ECOSA
Ecological Survey & Assessment
A Trinity Consultants Company

R10 – R14 LINK ROAD, SOUTH WOKINGHAM, BERKSHIRE

BIODIVERSITY NET GAIN DESIGN STAGE REPORT

Final Document (Revision 2)

January 2025

Preliminary Ecological Appraisals • Protected Species Surveys and Licensing • NVC • EcIA • HRA • Management Plans
Habitats • Badger • Bats • Hazel Dormouse • Birds • Reptiles • Amphibians • Invertebrates • Riparian and Aquatic Species

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ECOSA Quality Assurance Record

This report has been produced in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Report Writing 2017 (CIEEM, 2017), the CIEEM Biodiversity Net Gain Good Practice Principles for Development (CIEEM, 2016) and the CIEEM Biodiversity Net Gain Report and Audit Templates (CIEEM, 2021). The survey work has been undertaken in line with references within CIEEM's Source of Survey Guidance (CIEEM, 2017).

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R10 – R14 LINK ROAD, SOUTH WOKINGHAM, BERKSHIRE

BIODIVERSITY NET GAIN DESIGN STAGE REPORT

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EXECUTIVE SUMMARY

Ecological Survey and Assessment Ltd (ECOSA) have been appointed by Miller Homes, Kier Ventures and Kingacre Estates to prepare a Biodiversity Net Gain Design Stage Report for R10 – R14 Link Road, South Wokingham. The purpose of the assessment is to determine the proposals ability to deliver a net gain in biodiversity following development at the site. The site is located between the two large towns of Wokingham and Bracknell, Berkshire and comprises the location of a proposed link road, crossing two grassland fields and linking with sections of the existing Waterloo Road. The new link road, of approximately 650 metres, is proposed to be constructed between the roundabout to the west and Waterloo Road to the east with associated drainage basins.

The main findings of the Biodiversity Net Gain Design Stage report are:

- The site comprises modified grassland, 'developed land; sealed surface', built linear features, bare ground, species-rich native hedgerows with trees, a native hedgerow, a native hedgerow associated with a ditch and a line of trees;
- Post-development 'developed land; sealed surface' will be created in the form of the link road, sustainable drainage systems and rain gardens will be constructed. Modified grassland will be created on the road verges and around the drainage systems, where mixed scrub will also be planted. Species-rich hedgerows (some with trees) will be planted on the western border of Plot R14 and urban trees will be planted around the site;
- Following the completion of the assessment the site will deliver a 35.22% net gain in habitat units and 31.45% gain of hedgerow units. This demonstrates that the proposals will deliver a measurable Biodiversity Net Gain of more than 10% for both habitat and hedgerow units necessary to comply with local planning policy and required by the Environment Act;
- Long term management will be secured through a Landscape and Ecological Management Plan (LEMP) to ensure created habitats reach their target condition.

1.0 INTRODUCTION

1.1 Background

Ecological Survey & Assessment Limited (ECOSA) have been appointed by Miller Homes, Kier Ventures and Kingacre Estates to prepare a Biodiversity Net Gain Assessment to support a planning application for the redevelopment of R10 – R14 Link Road, South Wokingham, Berkshire, RG40 3DA (hereafter referred to as 'the site').

The link road is required to facilitate the construction of a wider proposed mixed development, hereafter referred to as the 'South Wokingham Strategic Development Land (SDL)'. The link road passes through two parcels of land; Plot R10, which lies within Phase 2b of the South Wokingham SDL and Plot R14, which lies within Phase 2a of the South Wokingham SDL. Phase 2a of the South Wokingham SDL (Wokingham Borough Council Ref. 190914), will deliver up to 215 dwellings, public open space, play areas, associated infrastructure and landscaping. Phase 2b (Wokingham Borough Council Ref. 191068) will deliver up to 1,424 dwellings, a two-form entry primary school, local centre, public open space, play areas and associated infrastructure and landscaping, as well as a Suitable Alternative Natural Greenspace (SANG). A second SANG will be provided on land to the south of Anne's Manor (Wokingham Borough Council Ref. 190900, Bracknell Forest Council Ref. 19/00414/FUL). Vehicular access will be provided by the proposed South Wokingham Distributor Road, funded by Wokingham Borough Council.

At the time of submission of this planning application it had been agreed between the applicant and Wokingham Borough Council that details of the landscaping within the red line of this application would be agreed as part of the upcoming Reserved Matters application for further development proposed within Plots R10 and R14, however, in order to facilitate the completion of this assessment, detailed landscaping plans for the areas within the red line boundary have been produced.

To support the planning application for the above proposals, a suite of ecological survey work has been undertaken between 2015 and 2017 in relation to the surrounding South Wokingham SDL (ECOSA, 2020). Survey work has included initial and updating Phase 1 Habitat surveys, and the following species-specific surveys: notable plants and habitats, roosting, foraging and commuting bats, otter, [redacted] hazel dormouse, water vole, breeding birds, reptiles, great crested newt and aquatic invertebrates.

1.2 The Site

The site is located on the border of the Wokingham Borough and Bracknell Forest administrative areas, between in the two large towns of Wokingham and Bracknell, centred on National Grid Reference (NGR) SU 8331 6793 (**Map 1**).

The site comprises the location of a proposed link road, crossing two fields in the east of the South Wokingham SDL site and includes the junctions with the roundabout to the west and Waterloo Road to the east.

To the east and west of the Project Site lie the large towns of Bracknell and Wokingham respectively. The railway line intersecting the two lies some 315 metres north of the site while the A329 (M) lies 920 metres north-east at its closest point. To the north and south, the landscape is more rural, comprising agricultural fields, scattered with small blocks of woodland and intersected by a network of hedgerows. The Emm Brook is located one kilometre south-west of the site with a network of connected drainage ditches in the surrounding area.

