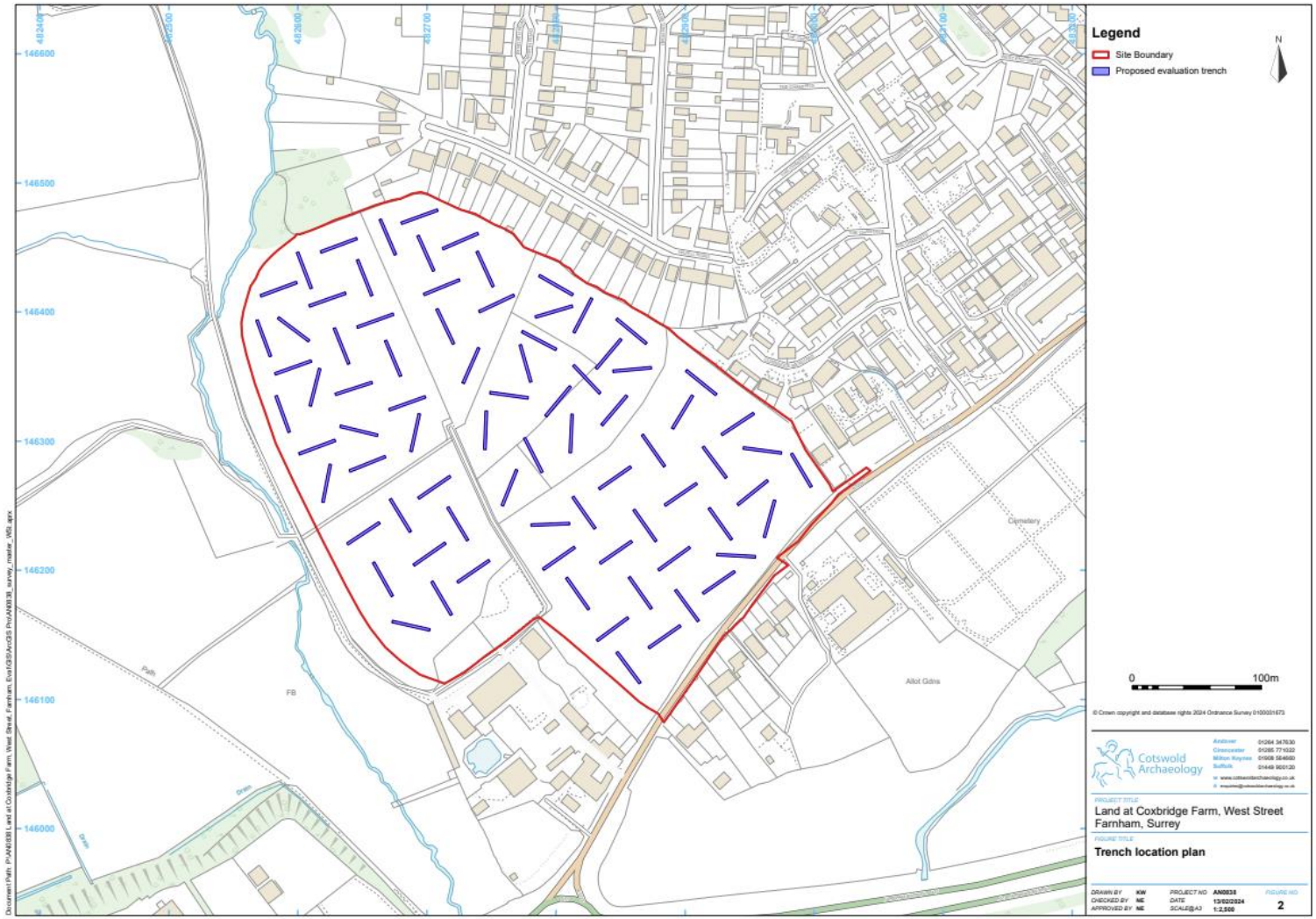
the habitats re growing and will be undertaken during the active reptile period (April – September) when temperatures are above 12^{o}C with sunshine. ***NB Should any GCN be encountered, work must cease, and a suitably qualified ecologist and Natural England consulted.***

It is important that the central areas of the site continue to undergo regular management either through grazing or being regularly cut to ensure that these areas of the site do not become suitable for reptiles / GCN. If regular maintenance is not carried out and the central grass areas are left to grow, then a reptile capture programme will be required and further survey work for GCN may be necessary.

3.3.2 Archaeological Works

Archaeological works are expected to take place on site during April-May 2024 with the location of the trenches to be excavated indicated in **Fig 13** below. In order to avoid impacts to reptiles / GCN, the measures detailed in **Section 3.3.1** above will be adhered to.

Figure 13. Location of the archaeological trenches to be excavated on site as provided by Cotswold Archaeology (2024).



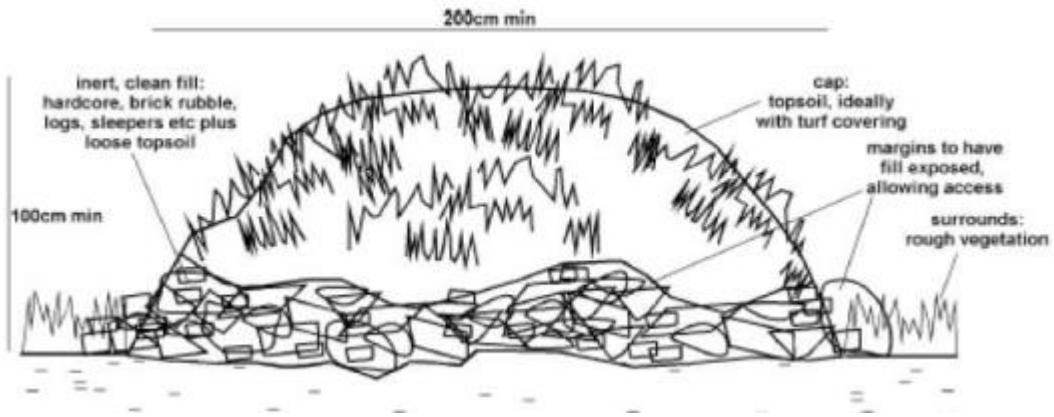
3.3.3 Enhancements

2 No log piles are recommended to be provided within the ecological buffer to the west of site to further enhance the site for reptiles as well as mammals, invertebrates and amphibians. The indicative location of these habitat features are shown in the Plan attached in **Appendix A.** Further, this grassland habitat will be enhanced for biodiversity, which will benefit reptiles and amphibians. This is described further in **Section 5.0.**

Log piles

The two log / brash piles will be created from vegetation removal and/or habitat management on site. This may use a combination of logs, branches, brash and grass cuttings from the sensitive clearance above and any tree surgery. An example of a log pile hibernacula is shown in **Fig 14** below. These should be located within areas receiving partial sun / partial shade with indicative locations indicated in **Appendix A**.

Figure 14. Example of a hibernacula design



3.4 Hazel Dormouse

3.4.1 Methods of Clearance

Based on the current proposals, it is not anticipated there will be any significant areas of potentially suitable Dormouse vegetation that will require removal. Notwithstanding this, accounting for the suitability of the habitat on site and in the wider area, the following precautionary approach will be adopted:

Prior to clearance commencing, 5 Dormouse nest boxes will be installed through the retained suitable Dormouse habitat (northern boundary adjacent to the woodland) to increase the carrying capacity of the retained habitats for Dormice. These will also act as receptors for any Dormice found during the sensitive clearance works (outlined below). The indicative location of these habitat features are shown in the Plan attached in **Appendix A.**

All habitat clearance will adopt the following methodology:

- Fingertip search of all vegetation to be cleared, by the licenced ecologist, immediately prior to clearance commencing (on the same day and every day clearance occurs). If any Dormice are found, works will cease, and Natural England consulted.

- The licenced ecologist will deliver a toolbox talk to the vegetation clearance contractors, detailing the sensitive measures required. The ecologist will then supervise all vegetation clearance. No clearance will be undertaken without the supervision of the ecologist.

- Hand tools will be utilised to sensitively cut vegetation down to ground level in **a single stage**. This will be undertaken in a directional fashion to passively encourage Dormice to move away from the works area towards retained, suitable habitats (i.e. northern woodland). All arisings will be moved away from the cleared areas immediately to an area of within the central part of the site and will then be chipped and immediately removed from site.

- In the unlikely event of any Dormice being discovered (within areas where they cannot be let in situ), they will be moved (along with their nest) into one of the nest boxes.

- No more than 50 m^2 of habitat will be cleared in a single day and works will take place during mid-April - mid-May or during October to avoid the breeding period (but ensure works are done during a tie when Dormice are active).

- **NB If any Dormice are found, works will cease, and Natural England consulted.**

3.4.2 Site Design

In addition to adopting sensitive methods of clearance (as outlined), the site has been designed to provide enhancements for Dormice with new native species planting proposed (see **Section 5.0**).

- *"Consideration should be given to the placement of any topsoil storage, or piles of materials that may create mounds suitable for sett creation. Any such piles are placed well away from identified badger activity, and are checked on a daily basis by construction staff to ensure that no badger activity has taken place. If the mounds are to be in place for a significant period of time, the earth will be temporarily fenced to ensure that badgers cannot access the fresh soil.*
- *There will be no night working to avoid disturbance to badgers, any work within 30m of a sett will cease at least two hours before sunset. There will be no lighting along the eastern boundary of the site to avoid any light spill where badger activity has previously been recorded.*
- *If any excavations are left open overnight, an earth ramp will be created or a wooden ramp installed to allow any animals that fall in to escape.*

- *Any pipes that need to be left over night on site will be capped to avoid animals becoming trapped."* (extract as per **Section 7.1.2** of EMMP by WYG Ltd., 2019)

3.5.1 Archaeological Works

Archaeological works are expected to take place on site in April – May 2024 (**Fig 13**). A pre-commencement badger survey will be undertaken on site **immediately prior to the archaeological works being undertaken** with a toolbox talk as outlined above also delivered prior to works to avoid any adverse impacts on foraging and commuting Badgers.

3.6 Breeding and nesting birds

3.6.1 Avoidance of Impacts to Nesting Birds

In order to avoid disturbance of nesting birds or damage to their nests, clearance of any vegetation will be undertaken outside of the bird nesting season (typically March – August dependent on weather). If this is not possible, sections to be cleared should be thoroughly checked by a suitability qualified ecologist immediately prior to clearance. If any active nests are found they should be left undisturbed with a suitable buffer of vegetation (5m) until the nestlings have fledged.

3.6.2 Site Design

Several nests / territories of BoCC Amber listed bird species were present throughout the application site itself, with nests / territories of BoCC Red listed bird species within the wider site or along the site boundaries. It must be noted that the hedgerows where these BoCC species were observed as nesting are largely being retained by the proposals. There is a risk of indirect disturbance associated with increases in noise, human presence, and site traffic, which could result in detrimental effects upon the BoCC species nesting within close proximity. The EMMP outlines the avoidance mitigation, the implementation of an ecological buffer and additional enhancements in the form of bird boxes to provide additional nesting opportunities.

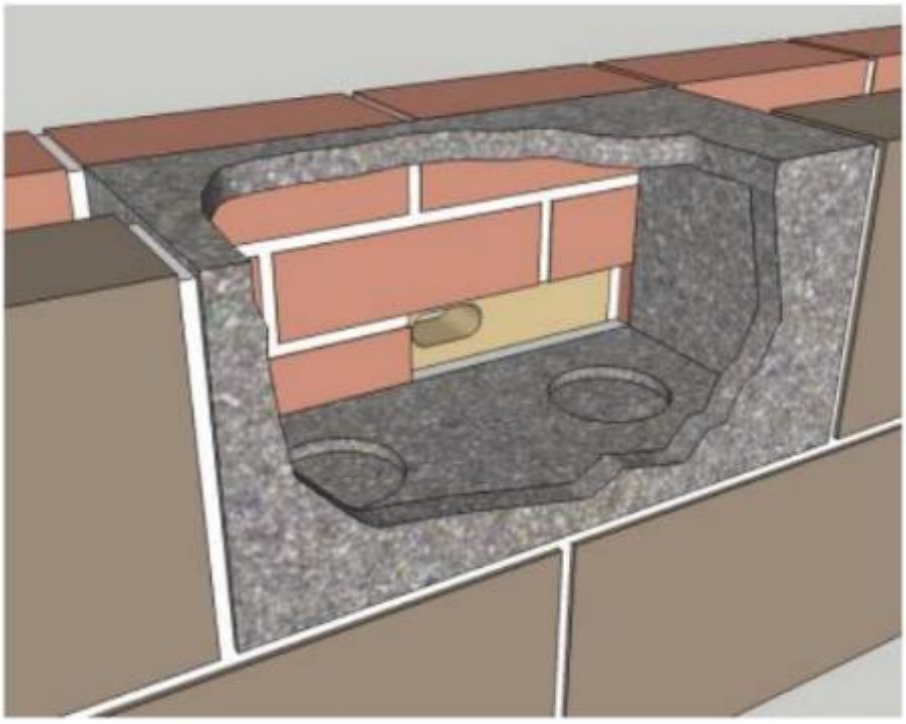
WYG Ltd recommended the implementation of a 10 m buffer between the development and woodland boundaries of the site. Due to various constraints, a 10 m buffer is not feasible along the northern boundary of site and as such, the buffer has been maximised and is an average of 6 m. Notwithstanding this, the western boundary ecological buffer has been designed into the scheme (average of c. 40 m). It can be considered that whist a 10 m buffer is not possible along the northern boundary, the ecological buffer along the western boundary is sufficient mitigation for breeding and nesting birds. The ecological buffer has been designed to connect to the northern boundary woodland through the provision of extensive tree and shrub planting with wildflowers to provide nesting opportunities for a wide range of bird species (as per **Section 5.0**).

Furthermore, the mixed scrub within the larger of the two BNG buffer areas will be bordered by a species-rich native hedgerow (see H20 in the associated Post-Development Layout). This hedgerow will include thorny native species which will discourage access into the adjacent mixed scrub from domestic cats, thus minimising predation of nesting birds utilising this area.

3.6.3 Enhancement Bird Bricks / Boxes

Habitat creation and management on site as mentioned above (also see **Section 5.0**) will compensate and increase opportunities for birds within the site. As a general enhancement, each of the new dwellings on site will have at least 1 No swift brick incorporated into the building. The 'CJ Wildlife Swift maxi nesting box' (**Fig 15**) with entrance via a CJ Wildlife 'Cambridge Swift full-face brick' (The Cambridge System is a concept comprising an entrance piece and a nest box embedded in the cavity and inner leaf. It is particularly suited to gable ends at roof-space level). If this model is not suitable for the building specifications, an alternative swift box with internal floor space exceeding 400cm squared must be used. A list of swift boxes can be found on the RSPB website via the following link (https://www.rspb.org.uk/globalassets/downloads/about-swifts/swift-bricks.pdf) however it is worth noting that some of these do not have an internal floor space exceeding 400cm squared and are therefore not considered appropriate.

Figure 15. A schematic of how the Cambridge full face Swift brick leads into a cavity created by the prior installation of the Swift maxi nesting box.



Further to this, as per the *EMMP* (WYG Ltd., 2019) at least 5 No dwellings will incorporate a Sparrow terrace (with a 32 mm hole). The sparrow terrace boxes will be installed as close to the eaves as possible. The Sparrow terrace boxes can either by erected externally on the eaves of the building or can be integrated into the brick work. These will be located away from direct lighting, windows and prevailing winds.

Finally, it is proposed that there is the erection of nest boxes in trees that will provide compensation for the loss of trees, scrub and sections of hedgerow on site. Using nest boxes of varying designs would maximise the species complement attracted to the site, and where

possible these could be tailored to provide opportunities for red listed/BAP species known from the local area. As per the *EMMP* (WYG Ltd., 2019) This will comprise of:

- 5 No Schwegler 3S Starling Nest Boxes
- 10 No Open Fronted Nest Boxes

(***NB is there are issues obtaining these boxes, alternatives can be used if first agreed with the ecologist***). The indicative location of these habitat features are shown in the Plan attached in **Appendix A.**

3.7 Hedgehogs

The garden fences within the site will also ensure at least 2 gaps are present within the gravel boards / bases of each fence line to allow for movement of Hedgehogs between gardens and into the wider area. The gaps should be at least 15 cm high by 15 cm wide with permeability for small mammals.

Small signage could be installed at these points to ensure they remain open upon completion of the development. The People's Trust for Endangered Species provide such signage, the purchase of which also supports conservation efforts (**Fig 16**).

Figure 16. Example of Hedgehog Highway signage to be placed above fence gaps provided to allow movements between gardens (PTES, 2019).

3.8 Invertebrate Enhancement

To increase opportunities for invertebrates within the site, each of the dwellings will incorporate 1 No insect brick (at least 320 No) (**Fig 17**). These will be located adjacent to retained / planted vegetation wherever possible to increase the likelihood of them being used. The brick can be used in place of a standard brick and provides cavities for solitary bee species such as Red Mason bees (*Osmia bicornis*) or Leafcutter bees (*Megachile* sp.), both non-aggressive native species. The bricks should be placed in a sunny location at a minimum height

of 1m. It is highly recommended the brick is placed in a location where landscaping will include nearby pollinator-friendly plants.

In addition, further enhancements for invertebrates will be included within the scheme through habitat creation and management, as described further in **Section 5.0**.

Figure 17. Bee Bricks (NHBS)

3.9 Designated sites

3.9.1 Thursley, Ash, Pirbright and Chobham SAC (Wealden Heath SPA Phase I)
The site is located beyond 400 m but within 5 km buffer for Wealden Heath SPA Phase I. As assessed by WYG Ltd (2019), it was considered that:

> "*Based on the consultation response from Natural England, there is considered to be only one European designated site that should be screened into this report. This is the Thames Basin Heaths SPA and is primarily based on the Regional Spatial Strategy for the South East of England (Policy NRM6) (Waverly Borough Council, 2016)."*
>
> *"There are not considered to be any potential pathways to LSE identified for the two additional European sites within 5 km."* (Thursley, Hankley and Frensham Commons SPA (part of the Wealden Heaths SPA) and Thursley, Ash, Pirbright and Chobham SAC.)"

3.9.2 Thames Basin Heaths SPA
The site is located within the recreational zone of influence 5 km buffer for Thames Basin Heaths SPA. The proposals involve the development of up to 320 residential units and therefore will result in possible increased visitor pressure to the SPA's. Therefore, there will be ***an adverse impact to features of international value***.

No SANG is being provided with this scheme, and as such, the mitigation provided will be in line with that outlined by Waverley Borough Council (secured via a s106) with the payment schedule will be outlined in that agreement, as per the avoidance strategy.

4.0 BIODIVERSITY NET GAIN (BNG) ASSESSMENT

4.1 Methodology

The methodology for the assessment follows the Natural England Biodiversity Metric 2.0 habitat condition assessment protocols and uses the Biodiversity Metric 2.0 calculation tool to calculate biodiversity losses and gains (Natural England, 2019). ***NB Biodiversity Metric 2.0 is an archived version and has since been superseded. However, it is a requirement of condition 18 of the granted outline permission to use this metric for the updated assessment, as below:***

> "*The application of the **DEFRA Biodiversity Metric V2.0** to the proposed development site and to design and provide ecological net gain enhancements are designed in accordance with the findings if the Net Gain Metric*."

4.1.1 Habitat Assessment

Habitats on site pre-development were identified in accordance with the categories specified for a UK Habitats survey, using Habitat Definitions Version 2.0 (UKHab Ltd., 2023) (**Section 2.2**). This was chosen as an appropriate habitat categorisation system as it fits within the Biodiversity Metric 2.0 calculation.

A condition assessment, in line with the Biodiversity Metric 2.0 Technical Supplement, was carried out on the site on 30th November 2023. The area of identified habitats is calculated in hectares (ha), ignoring linear features or ditches (the area is measured to the centre line of such features). The length of linear features is measured separately in kilometres (km). The dominant habitat type was selected, according to those defined by UKHab Ltd (2023). Where there was disparity between the UK classification for habitat type and those present within the Biodiversity Metric 2.0 calculator tool, the most appropriate habitat type was chosen and any justifications included within the User Comments of the metric calculator.

4.1.2 Habitat Distinctiveness

Each habitat was assigned a score for
distinctiveness, according to the Biodiversity Metric 2.0 calculator tool and Technical Supplement (Natural England, 2019). This ranged from Poor - High for most habitats, or Not Applicable (e.g., Developed Land – Sealed Surface). Using the tool, habitats were assigned a score based on their distinctiveness.

4.1.3 Habitat Connectivity

Each habitat was assigned an ecological connectivity based on the distinctiveness of that habitat, as per the User Guide:

> "*In the beta version of the metric, low distinctiveness habitats should be afforded a connectivity score of 'low' and high and very high distinctiveness habitats afforded a connectivity score of 'medium'*" (Natural England, 2019).

4.1.4 Habitat Condition

The condition of each habitat was assessed following criteria set out in the Biodiversity Metric 2.0 Technical Supplement (Natural England, 2019), which includes detailed assessment criteria for different habitats. Project Ecologist Madison Errington BSc (Hons) ACIEEM undertook the survey on the 30th November 2023, to undertake a condition assessment of the habitats present on site. Full results of the condition assessments can be found within the metric calculator, with an overview of the baseline habitat conditions in **Section 4.2.1** below. The condition of each habitat was assessed individually on-site.

4.2 Results

4.2.1 Baseline Condition Assessment

The following tables provide details as to the condition assessment undertaken of the non-linear (**Table 5**) and linear (**Table 6**) habitats on site with reference to the Biodiversity Metric 2.0 Technical Supplement (Natural England, 2019).

Table 5. Existing non-linear habitats present on site including details as to their condition and the condition assessment criteria that have been met / failed as per the Biodiversity Metric 2.0 Technical Supplement (Natural England, 2019).

Habitat Type	Area (ha)	Condition	Condition Assessment Notes	Parcel Reference - Location Notes
Modified Grassland	2.997	Moderate	A good example of Modified Grassland with species typical of this habitat type (e.g.Cock's Foot, Crested Dog's Tail, White Clover) prevalent within the sward while Rye-Grass cover remains below 25%. There is an absence of bracken, scrub and bare ground however cover of Thistle spp. exceeds 5% and cover of forbs was not consistently high across the field. Specifically, Criteria 1, 2, 5 and 6 were met.	G1 – Modified grassland present within the north-eastern field on site.
Modified Grassland	8.178	Poor	Grazed Modified Grassland with cover of bare ground exceeding 10% as a result of poaching and high densities of undesirable species such as Thistle spp. and White Clover. Sward dominated by a few fast-growing grasses (e.g. Perennial Rye Grass, Cock's Foot) typical of agricultural grassland with very low density of forbs. Specifically, only Criterion 6 was met.	G2-G6 – Modified grassland present throughout the remaining fields on site.
Bramble Scrub	0.054	Poor	Scrub dominated by young Bramble (exceeds 75% cover) with cover of Creeping Thistle exceeding 5% and an absence of clearings or glades or adjacent unmanaged grassland. Specifically, only Criterion 4 was met.	BS1 and BS2 – Bramble scrub located along the boundary of the north-western field on site.

Blackthorn Scrub	0.175	Poor	Scrub dominated by young Blackthorn (exceeds 75% cover) with cover of Creeping Thistle exceeding 5% and an absence of clearings or glades or adjacent unmanaged grassland. Specifically, only Criterion 4 was met.	BTS1 and BTS2 – Blackthorn scrub located along the boundary of the north-eastern field on site.
Bare Ground	0.349	Poor	Bare ground resulting from extensive poaching with no vegetation growing and no establishment of pools or loose substrate. Specifically, all Criteria have been failed.	BG1 and BG2 – Bare ground located in the south-eastern field on site.
Artificial Unvegetated; Unsealed Surface	0.057	N/A - Other	-	Dirt and gravel track located centrally on site.
Developed Land; Sealed Surface	0.286	N/A - Other	-	Developed land present in the south-western corner of the site as well as along West Street at the south of the site.

Table 6. Existing linear habitats present on site including details as to their condition and the condition assessment criteria that have been met / failed as per the Biodiversity Metric 2.0 Technical Supplement (Natural England, 2019).

Habitat Type	Length (km)	Condition	Condition Assessment Notes	Parcel Reference - Location Notes
Native Hedgerow with Trees – Associated with Bank / Ditch	0.337	Good	A native hedgerow with trees of sufficient height and width, with little to no gap along its base and sufficient undisturbed ground along its eastern side. The hedgerow was free from invasive species and damage however undesirable species such as Thistle spp. were prevalent along the base of the hedge and gaps made up more than 10% of its length. Specifically, Criteria A1, A2, B1, C1, D1 and D2 were met.	H1 – Native hedgerow with trees running north to south down the centre of the site in association with a dry ditch.
Native Hedgerow	0.366	Good	Native hedgerows of sufficient height and width, with little to no gap along its base or within the canopy and sufficient undisturbed ground on one side. The hedgerows were free from invasive species and damage however undesirable species such as Thistle spp. were prevalent along the base of the hedges. Specifically, Criteria A1, A2, B1, B2, C1, D1 and D2 were met.	H2 & H3 – Native hedgerows present dissecting the northern and southern fields as well as lining the south-western corner of the BNG buffer.
Hedge Ornamental Non-Native	0.041	Moderate	Leylandii hedgerows which had somewhat grown out in places with significant gaps along the base of the hedges. Developed land was present on both sides of the hedges with high cover of undesirable species. Nevertheless, the hedgerows were of sufficient height and width with minimal horizontal gappiness, no invasive species and no current damage. Specifically, Criteria A1, A2, B2, D1 and D2 were met.	H4 & H5 – Leylandii hedgerows present within and adjacent to the developed land I the south-western corner of the site.

Native Hedgerow	0.218	Good	Native hedgerows of sufficient height and width, with little to no gaps along their bases and sufficient undisturbed ground on one side. The hedgerows were free from invasive species and damage, however undesirable species such as Thistle spp. were prevalent along the base of the hedges and horizontal gappiness exceeded 10%. Specifically, Criteria A1, A2, B1, C1, D1 and D2 were met.	H6 & H7 – Native hedgerows present along the southern boundary of the site lining the road.

4.2.2 On Site Proposals

Following consultation with Cala Homes, in order to minimise the loss of biodiversity on site, the following habitats are being retained, enhanced and created (please refer to **Appendix C** for information on the locations of these habitats). Tables have been provided as appropriate to indicate the targeted condition for each of the habitat types and which criteria will need to be met in order to achieve the desired condition.

Section 5.0 details the proposed planting and ongoing management required to ensure the stated condition criteria are met for each habitat type. A detailed landscape strategy (including planting and management specifications) has not been prepared at this stage however the recommendations within this report have been prepared in conjunction with Green Landscape Studio.

NB. Should planting and management prescriptions need altering slightly when drawing up the detailed landscape strategy, this will first be approved by an ecologist to ensure the recommendations are in line with the Biodiversity Net Gain Assessment.

4.2.2.1 Non-Linear Habitats

Table 7 indicates those habitats due to be retained, enhanced and created on site with details provided, where appropriate, as to how the necessary condition criteria will be met.

Table 7. Non-linear habitats to be retained, enhanced and created on site including details as to the condition assessment criteria that must be met in order to achieve the targeted condition (the necessary planting and management required to achieve the stated condition criteria is detailed in **Section 5.0**).

Habitat Type	Action	Area (ha)	Target Condition	Condition Assessment Notes	Parcel Reference - Location Notes
Modified Grassland	Retained	0.024	To be retained in current poor condition.	To be retained in current poor condition.	G14 – Located along the eastern boundary of the site.
Blackthorn Scrub	Retained	0.03	To be retained in current poor condition.	To be retained in current poor condition.	BTS1 & BTS2 – Located along the eastern boundary of the site.
Modified Grassland	Enhanced	0.2	Good (Other Neutral Grassland)	The existing modified grassland will be enhanced to good condition other neutral grassland in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, all criteria will be targeted for achievement with wildflower and sedge density targeted to be 30% or above and appropriate management to prevent indicators of poor condition.	G10, G15 & G17 – Located throughout POS areas and around SUDs features on site.

Modified Grassland	Enhanced	0.204	Moderate (Other Neutral Grassland)	The existing modified grassland will be enhanced to moderate condition other neutral grassland in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, Criteria 1, 2, 5 & 6 will be targeted for achievement with an appropriate seed mix sown and appropriate management implemented to reduce bare ground bracken and scrub cover.	G9 – Located within the central POS area around the SUDS features.
Bramble Scrub	Enhanced	0.009	Moderate (Mixed Scrub)	The existing bramble scrub will be enhanced to moderate condition mixed scrub in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, Criteria 2, 3 and 5 will be targeted for achievement with a variety of species and ages encouraged and undesirable species cover managed to remain below 20%.	MS1 – Located in the north-western corner of the site.
Modified Grassland	Created	0.429	Poor	Modified grassland of poor condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, management will aim to limit bare ground, bracken and scrub cover as far as is practically possible however only Criterion 6 will be targeted for achievement.	G13 & Various Unnamed – Located along the northern and eastern boundaries of the site and in small pockets across the site.
Other Neutral Grassland	Created	0.879	Good	Other neutral grassland of good condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, all criteria will be targeted for achievement with wildflower and sedge density targeted to be 30% or above and appropriate management to prevent indicators of poor condition.	G7 & G18 – Located within the western POS and at the southern tip of SUDS4.

Other Neutral Grassland	Created	0.104	Moderate	Other neutral grassland of moderate condition to be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, Criteria 1, 2, 5 & 6 will be targeted for achievement with an appropriate seed mix sown and appropriate management implemented to reduce bare ground bracken and scrub cover.	G20 – Located in the south-western corner of the site.
Other Neutral Grassland	Created	0.276	Poor	Other neutral grassland of poor condition to be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). These areas will be seeded with an appropriate seed mix however they are expected to be regularly mown and used as footpaths / recreational areas and therefore only Criterion 6 will be targeted for achievement. Appropriate management will be in place to remove encroaching bracken and scrub.	G8, G11, G16 & G19 – Located in various pockets throughout the site forming paths, recreational spaces and verges.
Mixed Scrub	Created	0.458	Moderate	Mixed scrub of moderate condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, Criteria 2, 3 and 5 will be targeted for achievement with a variety of species and ages encouraged and undesirable species cover managed to remain below 20%.	MS2-MS17, MS20-MS26 – Various pockets throughout the POS areas on site.
Mixed Scrub	Created	0.562	Good	Mixed scrub of good condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, all criteria will be targeted for achievement with appropriate management employed to maintain a variety of species and ages and encourage glades. Tall herbs will also be maintained along the edges of the scrub with undesirable species cover managed to remain below 5%.	MS18 & MS19 – Two large expanses of scrub within the BNG buffer areas.

Other Neutral Grassland (SUDS)	Created	0.243	Good	Other neutral grassland of good condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, all criteria will be targeted for achievement with wildflower and sedge density targeted to be 30% or above and appropriate management to prevent indicators of poor condition. As these areas lie within SUDS features, they will be seeded with an appropriate wetland wildflower mix including species typical of other neutral grassland.	SUDS1-SUDS5 – Located in various pockets throughout the POS areas on site.
Sustainable Urban Drainage Feature	Created	0.019	Poor	Sustainable urban drainage features of poor condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). As these features will comprise of the SUDS ponds which are set to hold permanent water as well as appropriate aquatic and marginal vegetation, no criteria will specifically be targeted for achievement.	P1 – A single SUDS ponds located in the central POS area.
Reedbeds	Created	0.011	Moderate	Reedbeds of moderate condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, Criteria 3, 4, 5, 6 and 9 will be targeted for achievement with management implemented to reduce cover of undesirable species, scrub, bare ground and dead vegetation. At least 60% common reed cover will be maintained.	R1-R5 – Five reedbeds located throughout the central SUDs area on site.

Introduced Shrub	Created	0.096	Poor	Introduced shrub will be created however no official condition assessment is required for this habitat type in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019) and instead it is automatically allocated a score of poor.	Various Unnamed – Introduced shrub in small pockets across the site.
Other Woodland; Broadleaved	Created	0.277	Moderate	Woodland of moderate condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, Criteria 1, 2, 3, 5, 8, 9, 10 & 12 will be targeted for achievement with native species planting, removal invasives and appropriate management (including rotational coppicing and thinning) to encourage regeneration and maintain a variety of ages and structures.	W1 & W2 – Located in the BNG buffer zones.
Street Tree	Created	0.1194	Moderate	264 No. street trees will be created however no official condition assessment is required for this habitat type in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019) and instead it is automatically allocated a score of moderate.	N/A – Located throughout the site.
Vegetated Garden	Created	2.565	N/A – Other	No condition assessment required as per Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019).	N/A – Located throughout the site (gardens around new dwellings).

Artificial Unvegetated; Unsealed Surface	Created	0.055	N/A – Other	No condition assessment required as per Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019).	N/A – Forming the play area on site.
Developed Land; Sealed Surface	Created	5.66	N/A – Other	No condition assessment required as per Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019).	N/A – Located throughout the site (roads, buildings, driveways etc.).

4.2.2.2 Linear Habitats

Table 8 indicates those habitats due to be retained, enhanced and created on site with details provided, where appropriate, as to how the necessary condition criteria will be met.

Table 8. Linear habitats to be retained, enhanced and created on site including details as to the condition assessment criteria that must be met in order to achieve the targeted condition (the necessary planting and management required to achieve the stated condition criteria is detailed in **Section 5.0**).

Habitat Type	Action	Length (km)	Target Condition	Condition Assessment Notes	Parcel Reference - Location Notes
Native Hedgerow with Trees – Associated with Ditch	Retained	0.261	To be retained in current good condition.	To be retained in current good condition.	H1 – Running north to south down the centre of the site.
Native Hedgerow	Retained	0.36	To be retained in current good condition.	To be retained in current good condition.	H2, H3 & H6 – Running west to east across the centre of the site, in the south-western corner and along the southern boundary respectively.
Native Hedgerow	Created	0.215	Moderate.	Native hedgerows of moderate condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, Criteria A2, B1, B2, D1 and D2 will be targeted for achievement with management implemented to maintain sufficient width and minimize horizontal and vertical gaps. Invasive species will be removed as needed and hedgerows will be free of damaging management activities.	H8-H9, H13-H17 – Located throughout the site as per associated Post-Development Layout.

Hedge Ornamental Non-Native	Created	0.033	Moderate.	Non-native hedgerows of moderate condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, Criteria A2, B1, B2, D1 and D2 will be targeted for achievement with management implemented to maintain sufficient width and minimize horizontal and vertical gaps. Invasive species will be removed as needed and hedgerows will be free of damaging management activities.	H12, H18-H19 - Located throughout the site as per associated Post-Development Layout.
Native Species Rich Hedgerow with Trees	Created	0.403	Good.	Native hedgerow of good condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, Criteria A1, A2, B1, B2, C1, D1 and D2 will be targeted for achievement with management implemented to maintain sufficient width and height and minimize horizontal and vertical gaps. Invasive species will be removed as needed and hedgerows will be free of damaging management activities with at least 1m of undisturbed ground maintained adjacent to the hedge. At least 5 native woody species will be included.	H20 – Running along the western boundary of the main site adjacent to the BNG buffer.
Native Species Rich Hedgerow – Associated with bank or ditch	Created	0.079	Good.	Native hedgerow of good condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, Criteria A1, A2, B1, B2, C1, D1 and D2 will be targeted for achievement with management implemented to maintain sufficient width and height and minimize horizontal and vertical gaps. Invasive species will be removed as needed and hedgerows will be free of damaging management activities with at least 1m of undisturbed ground maintained adjacent to the hedge. At least 5 native woody species will be included.	H21 – Running along the bank of one of the southern SUDS features.

Native Species Rich Hedgerow	Created	0.078	Moderate.	Native hedgerow of moderate condition will be created in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, Criteria A2, B1, B2, D1 and D2 will be targeted for achievement with management implemented to maintain sufficient width and minimize horizontal and vertical gaps. Invasive species will be removed as needed and hedgerows will be free of damaging management activities. At least 5 native woody species will be included.	H22 – Connecting to H21.

4.2.3 Metric Calculations

Following the incorporation of the above measures into the Defra 2.0 metric, ***on site (including the BNG buffers) there is a net gain of +15.06% in hedgerows (or +1.14 hedgerow units)*** and ***a net loss of -6.85% in habitats (-2.05 habitat units)*** (see **Fig 18** below).

Figure 18. Screenshot of the 'headline results' output from the BNG assessment undertaken for the site using the Defra 2.0 metric.

Total net unit change (including all on-site & off-site habitat retention/creation)	*Habitat units*	-2.05
	Hedgerow units	1.14
	River units	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	*Habitat units*	-6.85%
	Hedgerow units	15.06%
	River units	0.00%

4.2.4 Off-Setting

Despite steps being taken to deliver BNG units on site (i.e. within the development boundary and BNG buffer areas as detailed in **Fig 1**), it has not been possible to achieve the necessary 10% net gain in habitat units or satisfy habitat trading rules within the constraints of the site. Therefore, a total of 0.95ha of Modified Grassland of Poor condition will be enhanced to Other Neutral Grassland of Good condition (**Table 9**) within land to the south of the development site which falls under the same land ownership (**Fig 20**). This will be secured via a conservation covenant or similar with management and monitoring carried out for a period of 30 years as per **Section 5.0.**

Following incorporation of the above off-site compensation into the Defra 2.0 Metric, ***there will be an overall net gain of +11.73% in habitats (or +3.52 habitat units)*** (**Fig 19**)**.**

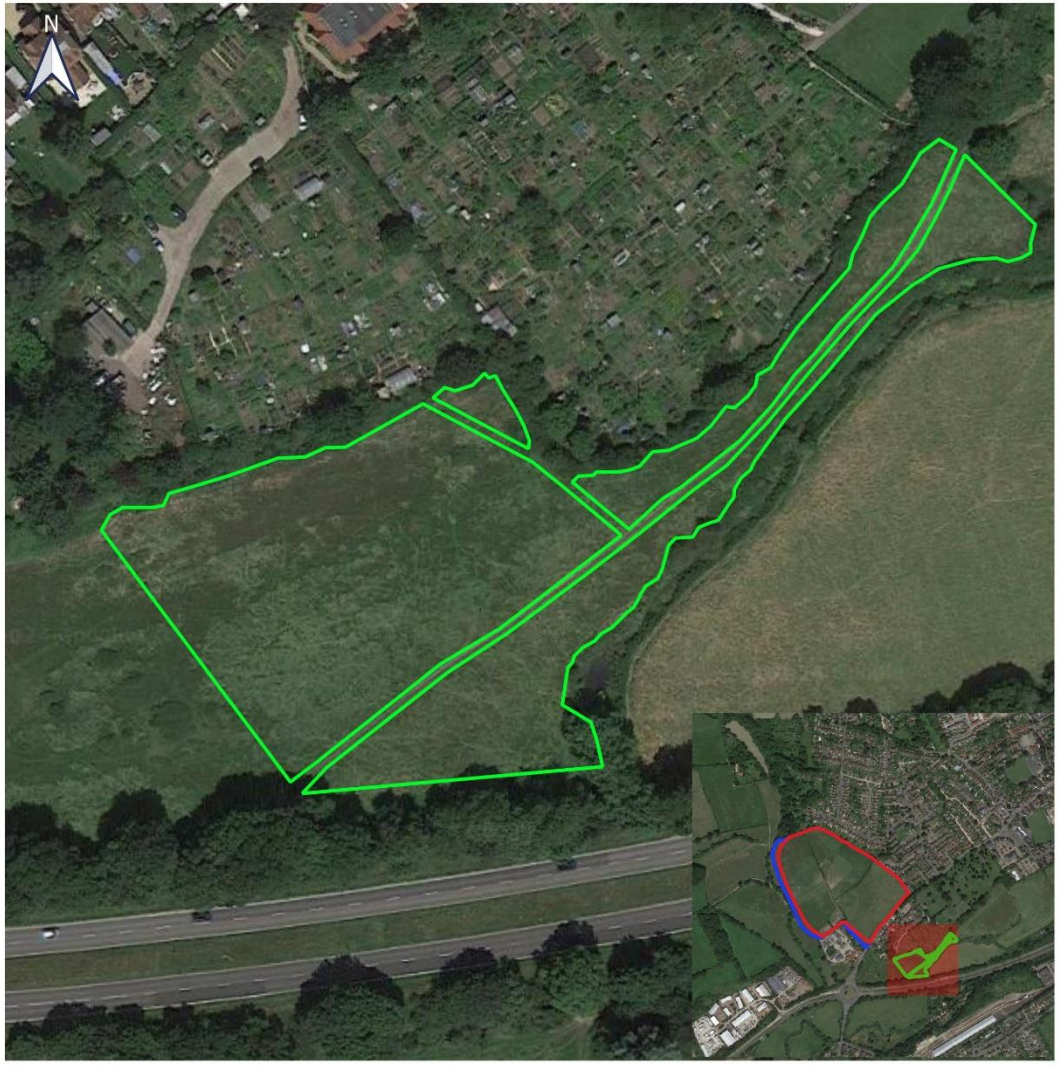
Figure 19. Screenshot of the 'headline results' output following incorporation of off-site measures.

Total net unit change (including all on-site & off-site habitat retention/creation)	*Habitat units*	3.52
	Hedgerow units	1.14
	River units	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	*Habitat units*	11.73%
	Hedgerow units	15.06%
	River units	0.00%

Table 9. Habitats to be enhanced off site including details as to the condition assessment criteria that must be met in order to achieve the targeted condition (the necessary planting and management required to achieve the stated condition criteria is detailed in **Section 5.0**).

Habitat Type	Action	Area (ha)	Target Condition	Condition Assessment Notes	Location Notes
Modified Grassland	Enhanced	0.95	Good (Other Neutral Grassland)	The existing modified grassland will be enhanced to good condition other neutral grassland in line with Biodiversity Metric 2.0 – Technical Supplement (Natural England, 2019). Specifically, all criteria will be targeted for achievement with wildflower and sedge density targeted to be 30% or above and appropriate management to prevent indicators of poor condition.	The grassland to be enhanced lies in the land to the south of the development site which forms part of the same land ownership.

Figure 20. Approximate location of the 0.95ha of land to the south of the development site to be used for off-site BNG compensation (Google Satellite, 2023).



Legend

Extent of off site grassland required for BNG (0.95 ha)

ecosupport
K4 Keppel, Daedalus Park
Daedalus Drive
Lee on the Solent, PO13 9FX
E: info@ecosupport.co.uk
T: 01329 832 841

Map	Off Site Land
Site	Land North of Coxbridge Farm, Farnham
Client	Cala Homes
Date	12/03/2024

5.0 HABITAT CREATION, ENHANCEMENT & MANAGEMENT

5.1 Introduction

As part of the proposed development and as described in **Section 4.0** above, extensive areas of habitat on site will be retained, enhanced, created and managed with the locations of these habitats indicated in the associated 'Post-Development Layout'. This section includes details on how habitat enhancement and creation works will be carried out, and how such habitats will be managed and monitored for long-term biodiversity improvement.

5.2 Protection of Retained Habitats

All of the habitats to be retained or enhanced will be protected from damage during the works and will be fenced using Heras fencing or similar to prevent access by machinery. Where large mature trees are present, they will be protected using standard arboricultural tree protection measures which include protection of the canopy and prevents root compaction (as per **Section 3.1** above).

No vehicles will enter the protective ring fencing and no materials will be stored within their circumference. All protective fencing must be in place prior to any construction machinery arriving on site, before any works on site get underway, and will remain in place until all work is completed. This will minimise the level of disturbance within the retained boundary habitat / buffer areas during the works and ensure the habitats and any wildlife species that may be using them are protected.

5.3 Other Neutral Grassland

5.3.1 Proposed Planting

Several areas of other neutral grassland are proposed to be enhanced from modified grassland or newly created (Parcel References: G10, G15, G17, G9, G7, G18, G20) ***including the off-site areas to the south of the site*** and the wetland wildflower areas forming part of the SUDS features on site (Parcel References: SUDS1-SUDS5). These grassland areas will be established through the sowing of a wildflower mixture such as Emorsgate EM4 – Meadow Mixture for Clay Soils, EM5F Wild Flowers for Loamy Soils or Emorsgate EM8 – Meadow Mixture for Wetlands (for the SUDS areas) and the below detailed methods will be followed.

These seed mixtures include species such as Common Knapweed (*Centaurea nigra*), Birdsfoot Trefoil (*Lotus corniculatus*), Ribwort Plantain (*Plantago lanceolata*), Cowslip (*Primula veris*), Meadow Buttercup (*Ranunculus acris*), Tufted Vetch (*Vicia cracca*), Common Bent (*Agrostis capillaris*), Crested Dogstail (*Cynosurus cristatus*) and White Clover (*Trifolium repens*). Recommended species planting of grass species for this habitat may also include Rye grasses (*Lolium* spp.,), Timothy (*Phleum pratense*), Yorkshire-fog (*Holcus lanatus*), and Cock's-foot (*Dactylis glomerata*). Grass cover is usually over 75% for this habitat type. Broadleaved species may include Dandelion (*Taraxacum officinale*), Creeping Buttercup (*Ranunculus repens*) and Greater Plantain (*Plantago major*). Recommended species planting of grass species for this habitat type may also include Perennial Rye-grass (*Lolium perenne*), Common Bent (*Agrostis capillaris*), False Oat-grass (*Arrhenatherum elatius*), Yorkshire-fog (*Holcus lanatus*), Rough

Meadow-grass (*Poa trivialis*) and Cock's-foot (*Dactylis glomerata*). Herb planting may include Yarrow (Achillea millefolium), Ribwort Plantain (*Plantago lanceolata*), Red Clover (*Trifolium pratense*), Common Knapweed (*Centaurea nigra*), Bird's-foot Trefoil (*Lotus corniculatus*), Common Mouse-ear (*Cerastium fontanum*), Meadow Buttercup (*Ranunculus acris*), Self-heal (*Prunella vulgaris*) and Creeping Thistle (*Cirsium arvense*).

NB. Should alternative seed mixes be proposed, these will first be approved by an ecologist to ensure it is in line with the targeted habitat type and condition.

The sowing of these seeds will be completed either during the spring or the autumn or spring when the temperatures are warm, and the ground is dry. The seed must be surface sown at an even distribution throughout the entire landscaped area.

5.3.2 Management

5.3.2.1 Good Condition Grassland

Wildflower areas do not require any additional watering or fertilizer. Cutting a meadow and removing the clippings retains low nutrient levels in the soil and suppresses coarse grasses which would otherwise out-compete the wildflowers. It is recommended the wildflower grassland undergoes two annual cuts. The growth should be cut back to a height of 50-75mm. The cut grass should be dried on site. Cuttings should be left in situ for approximately one week, after this the arisings are to be removed from site.

First year management: Perennial species take at least a full year to establish. For newly sown areas the first summer will be dominated by annual weeds arising from the soil seed bank and by grass growth. This should be controlled by mowing throughout the first year to minimise competition and weed seed production.

Management Once Established: During the second year it is recommended that the grassland left to flower and will be cut in mid-summer. However, if a retained buffer area is established, this should not be cut in May or early June due to nesting birds. Mowing in mid-June brings a premature end to the flowers and can compromise nesting birds, which do not fledge until late July, insects and other wildlife. If some mowing has to take place at this time, sections should be cut at different dates to prolong the overall flowering season and give wildlife a chance to move. The second annual cut should be undertaken during late Autumn.

Grassland which is consistently cut late in the season, in August and September, year on year reduces species diversity as late cutting gives more time for coarse grasses and other dominant plants to grow unchecked. To maintain maximum diversity and flowering interest the buffer should be managed in sections at different times from late June to the end of August. Varying the mowing times from year to year is the best way to maintain a diverse balanced sward.

Targeted scrub, bracken and invasive plant removal should also be carried out throughout the modified grassland parcels as needed to prevent encroachment into the grassland.

NB. The above management also applies to the off-site land to the south of the site.

5.3.2.2 Moderate Condition Grassland

The moderate condition Other Neutral Grassland comprises slightly smaller areas that are likely to experience low levels of access. Therefore, the grassland will largely be managed as detailed in **Section 5.3.2.1** above, however more regular mowing will be permitted as and when needed provided that mowing is relaxed from late June for 4-8 weeks to allow flowering of herbaceous species.

5.3.2.3 Poor Condition Grassland

The areas of poor condition Other Neutral Grassland are limited to small verge areas and mown paths. Therefore, the grassland will largely be managed as detailed in **Section 5.3.2.1** above, however high levels of access and more regular mowing are expected with mowing anticipated to take place every 3-4 weeks.

5.4 Modified grassland

5.4.1 Proposed Planting

Several areas of modified grassland are proposed to be created across the site (Parcel References: G13 and various unnamed verge areas). These grassland areas will be created through sowing of Emorsgate EL1 – Flowering Lawn Mixture. This seed mixture includes but is not limited to Common Knapweed *(Centaurea nigra*), Birdsfoot Trefoil *(Lotus corniculatus*), Ribwort Plantain *(Plantago lanceolata*), Cowslip *(Primula veris*), Meadow Buttercup *(Ranunculus acris*), Tufted Vetch *(Vicia cracca*), Common Bent *(Agrostis capillaris*), Crested Dogstail *(Cynosurus cristatus*) and White Clover *(Trifolium repens*). The sowing of these seeds will be completed either during the spring or the autumn when the temperatures are warm, and the ground is dry. The seed must be surface sown at an even distribution throughout the entire landscaped area.

5.4.2 Management

During the first year the landscaped areas must be regularly maintained to a height of 40-60mm every 3-4 weeks during the growing season to prevent the establishment of weeds. All arisings must be taken from site to prevent the addition of too many nutrients into the soil. If necessary, glyphosate-based weed killer can be used to spot treat any areas with dense patches of Nettles or Bramble.

Once the seed is established after the first year, a management regime will be adopted to allow the flowering of herbaceous species to provide maximum benefit to local wildlife. Mowing is to be relaxed from late June for 4 – 8 weeks. However, regular mowing is expected within this habitat area which will cause sward height structure to vary throughout the management periods, cutting no lower than 25-40mm. All arisings should be collected and moved from the site.

5.5 Mixed Scrub

5.5.1 Proposed Planting

Various areas of mixed scrub are due to be enhanced and created (Parcel References: MS1-MS26). These will need to be planted with at least 3 native scrub species. Recommended species include Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Holly (*Ilex aquifolium*), Hazel (*Corylus avellana*), Alder Buckthorn (*Frangula alnus*), Elder (*Sambucus nigra*), and climbers such as, Dog Rose (*Rosa canina*) or Guelder Rose (*Viburnum opulus*).

The scrub planting will be at a density of 1 per square metre. The best time to plant is late autumn and it is recommended to avoid freezing temperatures or heat. The scrub plants will be planted with large spacing to avoid creating dense clusters. The scrub will become denser and more connected as it grows up.

5.5.2 Management

5.5.2.1 General Management

Following establishment, scrub will require minimal ongoing management however the following measures can be employed as necessary:

- New scrub will be weeded following first planting and watered whenever necessary during the first growing season.
- Scrub will be cut back annually as needed to ensure the area does not become overgrown and thinned every five years. Different areas of scrub will be cut back / thinned on rotation in order to ensure a diverse age range (seedlings, sapling, young shrubs and mature shrubs) and dense structure persists.
- Any existing or later establishing Bramble will be reduced in density and will be maintained at approximately 15% density within the scrub patches.
- Removal of invasive and undesirable species will be undertaken as necessary if any are to establish on site.
- Ongoing management will be undertaken to prevent successional scrub developing within the adjacent grassland areas.
- Management must take into account the requirement for maintaining habitat connectivity across the site. Should any such vegetation die or its density become sparse, additional planting will be undertaken, replacing like-for-like.

All management of trees and scrub will be undertaken outside of the bird nesting season, which spans February – August inclusive.

5.5.2.2 Good Condition Scrub

Those areas of Mixed Scrub targeted to be of good condition will be managed as above with the addition of the following measures:

- Gaps will be left within the planting to encourage formation of open glades and clearings within the scrub and any later establishment of scrub in these clearings will be cut back annually as needed.

- Grassland areas surrounding the scrub and within clearings and glades will be managed as per recommendations in **Section 5.3.2.1** in order to maintain tall herb presence along the edges of the scrub.

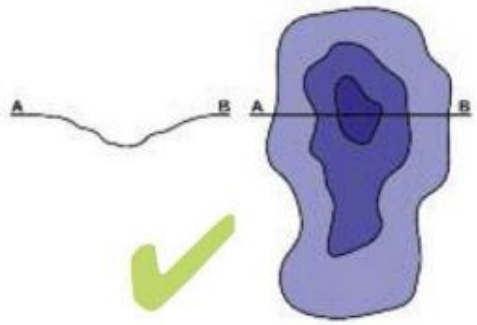
5.6 SUDs

The SUDs features on site are targeted to be of poor condition and therefore no specific criteria are targeted for achievement in relation to Biodiversity Net Gain. Nevertheless, the below sections detail how these features will be managed to maximise their ecological value.

5.6.1 Considerations for Construction

Ideally the margins of the SUDs should be shallow. The best ecologically valuable ponds have 'gentle shelving edges'. Therefore, whilst excavating the SUDs it will be ensured that the shelving areas of the SUDs have sloping edges to ensure there is a shallow water environment at less than 1:5 (12°) and preferably less than 1:20 (3°) (Freshwater Habitats Trust, 2013) (**Fig 21**). The depth will vary across the SUDs and the pond itself may be have steeper banks of 1:3 or 1:4. Creating shelves is one option for obtaining different depths. The drainage assessment that will be conducted by Abley Letchford Partnership will determine the size and depth of the SUDs dependent on factors such as the catchment areas and rainfall events.

Figure 21. Design of SUDs showing varying depths at a gently sloping level (Freshwater Habitats 2013)



5.6.2 Proposed Planting

The SUDS will be designed to hold some water all year round and, if possible, planted with a variety of native species surrounding the pond through the sowing of Emorsgate EP1 - Pond Edge Mixture (*or similar as approved by an ecologist*).

5.6.3 Management

In the early years, blanket weed could cover ponds. This should be pulled out carefully. Once the pond has settled blanket weed will usually be kept in check by pond animals. Any plant that starts to dominate should be thinned out. Only one third of a pond should be cleared per year.

Once cleared, plants or debris should be left along the edge for a few days to allow any trapped wildlife to return to the water.

Frog (*Rana temporaria*) spawning is usually the first to take place within freshwater habitats, starting as early as January. From February adult Newts emerge from hibernation and make their way to aquatic habitat where they then breed. Common Toads (*Bufo bufo*) also congregate in ponds in early spring, often shortly after Frogs. All three amphibians then lay eggs in early Spring. Common Toads then move away from ponds into terrestrial habitat. In summer metamorphosis takes place.

As a result, the best time for pond management is late October. Tadpoles would have left the pond and adult amphibians have not yet gone into hibernation at this time. Ponds should not be disturbed in mid-winter as this might expose hibernating amphibians to severe cold, for example Newts will be hibernating in damp areas nearby to the pond and Frogs are known to hibernate at the bottom of ponds (Freshwater Habitats Trust, 2015b).

Aquatic vegetation within the ponds will be managed every five years to maintain a ratio of approximately 50:50 plants to open water to provide opportunities for breeding amphibians. In addition, the ponds will be dredged every five years to remove decomposing organic matter and silt, which will help to maintain depth and water quality.

5.7 Reedbeds

As the reedbed areas are relatively small, they will solely be planted with Common Reed (*Phragmites australis*).

Reedbeds will be managed on a 4-year cutting cycle with cutting taking place during the Winter to ensure common reed dominance. Cuttings will be removed from the reedbeds to prevent buildup of dead vegetation (Greater Lincolnshire Nature Partnership, 2018).

Targeted removal of undesirable species, scrub and dead vegetation will also be carried out as required.

5.8 Woodland

5.8.1 Proposed Planting

A variety of native tree and shrub species will be planted throughout the new woodland areas (Parcel References: W1 & W2) with recommended species including:

- Oak (*Quercus robur*)
- Silver Birch (*Betula pendula*)
- Alder (*Alnus glutinosa*)
- Elder (*Sambucus nigra*)
- Hornbeam (*Carpinus betulus*)
- Field Maple (*Acer campestre*)
- Hazel (*Corylus avellana*)
- Holly (*Ilex aquifolium*)
- Hawthorn (*Crataegus monogyna*)
- Blackthorn (*Prunus spinosa*)

- Dogwood (*Cornus sanguinea*)

The best time to plant is late autumn and it is recommended to avoid freezing temperatures or heat. The young trees will be managed as per the recommendations for Urban Trees as set out in **Section 5.9.2** below.

5.8.2 Rotational Coppicing and Selective Thinning

In order to maintain a diverse age range and vertical structure within the woodland as well as encouraging regeneration, both rotational coppicing and selective thinning will be employed as required as part of a long-term management regime.

Rotational Coppicing: All Hazel and any other appropriate species present on site will be managed on a rotational coppicing scheme. This involves cutting young trees down to a low level to promote new growth and prevent over-shading. This will be rotationally implemented, with only a small portion (approximately 30% of the stand) coppiced every 3 years during winter months (November to March), but only once the Hazel has grown to a size that will be beneficial and appropriate. Coppice management is best carried out on a rotation of approximately every 6-10 years for each tree, with timing staggered for plants to ensure there is continued connectivity at any given time. Retain some of the dead wood. Include some larger horizontal trunks and limbs as well as log piles and discarded brash. Leave wood piles in shady areas.

Selective Thinning: While currently, the level of open space within the woodland does necessitate thinning, it may be that in the future thinning would be beneficial in order to maintain an optimal canopy target of 80% cover. This coverage allows greater development of the understorey and will be important for maintaining a shrubby understorey. Once necessary, selective thinning will be carried out on a 4-year rotational basis with a different non-adjacent portion of the woodland thinned each year to maintain a canopy target of 80% cover.

The target trees to be removed are those showing signs of disease or poor growth; The specific target trees and areas of woodland will be determined by the supervising ecologist or arborist. Please note, all mature trees will need to be surveyed for PRFs that may be suitable for roosting bats. If any trees have PRFs, it is recommended they are retained if possible and alternative trees are selected for thinning.

It is considered likely a botanical survey will identify areas of highest botanical value and this will influence the location of thinning. The recommended botanical survey should be undertaken during the optimum survey season during the first year of woodland management to identify areas of botanical interest. It is recommended this is repeated every five years. Where practical to do so, as determined by the arborist, some potential selected trees may be cut at 3-5m height and the stumps will be left in situ to rot as habitat for saprophytic invertebrates.

5.8.3 Invasive Species Removal

Any invasive species, such as Japanese Knotweed (*Fallopia japonica*) Himalayan Balsam (*Impatiens glandulifera*), Rhododendron (*Rhododendron ponticum*), Giant Hogweed (*Heracleum mantegazzianum*), will be removed from the site, as these could have deleterious effects on native species. The removal of such species would open-up ground for restoration for natural re-generation. Invasive species will generally be removed by a combination of cutting back and removal of cut material from the site. This process may need to be repeated over the course of several years.

Contractors will need to be shown the locations of the species and mark these where needed to help avoid native species being removed accidentally. Areas of bare ground created by this work will be left for natural regeneration (described below).

5.8.4 Natural Regeneration

Recommendations may also include that any plants (newly planted or retained) that are removed, die or become seriously damaged or defective during the 30-year monitoring period shall be replaced like for like in the next planting season. If any of the plants fail, they will be replaced like-for-like.

Similarly, scope for tree and shrub species to establish by natural regeneration should be permitted where possible e.g. by creating space for new regeneration around existing specimens of the desired trees and shrub species. Ash regeneration could be an important part of the mix, it should not be cut out or destroyed unless suffering from Ash Dieback, and would benefit from being protected.

5.9 Native Trees

5.9.1 Proposed Tree Planting

The proposed tree planting across site is recommended to include fruit trees to provide a benefit for Insects, Birds, Badgers and a variety of other species. The species mix is recommended to include a variety of species including domestic fruit trees, Wild Cherry (*Prunus avium*), Crab Apple (*Malus sylvestris*), and Hawthorn (*Crataegus monogyna*). Furthermore, the following species can be considered: Holly (*Ilex aquifolium*), Field Maple (*Acer campestre*), Hornbeam (*Carpinus betulus*), Alder (*Alnus glutinosa*), Blackthorn (*Prunus spinosa*), Hazel (*Corylus avellana*), Oak (*Quercus robur*), Crab Apple *(Malus sylvestris*), Dog Wood (*Cornus sanguineal*), Hawthorn (*Crataegus monogyna*) and Elder (*Sambucus nigra*).

Planting will be carried out in the first year. The best time to plant is late autumn and it is recommended to avoid freezing temperatures or heat. Rootgrow or Bonemeal will be applied to the new plants to encourage healthy root growth.

5.9.2 Tree Management

5.9.2.1 Mycorrhizal Treatment

To ensure a successful establishment of the newly planted trees, it is recommended that mycorrhizal treatment to the tree roots is conducted **during the planting**, this would reduce the risk of tree mortality and increase the long-term tolerance of these trees to periods of

drought or adverse soil conditions thus ensuring a higher chance of successful long-term establishment.

5.9.2.2 Weed Management & Tree Guards

All newly planted trees must have a 1-metre exclusion zone whereby weeds are routinely and pro-actively removed for the **first 2 – 3 years**. Bark mulch is recommended around each tree and will act as an effective management method to also supress weed colonisation.

Whilst it is recommended that the mesh is approximately 12.5mm x 12.5mm aperture of 0.61m in height; however, due to the suitability on site and the surrounding habitats, this site may be at risk of Roe Deer. Therefore, it is recommended that the form of tree guards suitable to mitigate excessive foraging from this species is installed at a height above 1.2m and comprised of a guard such as weld mesh tree shelter or a suitable alternative.

During aforementioned weed removal, all aspects of the tree guards should also be routinely checked to ensure they are maintained in good condition and are firmly positioned within the soil. If the guards begin to split, they must be removed and disposed of responsibly and consequently replaced where required.

The trees and newly planted shrubs on site will also be protected through the implementation of mesh rabbit guards, along with bark mulch at the base to suppress any grass and weed colonisation. Monthly inspections on the newly planted trees will be undertaken, with weed removal / tree guard replacement as required. The bark mulch will also be maintained at a minimum level of 50mm for the **first 2 years** of establishment.

5.9.3 Monitoring

All the newly planted and retained trees within the site in communal areas (i.e., excluding all trees within privately owned gardens) are to be managed post-development for a period of at least 30 years. It is recommended tree inspections are conducted.

This will be carried out by a suitably experienced arborist **during late winter – early spring of each year when required**. These monitoring visits will assess the general health of the trees and determine if any remedial action is required, including noting any presence of disease. As part of these monitoring visits, the arborist will produce a monitoring report which will be sent to the LPA outlining the results and appropriate recommendations (i.e. remedial works, removal /replacement).

NB Please note, all mature trees recommended for removal or remedial works will need to be surveyed for roosting bats. If any trees have Potential Roosting Features (PRFs), it is recommended they are retained if possible and alternative trees are selected where possible. This will be conducted by a suitably qualified ecologist.

5.10 Hedgerows

5.10.1 Proposed Planting

Several native hedgerows will be planted throughout the site (Parcel References: H8-H9, H13-H17, H20-H22). These will lie outside of private gardens and will be readily accessed for

management from adjoining public open spaces. Enrichment planting will also be used to gap up existing hedges/boundaries, with at least 10% native fruit trees used to bolster the screening and improve the hedgerow habitat on site for invertebrates, birds and bats.

Species will include; Blackthorn (*Prunus spinosa*), Dog Rose (*Rosa canina*), Guelder Rose (*Viburnum opulus*), Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*), Hawthorn (*Crataegus monogyna*), Dogwood (*Cornus sanguinea*), and Field Maple (*Acer campestre*).

It is recommended that the ground is prepared by digging a strip approximately 60 – 90 cm in width. All weeds present in the soil are to be removed during soil preparation.

Hedgerows with Trees: H20 is designated as a 'hedgerow with trees' and therefore larger tree species will need to be planted at 10-20m intervals along its length. Suggested larger tree species to plant include Willow (*Salix spp.*), Alder (*Alnus glutinosa*), Hornbeam (*Carpinus betulus*), Elm (*Ulmus spp.*) or Birch (*Betula pendula*) as they can support high numbers of insects and, once matured, they can eventually provide roosting opportunities for bats.

Species-Rich Hedgerows: H20-H22 are designated as 'species rich hedgerows' and therefore they will need to contain at least 5 native woody species. These can comprise a mix of the above recommended species.

Ornamental and Non-Native Hedgerows: H12 and H18-H19 will be ornamental hedgerows and therefore there will be no specific planting requirements for these hedges.

5.10.2 Retained / Planted Hedgerow Management

To enable a successful outcome, future management of the retained and planted hedgerows will require ongoing management works. This will include monitoring, prescriptive tasks and implementation of necessary works. Elements of this future management are detailed below. The Hedgerow Management and Wildlife (Barr et al., undated) document outlines three important factors in how hedgerows are managed that affect possible resident mammal populations (and have therefore formed the basis of the recommendations in this section):

1. The type and amount of food available within the hedgerow. Favourable conditions being a large invertebrate population or prolific annual seed and berry crop.
2. The vegetation structure and composition of the hedgerow. For instance, a dense, herb- rich basal layer or a continuous line of hedgerow trees is preferred by several species.
3. The continuity and connectivity of the hedge within the landscape. For instance, a hedgerow that connects patches of small farm woodlands will have greater value as a corridor for the dispersal of mammals.

The more favourable approach to managing hedgerows for the benefits of small mammals is to encourage minimal interference and ensure when there is any cutting, it does so after autumn fruiting (so late winter is preferable). The key points of the management prescriptions

will therefore be as follows (adopting recommendations as outlined within Bright and MacPherson 2002):

- Cutting will be done on a 3-year cycle (part of the hedges on site cut during the first year, another part of the hedges cut during second year and no cutting during the third year), to provide sustained foraging opportunities across the site every active season. Hedgerows will be allowed to develop into a tall, dense, bushy structures and maintained at a height of 3 – (preferably 4) meters.
- A proportion of hedges (at least 30%) should be left to grow for at least 7 – 10 years.
- Not all hedgerows should be cut in any one year, so some heavy fruiting hedges are always present. Flails should not be used if possible meaning management works will likely involve cutting using hand tools
- Coppicing or laying should be used to manage an of the hedgerows on site which become gappy or spars
- If the size of the hedgerow needs to be reduced, avoid cutting the top and cut one side.

In more formal locations, hedges may need to be maintained more regularly than is stated above and this is permitted provided that the criteria set out in **Table 8** are achieved as described.

Targeted removal of invasive species will be carried out as necessary.

5.10.3 Monitoring

Annual monitoring will take place of the newly planted hedgerow for the first 3 years, with bi-annual monitoring between 4-10 years. This will be carried out by a suitably experienced ecologist during late winter – early spring of each year. These monitoring visits will assess the general health of the hedgerow and determine if any remedial action is required (some of which are outlined below such as replacement planting or altering the frequency of cuts).

5.10.4 Replacement

Any plants that are removed, die or become seriously damaged or defective during the 10-year monitoring period of planting shall be replaced like for like in the next planting season.

If hedgerows become very thin, coppicing of selected plants / laying of short lengths of hedgerow may be required and will be beneficial to promote vigorous, dense regrowth. Such works must be undertaken during the period October – February to avoid the breeding bird season.

5.11 Safeguarding

The developer (Cala Homes) and project manager will be responsible for briefing all site personnel of the ecological sensitivities of the site and implementing the mitigation measures outlined above. If any protected species are encountered during the construction works, it will be the responsibility of the project manager to cease works and immediately contact an ecologist for advice.

5.12 Post-Construction Habitat Creation

Section 6.0 below depicts the indicative timings associated with the habitat creation and enhancements to be undertaken prior to first occupation on the development site. This is considered to be year 1 of the management plan. For those activities that can be undertaken at any time of year, the earliest possible time is recommended.

5.13 Compliance Check

A compliance visit will be completed by a suitably qualified ecologist prior to first occupation of the development site. The check will be conducted annually for the first 5 years post completion, and every 5-years thereafter until year 30. The compliance check will be carried during a suitable time of year and in suitable weather conditions. The ecologist will check all biodiversity ecological enhancements set out to assess if they have been completed and make an assessment if any recommended changes are required to management.

On completion of the visit, a Biodiversity Net Gain (BNG) monitoring report will be compiled, including the following:

- Assessment of habitats against the objectives defined in this management plan
- Any presence of target species noted during the compliance check
- Date stamped photographic evidence taken from fixed monitoring points, of which will be the central point of each land parcel per habitat type as listed in **Section 4.2,** during the first compliance check after the construction phase
- Detailed site notes including a condition assessment for each habitat type listed in **Section 4.2** using the condition criteria within the Technical Supplement (Natural England, 2019) for the Biodiversity 2.0 Metric.
- Detailed specific recommendations on management actions to promote growth and establishment of target species / habitats including timescales for undertaking actions (if required) and marked site plans to show the actions
- Management of the above recommended actions must be carried out in the next phase and report of any detail.
- Each BNG monitoring report will be written up in accordance with the BNG Habitat Monitoring Report template provided by Natural England (2023b) and will be sent to the LPA.

5.14 Management Responsibilities

Cala Homes will assume responsibility for the management and maintenance of the newly created and enhanced habitats. When required, responsibility will include ensuring all management works are completed and qualified ecologists, arborists or landscape managers are contracted, etc. Upon transfer of the land, the new landlords shall bear responsibility for the management and maintenance of habitats within their curtilage. All management works as described above should be secured through an appropriate Section 106 agreement for the site that will legally oblige Cala Homes or other agreed party to carry out the works. An annual management timeline of all habitats has been provided in **Section 6.0** and management works should continue in perpetuity.

A formal review process will be implemented when objectives and management recommendations are not reached / roles and responsibilities are not fulfilled as agreed. The details of this formal review process are as below:

- A suitably qualified ecologist will visit the site to conduct the compliance check (detailed in **Section 5.13**).
- The compliance check will include the write up and submission of a BNG Habitat Monitoring report
- The ecologist will review the success for BNG that the previous recommendations or management actions have for the target species / habitats
- The project manager is contacted by the ecologist and is informed of the recommendations or management actions which have not been fulfilled to identify what or who is responsible
- The BNG Habitat Monitoring report will include a section addressing any raised issues identified during the compliance check
- The BNG Habitat Monitoring report is submitted to the LPA for review and comment

6.0 IMPLEMENTATION PLAN SUMMARY

Schedule of monitoring and management from Year 1 with outlined elements in perpetuity (for 30 years) for all habitats / ecological enhancements.

General Activity	Year	Specific Activity	Dates / Timing	Description
Protection of Woodland, Hedgerows and Trees	Pre-commencement	Arboricultural Fencing (**Section 3.1**)	Set up pre-commencement to works and retained throughout the works.	● The woodland along the northern boundary, existing hedgerows and trees that will be retained will be protected from damage during the works. They will be protected using the methods outlined within the '*BS5837 Tree Survey Assessment*' provided by Indigo Surveys Ltd (2023).
Bats	Pre-commencement	Closer inspection of partially felled Ash tree (***Should it require removal***) (**Section 3.2.1.1**)	Ideally between March – October to avoid hibernation period should bats be roosting within the trees	● Should the partially felled Ash tree on the north-eastern boundary be felled to ground level, it is recommended prior to this being undertaken the tree is subject to further assessment through endoscoping of potential features to accurately assess the suitability of the feature (PRF-I or PRF-M as per BCT). NB It must be noted this tree is under private ownership.
	1	Installation of Bat Bricks and Boxes (**Section 3.2.4**)	Anytime prior to site operation.	● Each dwelling will incorporate at least 1 No Ibstock bat bricks (**Fig 12**) integrated within the external brick work. ● In addition to the integrated bat boxes, 10 No woodcrete models will also be erected on suitable retained trees around the site's boundary as recommended.
	Year 2, then once Annually	Bat Brick / Box Integrity Checks	Winter	● All ecological enhancements will be checked to ensure they do not require replacement.

Badgers	Pre-commencement	Updated walkover (**Section 3.5**)	Prior to works commencing	● It is recommended that a pre-commencement badger survey is undertaken on site **one month prior to the development commencing**.
	1	Toolbox talk to avoid any adverse impacts (**Section 3.5**)	During the construction phase	● "Consideration should be given to the placement of any topsoil storage, or piles of materials that may create mounds suitable for sett creation. Any such piles are placed well away from identified badger activity, and are checked on a daily basis by construction staff to ensure that no badger activity has taken place. If the mounds are to be in place for a significant period of time, the earth will be temporarily fenced to ensure that badgers cannot access the fresh soil. ● There will be no night working to avoid disturbance to badgers, any work within 30m of a sett will cease at least two hours before sunset. There will be no lighting along the eastern boundary of the site to avoid any light spill where badger activity has previously been recorded. ● If any excavations are left open overnight, an earth ramp will be created or a wooden ramp installed to allow any animals that fall in to escape. ● Any pipes that need to be left over night on site will be capped to avoid animals becoming trapped." (extract as per Section 7.1.2 of EMMP by WYG Ltd., 2019)

Birds	1	Vegetation Removal (**Section 3.6.1**)	During the construction phase (Ideally September – February)	● In order to avoid disturbance of nesting birds or damage to their nests, clearance of any vegetation will be undertaken outside of the bird nesting season (typically March – August dependent on weather). If this is not possible, sections to be cleared should be thoroughly checked by a suitability qualified ecologist immediately prior to clearance. If any active nests are found they should be left undisturbed with a suitable buffer of vegetation (5m) until the nestlings have fledged.
	1	Installation of Bird Bricks and Boxes (**Section 3.6.3**)	Anytime prior to site operation.	● As a general enhancement, each of the new dwellings on site will have at least 1 No swift brick incorporated into the building. The 'CJ Wildlife Swift maxi nesting box'. ● Further to this, as per the *EMMP* (WYG Ltd., 2019) at least 5 No dwellings will incorporate a Sparrow terrace (with a 32 mm hole). ● Finally, it is proposed that there is the erection of 15 No nest boxes in trees that will provide compensation for the loss of trees, scrub and sections of hedgerow on site.
	Year 2, then once Annually	Bird Box Integrity Checks	Winter	● All ecological enhancements will be checked to ensure they do not require replacement.
Hedgehogs	1	Gaps in garden fencing (**Section 3.7**)	Anytime prior to site operation	● Garden fences within the site will also ensure at least 2 gaps are present within the gravel boards / bases of each fence line to allow for movement of Hedgehogs between gardens and into the wider area.

				● The gaps should be at least 15 cm high by 15 cm wide with permeability for small mammals.
Dormice	1	Vegetation removal (**Section 3.4.1**)	Between mid-April to mid-May or during October (i.e. after Dormice have awoken from hibernation but before they start breeding).	● As per the methodology outlined in the report, the licensed ecologist will first deliver a toolbox talk followed by a fingertip search of all vegetation to be cleared, immediately prior to clearance commencing. ● Hand tools will be utilised to sensitively cut vegetation down to ground level in **a single stage**. This will be undertaken in a directional fashion to passively encourage Dormice to move away from the works area towards retained, suitable habitat on the site's boundaries. ● No more than 50m2 of habitat will be cleared in a single day ● ***NB If any Dormice are found, works will cease, and Natural England consulted.***
	1	Installation of Dormouse Boxes	Prior to works commencing above	● Prior to clearance commencing, 5 Dormouse nest boxes will be installed through the retained suitable Dormouse habitat (northern boundary adjacent to the woodland) to increase the carrying capacity of the retained habitats for Dormice.
	Year 2, then once Annually	Dormouse Box Integrity Checks	Winter	● All ecological enhancements will be checked to ensure they do not require replacement.
Invertebrates	1	Installation of Bee Bricks (**Section 3.8**)	Anytime prior to site operation.	● Bee bricks will be incorporated into at each of the new dwellings (at least 320 No).
Reptiles and GCN (**Section 3.3**)	1	Passive Dispersal (**Section 3.3.1**)	April - October	● This will involve all suitable habitat for reptiles / GCN (rough grassland / dense scrub) to be

				strimmed in two phases under the supervision of an Ecological Clerk of Works (ECoW). The first cut will be down to a height no lower than 30 cm with lines cut towards the site boundaries to encourage any reptiles into the boundary habitats, with a second cut (the following day) taking it right down to ground level.
	1	Creation of log piles (**Section 3.3.2**)	Anytime prior to site operation but ideally prior to the commencement of the passive dispersal	● 2 No log piles are recommended to be provided within the ecological buffer to the west of site to further enhance the site for reptiles as well as mammals, invertebrates and amphibians.
Protection of Retained Habitats (**Section 5.2**)	Pre-commencement	Installation of Heras fencing	Anytime, prior to construction	● Heras fencing to be erected along the boundary of the retained areas of habitat to prevent them from being damaged during works.
Other neutral grassland (**Section 5.3**)	1	Creation of grassland	Ideally Autumn or Spring	● To be established through the sowing of a wildflower mixture such as Emorsgate EM4 – Meadow Mixture for Clay Soils, EM5F - Wild Flowers for Loamy Soils or EM8 – Meadow Mixture for Wetlands.
	1	Year 1 Management	July - August	• Perennial species take at least a full year to establish. For newly sown areas the first summer will be dominated by annual weeds arising from the soil seed bank and by grass growth. This should be controlled by mowing throughout the first year to minimise competition and weed seed production.
	2 - 30	Two annual cuts (Good condition grassland)	1: Spring cut or left to flower until mid-Summer 2: Late autumn	• The growth should be cut back to a height of 50-75mm. The cut grass should be dried on site.

				• Cuttings should be left in situ for approximately one week, after this the arisings are to be removed from site. • The second annual cut is to be undertaken during late Autumn
	2 - 30	Retained buffer left to flower (Good condition grassland)	May or early June	• If a retained buffer area is established, this should not be cut in May or early June due to nesting birds. • Maintain maximum diversity and flowering interest the buffer should be managed in sections at different times from late June to the end of August.
	2 - 30	Regular mowing (Moderate and Poor condition grassland)	All year	• More regular mowing is permitted in the moderate and poor condition grassland areas. • In the moderate condition areas, mowing will be relaxed from late June for 4 – 8 weeks.
	2 - 30	Removal of undesirable species	Winter i.e. October - February (outside of bird nesting season)	• Targeted scrub, bracken and invasive species removal will be carried out as necessary.
Modified grassland (**Section 5.4**)	1	Creation of grassland	Ideally Autumn or Spring	• To be sown with Emorsgate EL1 – Flowering Lawn Mixture.
	1	Year 1 Management	July - August	• During the first year the landscaped areas must be regularly maintained to a height of 40-60mm every 3-4 weeks during the growing season to prevent the establishment of weeds. All arisings must be taken from site to prevent the addition of too many nutrients into the soil. If necessary, glyphosate-based weed killer can be used to spot treat any areas with dense patches of Nettles or Bramble.

	2 – 30	On going Management	All year (relaxed from late June for 4 – 8 weeks)	• Once the seed is established after the first year, a management regime will be adopted to allow the flowering of herbaceous species to provide maximum benefit to local wildlife. Mowing is to be relaxed from late June for 4 – 8 weeks. However, regular mowing is expected within this habitat area which will cause sward height structure to vary throughout the management periods, cutting no lower than 25-40mm. All arisings should be collected and moved from the site.
Mixed Scrub (**Section 5.5**)	1	Plant native shrub species	Late Autumn	• Plant at least 3 different native shrub species. • Space at a density of 1 per linear metre. • Leave gaps within the good condition scrub planting to allow glades / clearings to form.
	1	Year 1 Management	Spring and Summer	• Weed around newly planted shrubs as necessary. • Water whenever necessary during the first growing season. • Replace any dead shrubs like-for-like.
	2 – 30	Cutting back / thinning	Winter i.e. October - February (outside of bird nesting season)	• Scrub will be cut back annually as needed to ensure areas do not become overgrown. • Thinning will take place routinely every 5 years. • Different areas will be cut back / thinned on rotation to maintain a diverse age range. • Any scrub encroaching into adjacent habitats will be cut back as needed. • Any scrub encroaching into clearings / glades within the good condition scrub will be cut back as needed.

	2 – 30	Bramble management	Winter i.e. October - February (outside of bird nesting season)	• Bramble will be cut back as necessary to maintain a density of no more than 15%.
	2 – 30	Invasive species removal	Winter i.e. October - February (outside of bird nesting season)	• Removal of invasive species will be undertaken as necessary if they establish on site.
	2 – 30	Shrub replacement	Late Autumn	• Any dead shrubs or areas that become sparse will be planted with new native shrubs, replacing like-for-like.
	2 – 30	Management of grassland around good condition scrub edges / within clearings	1: Spring cut or left to flower until mid-Summer 2: Late autumn	• To maintain tall herb presence around the edges of the scrub the below methods will be used to managed grassland bordering good condition scrub. • The growth should be cut back to a height of 50-75mm. The cut grass should be dried on site. • Cuttings should be left in situ for approximately one week, after this the arisings are to be removed from site. • The second annual cut is to be undertaken during late Autumn.
SUDs Features (**Section 5.6**)	1	Excavation and creation of SUDs	Anytime	• There will be a varying depth across the SUDs wherever possible with the pond itself being deeper. Creating shelves is one option of obtaining different depths.
	1	Year 1 Management	Ideally Autumn or Spring	• The edges of the SUDs pond will be planted up with a suitable grassland seed mix and selective plug planting to encourage establishment of marginal vegetation.
	2 - 30	Removal of blanket weed	Late September and October in the early years	• In the early years, blanket weed can cover waterbodies.

				• Only one third of a waterbody should be cleared per year. • Once cleared, plants or debris will be left along the edge for a few days to allow any trapped wildlife to return to the water.
	2 - 30	Avoidance to pond disturbance	Mid-Winter	• Ponds should not be disturbed in mid-winter as this might expose hibernating amphibians to severe cold
Reedbeds (**Section 5.7**)	1	Planting	May – June	• Common Reed seeds will be sown in May-June.
	2 - 30	Cutting	Winter	• Managed on a 4-year cutting cycle. • Cuttings to be removed.
	2 - 30	Removal of undesirables	Winter i.e. October - February (outside of bird nesting season)	• Targeted removal of undesirable species, scrub and dead vegetation as required.
Woodland (**Section 5.8**)	1	Plant native tree and shrub species	Late Autumn	• Plant a variety of native tree and shrub species.
	1	Mycorrhizal treatment	Late Autumn	• Apply mycorrhizal treatment to tree roots during planting.
	1 - 3	Weed management	Monthly, where required	• All trees must have a 1-metre exclusion zone whereby weeds are routinely and pro-actively removed for the first 2 – 3 years. Bark mulch is recommended around each tree and will act as an effective management method to also supress weed colonisation. • Tree guards should also be routinely checked to ensure they are maintained in good condition and are firmly positioned within the soil. If the

				guards begin to split, they must be removed and disposed of responsibly and consequently replaced where required. • Bark mulch will be maintained at a minimum level of 50mm for the first 2 years of establishment.
	2 - 30	Rotational coppicing	Winter i.e. October - February (outside of bird nesting season)	• Coppice approx. 30% of Hazel (or other appropriate species) every 3 years. • Rotate areas being coppiced on a 6-10 year rotation. • Retain some deadwood and use within log piles.
	2 – 30	Selective thinning	Winter i.e. October - February (outside of bird nesting season) Botanical Survey in April - September	• Maintain optimal canopy cover of 80%. • Selective thinning to be carried out on a 4-year rotational basis with a different non-adjacent portion of the woodland thinned each year. • Target trees showing signs of disease or poor growth. • Mature trees will need to be surveyed for PRFs. • Botanical survey to inform most appropriate area for thinning.
	2 – 30	Invasive species removal	Winter i.e. October - February (outside of bird nesting season)	• Any invasive species will be removed through cutting back and removal of cut material from site.
	2 - 30	Replacement and natural regeneration	Late Autumn	• Recommendations may also include that any plants (newly planted or retained) that are removed, die or become seriously damaged or defective during the 30-year monitoring period shall be replaced like for like in the next planting season.

				• If any of the plants fail, they will be replaced like-for-like. • Similarly, scope for tree and shrub species to establish by natural regeneration should be permitted where possible e.g. by creating space for new regeneration around existing specimens of the desired trees and shrub species. Ash regeneration could be an important part of the mix, it should not be cut out or destroyed unless suffering from Ash Dieback, and would benefit from being protected.
	2 - 30	Monitoring	Late Winter – Early Spring	• All newly planted trees will be inspected by a suitably experienced arborist every 3 years to assess general health and determine if remedial action is required. • Arborist will produced a monitoring report following each visit and submit this to the LPA.
Native Trees (**Section 5.9**)	1	Planting	Late Autumn	• A variety of native tree species will be planted.
	1	Mycorrhizal treatment	Late Autumn	• Apply mycorrhizal treatment to tree roots during planting.
	1 - 3	Weed management	Monthly, where required	• All trees must have a 1-metre exclusion zone whereby weeds are routinely and pro-actively removed for the first 2 – 3 years. Bark mulch is recommended around each tree and will act as an effective management method to also supress weed colonisation. • Tree guards should also be routinely checked to ensure they are maintained in good condition

				and are firmly positioned within the soil. If the guards begin to split, they must be removed and disposed of responsibly and consequently replaced where required. • Bark mulch will be maintained at a minimum level of 50mm for the first 2 years of establishment.
	2 - 30	Monitoring	Late Winter – Early Spring	• All newly planted trees will be inspected by a suitably experienced arborist every 3 years to assess general health and determine if remedial action is required. • Arborist will produced a monitoring report following each visit and submit this to the LPA.
Hedgerows (**Section 5.10**)	Prior to commencement	Planting	Late Autumn ideally, in suitable weather	• Enrichment planting using native species and at least 10% native fruit trees will be used to bolster the screening and improve the hedgerow habitat on site for invertebrates, birds and bats. • It is recommended that the ground is prepared by digging a strip approximately 60 – 90 cm in width. All weeds present in the soil are to be removed during soil preparation. • 'Hedgerow with trees' to be planted with larger tree species spaced at 10-20m intervals. • 'Species-rich hedgerows' to be planted with at least 5 native woody species. • 'Ornamental hedgerows' to have no specific planting recommendations.
	2 - 30	Hedgerow trimming regime	Cutting: 3 year cycle	• Cutting will be done on a 3-year cycle (part of the hedges on site cut during the first year, another

				part of the hedges cut during second year and no cutting during the third year) • Hedgerows will be allowed to develop into a tall, dense, bushy structures and maintained at a height of 3 – (preferably 4) meters. • A proportion of hedges (at least 30%) should be left to grow for at least 7 – 10 years. • Not all hedgerows should be cut in any one year, so some heavy fruiting hedges are always present. • In more formal locations, hedges may need to be maintained more regularly and this is permitted provided the criteria set out in **Table 8** are met.
	1 - 30	Invasive Species Removal / Management	As required	• Any invasive species, such as Japanese Knotweed (*Fallopia japonica*) Himalayan Balsam (*Impatiens glandulifera*), Rhododendron (*Rhododendron ponticum*), Giant Hogweed (*Heracleum mantegazzianum*), will be removed from the site, as these could have deleterious effects on native species. • Contractors will need to be shown the locations of the species and mark these where needed to help avoid native species being removed accidentally.
	2 - 30	Plant removal / planting	Late Autumn ideally, in suitable weather	• Recommendations may also include that any plants (newly planted or retained) that are removed, die or become seriously damaged or defective during the 30-year monitoring period shall be replaced like for like in the next planting season.

				• If any of the plants fail, they will be replaced like-for-like.
	2 - 30	Bi-annual monitoring of Hedgerows	Between 4 – 30 years (trees) during late Winter – early Spring During Year 1, 3 and 5 in early Spring (hedgerows)	• The existing hedgerows will be monitored during the first, third and fifth year. This will be carried out by a suitably experienced ecologist during late winter – early spring of each year.
Compliance Check (**Section 5.13**)	1 - 30	Monitoring report (Ecologist)	Annually for the first 5 years, then every 5 years until year 30 Must be conducted during a suitable time of year and weather conditions	• A report will be produced by an ecologist to provide details on all management, assessment of habitats, additional management requirements (if required), management to be carried out in the next phase and reporting on any delays • Each report will be sent to the LPA

7.0 CONCLUSION

The aim of this report is to provide a prescription of the management of habitats within the site for a period of 30 years (as per Biodiversity Net Gain requirements) and to bring together all relevant sections of the previous ecological reports associated with the site 'Land North of Coxbridge Farm' in Farnham and use them to inform an updated site-wide Ecological Mitigation and Management Plan (EMMP). The key recommendations outlined within this report are as follows:

- Protection of northern boundary woodland, retained hedgerows and retained trees
- PRF inspection survey of the partially felled Ash tree (if the tree must be felled to ground level)
- Provision of sensitive lighting strategy for foraging and commuting bats and Badgers
- Precautionary clearance measures for reptiles, amphibians, Hazel Dormice and nesting birds
- Pre-commencement Badger walkover to check for evidence of Badger setts
- Toolbox talk and precautionary measures for Badgers
- Creation of log piles for reptiles / invertebrates / bats
- Installation of bat bricks / boxes, bird bricks / boxes and bee bricks
- Installation of Dormouse boxes
- Provision of gaps within garden fencing as Hedgehog highways
- Retention of existing hedgerows on site
- Creation and management of species-rich meadow, modified grassland, mixed scrub, SUDs, reedbeds, woodland, and native hedgerows on site
- Enhancement of off-site grassland to species-rich meadow

With the provision of all inclusions within this report as well as the Biodiversity Net Gain (BNG) Assessment, the site is expected to provide excellent biodiversity enhancement for wildlife and provide net gain.

8.0 REFERENCES

Barr, C.J., Britt, C.P., Sparks, T, H., & Churchward, J.M., (undated) *Hedgerow Management and Wildlife, a Review of Research on the Effects of Hedgerow Management and Adjacent Land on Biodiversity*

Bright, P, Morris, P and Mitchell-Jones, T., (2006) *The Dormouse conservation handbook, 2nd edition, English Nature*.

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK & Ireland*

Collins, J. (ed) (2023). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition).* The Bat Conservation Trust, London. ISBN-978-1-7395126-0-6.

Department for Levelling Up, Housing and Communities (2023) '*National Planning Policy Framework*' (NPPF)

Ecosupport Ltd. (2023). *Technical Note: Updated Walkover at Land North of Coxbridge Farm, West Street, Farnham* (19th December 2023).

Edgar, P., Foster, J., & Baker, J., (2010) *Reptile Management Handbook, Amphibian and Reptile Conservation (ARC)*

Emorsgate Seeds (2023). *EL1 – Flowing Lawn Mixture.* Available at: https://wildseed.co.uk/product/mixtures/complete-mixtures/special-habitat-mixtures/flowering-lawn-mixture/ (Accessed: 29th December 2023).

Emorsgate Seeds (2023). *EM4 – Meadow Mixture for Clay Soils*. Available at: https://wildseed.co.uk/product/mixtures/complete-mixtures/meadow-mixtures-for-specific-soils/meadow-mixture-for-clay-soils/ (Accessed: 29th December 2023).

Emorsgate Seeds (2023). *EM5F – Wild Flowers for Loamy Soils.* Available at: https://wildseed.co.uk/product/mixtures/wild-flower-only-mixtures/wild-flowers-for-loamy-soils/ (Accessed: 29th December 2023).

Emorsgate Seeds (2024). *EM8 – Meadow Mixture for Wetlands.* Available at: https://wildseed.co.uk/product/mixtures/complete-mixtures/meadow-mixtures-for-specific-soils/meadow-mixture-for-wetlands/ (Accessed: 27th February 2024).

Emorsgate Seeds (2024). *EP1 – Pond Edge Mixture.* Available at: https://wildseed.co.uk/product/mixtures/complete-mixtures/special-habitat-mixtures/pond-edge-mixture/ (Accessed: 27th February 2024).

Freshwater Habitats Trust (2013) *Pond Creation Toolkit Sheet 7 – Constructing Ponds.* Available at: https://freshwaterhabitats.org.uk/advice-resources/pond-creation-hub/pond-creation-toolkit/

Greater Lincolnshire Nature Partnership (2018) *Reedbeds: A guide to management.* Available at: https://glnp.org.uk/images/uploads/services/local-sites/LWS%20Management%20Leaflets/Reedbeds.pdf

ILP / BCT (2023) *Guidance Note 08/2: Bats and Artificial Lighting at Night*.

Indigo Surveys Ltd (2023). *Trees and Construction – BS5837 Tree Survey Assessment – Land at Coxbridge Farm, West Street, Farnham, GU9 7AS*. (Report ref: 18538.23/A1) (September, 2023).

JNCC (2010) *Handbook for Phase 1 Habitat Survey*

Natural England (2011) *Badgers and Development: A Guide to Best Practice and Licensing*

Natural England (2021) *The Biodiversity Metric 2.0 – Technical Supplement (Beta Edition).* Available at: file:///C:/Users/steve/Downloads/Biodiversity%20metric%202.0%20Technical%20Supplement%20-%20Beta%20Test%20Final%20(11).pdf

Stone, E.L. (2013). *Bats and lighting: Overview of Current Evidence and Mitigation Guidance. University of Bristol, Bristol*.'

Tetra Tech (2023). *Badger Survey Report – Land North of Coxbridge Farm – 784-B047728.* (July 2023).

Tetra Tech (2021). *Technical Note – Coxbridge Farm, Farnham*. (May 2021).

UKHab Ltd. (2023). *UK Habitat Classification – Habitat Definitions Version 2.0* (September 2023).

WYG Ltd (2019). *Ecological Mitigation and Management Plan (EMMP) – Coxbridge Farm*. (November 2019).

WYG Ltd (2019). *Dormouse Presence / Likely Absence Survey Report (Final Copy) – Coxbridge Farm*. (November 2019).

WYG Ltd (2019). *Breeding Bird Survey Report – Coxbridge Farm*. (November 2019).

WYG Ltd (2019). *Bat Survey Report (Final Copy) – Coxbridge Farm*. (October 2019).

WYG Ltd (2019). *Dormouse Presence / Likely Absence Survey Report – Coxbridge Farm*. (August 2019).

WYG Ltd (2019). *Bat Survey Report – Coxbridge Farm*. (August 2019).

WYG Ltd (2019). *Reptile Survey Report – Coxbridge Farm.* (July 2019).

WYG Ltd (2019). *GCN eDNA Survey – Coxbridge Farm*. (17th April 2019).

WYG Ltd (2019). *Ecological Appraisal – Coxbridge Farm*. (January 2019).

Legend

- Site boundary
- BNG Buffer land
- 3 No Schwegler 2F bat box
- 2 No Schwegler 1FF with built-in wooden rear panel
- 2 No Schwegler 2FN bat box
- 320 No Ibstock bat brick 'B'
- 2 No Log piles
- 5 No Dormouse nest boxes
- 10 No Open fronted nest boxes
- 320 No CJ Wildlife Swift maxi nesting box
- 5 No Sparrow terrace (with a 32mm hole)
- 5 No Schwegler 3S Starling nest boxes

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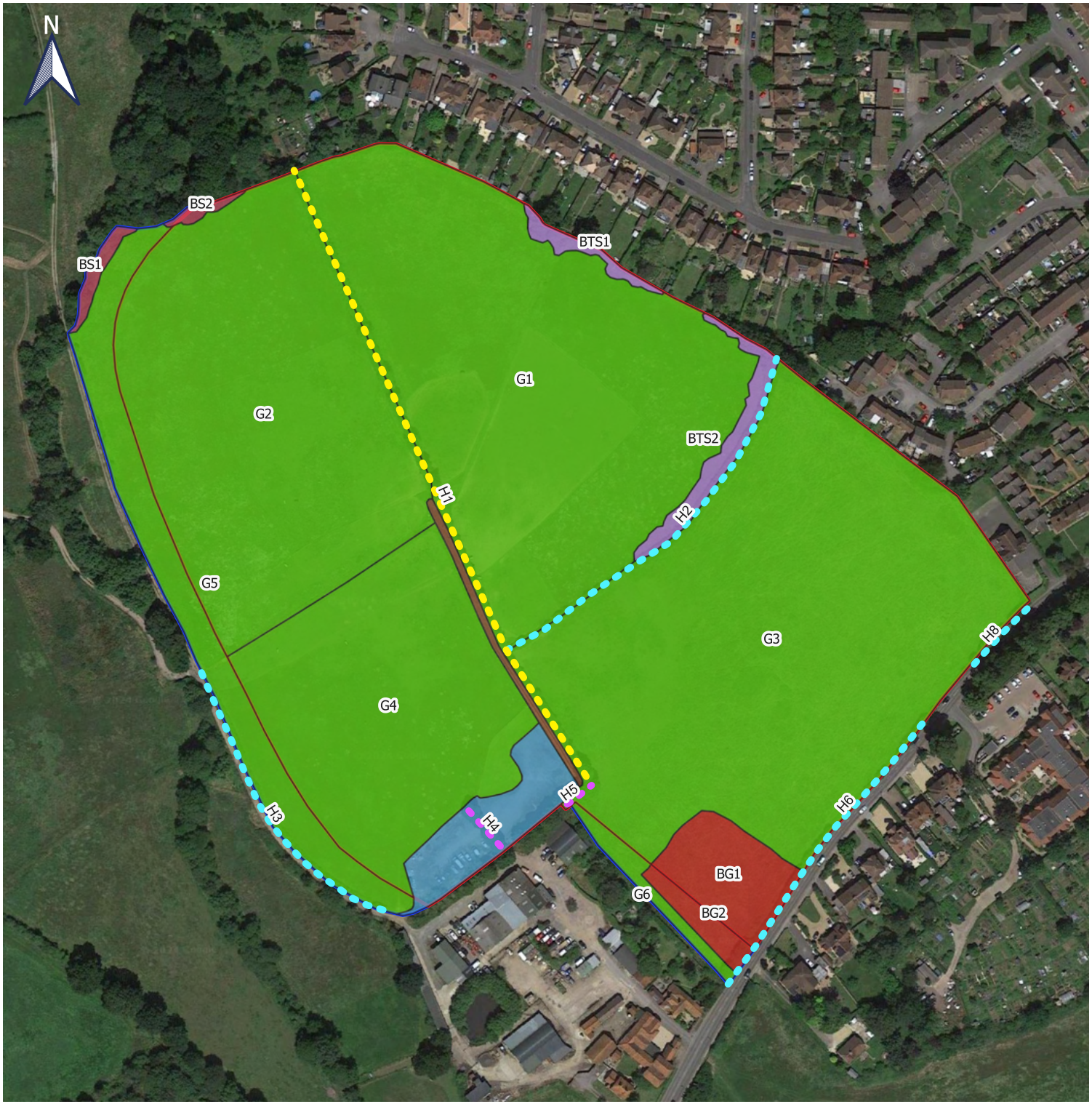
Map	Appendix A - Enhancement / Mitigation Plan
Site	Land North of Coxbridge Farm, Farnham
Client	CALA Homes (South Home Counties Ltd)
Date	10/07/2024



Legend

- Site Boundary
- BNG Buffer Boundary
- Modified Grassland
- Bramble Scrub
- Blackthorn Scrub
- Bare Ground
- Artificial Unvegetated; Unsealed Surface
- Developed Land; Sealed Surface
- Non-Native / Ornamental Hedgerow
- Native Hedgerow
- Native Hedgerow with Trees - Associated with Bank / Ditch

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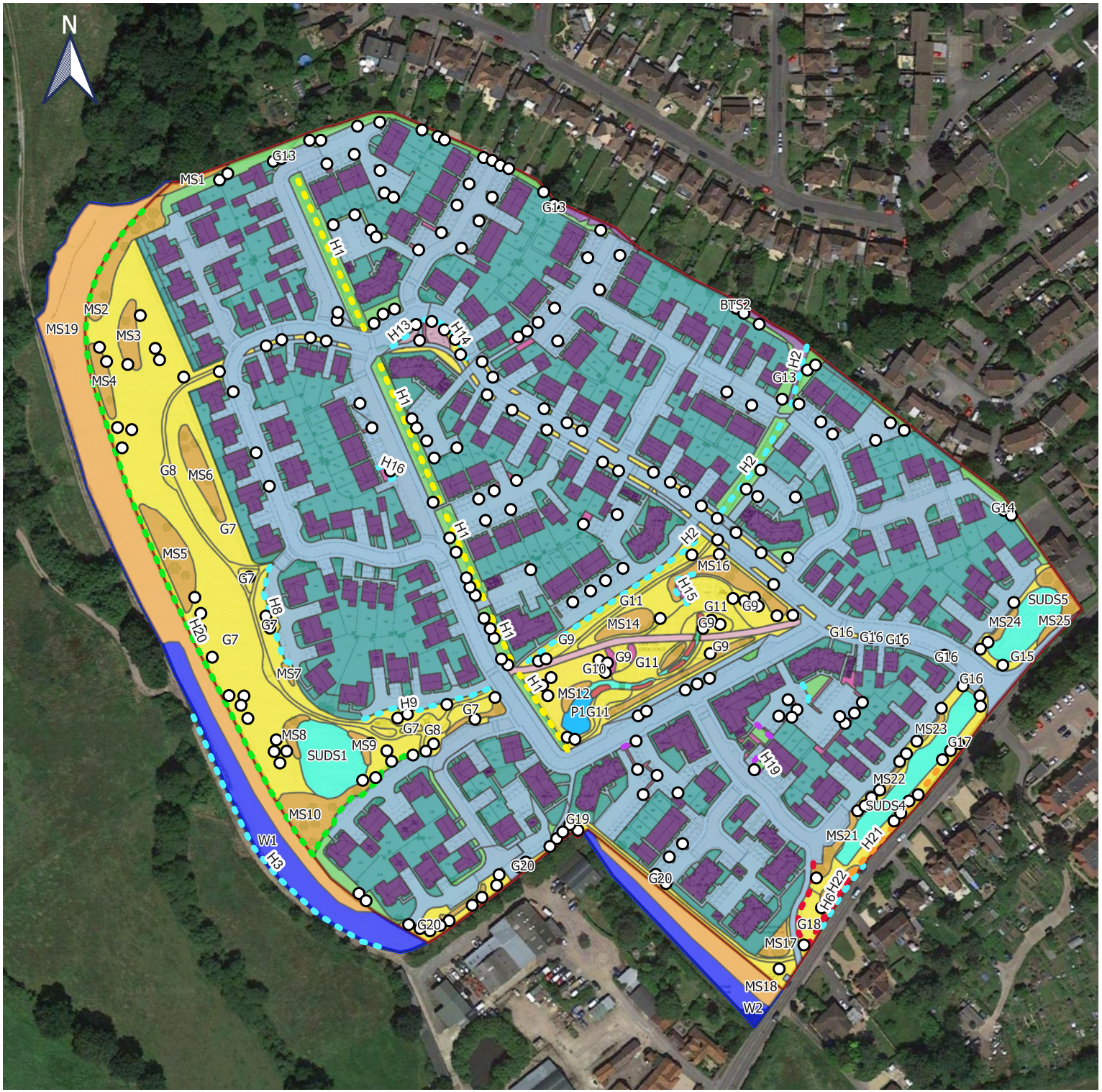
Map	Appendix B - Pre-Development Layout
Site	Land North of Coxbridge Farm, Farnham
Client	Cala Homes
Date	10/07/2024



Legend

- Main Site Boundary
- BNG Buffer Zone Boundary
- Modified Grassland
- Other Neutral Grassland
- Mixed Scrub
- Blackthorn Scrub
- Other Neutral Grassland (SUDS)
- SUDS Pond
- Reedbeds
- Other Woodland; Broadleaved
- Introduced Shrub
- Vegetated Garden
- Artificial Unvegetated; Unsealed Surface
- Developed Land; Sealed Surface
- Buildings
- Native Hedgerow with Trees - Associated with Ditch
- Native Hedgerow
- Non-Native Hedgerow
- Species-Rich Native Hedgerow with Trees
- Species-Rich Native Hedgerow - Associated with Bank
- Species-Rich Native Hedgerow
- 264 No. Urban Trees

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Map	Appendix C - Post-Development Layout (Overview)
Site	Land North of Coxbridge Farm
Client	Cala Homes
Date	10/07/2024