1.3 Aims and Scope of Report

The aim of this document is to establish whether the scheme design provides a measurable net gain in biodiversity using the DEFRA Statutory Biodiversity Metric Calculation Tool (DEFRA, 2024a) by calculating:

- The pre-development biodiversity units;
- The post-development biodiversity units; and
- Providing a summary of the scheme design and background ecological information which has been used to undertake the metric calculations.

This document is a stand-alone assessment of the pre-development and post-development value of the site in terms of the biodiversity units. This does not supersede the Ecological Impact Assessment (ECOSA, 2024) and should be read in-conjunction with that document.

1.4 Site Proposals

The proposed works entail the construction of a 650 metre link road between the existing roundabout to the west and Waterloo Road to the east, and associated drainage basins. The link road and drainage basins will be constructed through two fields.

The Biodiversity Net Gain Assessment is based on the landscaping plan produced by Pegasus Planning Group Limited, dated 17th December 2024 (Drawing No. P23-1686_EN_008D) (**Appendix 1**).

2.0 LEGISLATIVE AND PLANNING POLICY CONTEXT

2.1 Introduction

This section summarises the legislative and planning policy as relevant to Biodiversity Net Gain within the Wokingham Borough Council administrative area. This information is then used to make necessary recommendations for mitigation and enhancements in order to ensure any future planning application accords with relevant planning policy.

2.2 Legislation

2.2.1 Environment Act 2021

The legislative driver for Biodiversity Net Gain comes through the Environment Act 2021. Schedule 14 of the Act sets out the following:

- Sets a measurable Biodiversity Net Gain[1] objective of 10% for all development for which planning permission is granted;
- The Biodiversity Metric to calculate the Biodiversity Value of the site is produced and published by the Secretary of State;
- The pre-development and post-development biodiversity value of the site should be calculated using the metric and based on the pre-development biodiversity value on the date of planning application. However, this may be agreed as being an alternative date by the local planning authority;
- All planning permissions (with a few exceptions) granted in England will be subject to a general condition requiring that a Biodiversity Net Gain Plan is submitted for approval to the planning authority prior to commencement of the development; and
- The post-development value must be calculated based on the development at completion and the obligation for maintaining the proposed Biodiversity Net Gain measures will be a minimum of 30 years.

The Act also states that where activities are undertaken on a given site on or after the 30th January 2020, which result in a lower biodiversity value than otherwise would have been achieved (e.g. site clearance), then the biodiversity value should be calculated based on the value of the site prior to the activity commencing. The only exception is where activities undertaken are in accordance with an otherwise consented[2] activity, In practice this puts an onus on the applicant and the ecologist who completed the

[1] Biodiversity Net Gain is defined as "development that leaves biodiversity in a better state than before" (CIEEM, 2016).
[2] For example a previous planning permission.

assessment to assume a "worst case scenario" approach where habitat clearance has been undertaken at the time of the site survey.

Where 10% Biodiversity Net Gain cannot be demonstrated on site the Act makes provision for offsite offsetting either through the purchase of biodiversity units on registered offsetting land or alternatively through the Government's credit system.

The requirements under Schedule 14 came into force on 12th February 2024. Therefore, any planning permissions granted after this date are subject to a minimum requirement to demonstrate 10% Biodiversity Net Gain.

Planning Policy

2.2.2 National Policy

The National Planning Policy Framework (NPPF) sets out the government's requirements for the planning system in England. The original document was published in 2012 with the most recent revised NPPF published in December 2023. A number of sections of the NPPF are relevant when taking into account development proposals and the environment. As set out within Paragraph 11 of the NPPF "*Plans and decisions should apply a presumption in favour of sustainable development*". However, Paragraph 188 goes on to state that "*The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.*".

The NPPF sets out that development proposals should not only minimise the impacts on biodiversity but also to provide enhancement. Paragraph 180 states that the planning system should contribute to and enhance the natural environment by *"…minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures...".*

A number of principles are set out in Paragraph 186, including that where harm cannot be adequately avoided then it should be mitigated for, or as a last resort, compensated for. Where impacts occur on nationally designated sites, the benefits must clearly outweigh any adverse impact and incorporating biodiversity in and around developments should be encouraged. Specific reference is also made to the protection

of irreplaceable habitats[3], including ancient woodland[4]. Where loss to irreplaceable habitats occurs planning permission would normally be refused unless there are wholly exceptional reasons and an adequate compensation strategy is in place. Paragraph 186 also states "*development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.*". Paragraph 187 also sets out that potential SPAs, SACs and listed or proposed Ramsar sites or sites acting as compensation for SPAs, SACs and Ramsar sites, should receive the same protection as habitat sites.

In addition to the NPPF, Circular 06/05 provides guidance on the application of the law relating to planning and nature conservation as it applies in England. Paragraph 98 states "*the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat*". Paragraph 99 states "*it is essential that the presence or otherwise of a protected species, and the extent that they may be affected by the Proposed Project Development, is established before planning permission is granted*".

2.2.3 Local Policy

Local planning policy within Wokingham Borough is provided by a collection of documents which make up the Wokingham Local Plan, which includes the Core Strategy adopted January 2010, and the Development Plan, adopted February 2014. A single policy within the Core Strategy is of relevance to Biodiversity Net Gain:

- **Policy CP7: Biodiversity**
  This policy refers to the protection of internationally, nationally, and locally designated sites, priority habitats, species of principal importance, veteran trees, and wildlife corridors. It states the need for avoidance, mitigation and compensation measures to counter any impacts on biodiversity; and

Work is underway on a new local plan – the Local Plan Update – which will put in place a new planning strategy for the period to 2040. Once adopted, it will replace the current Core Strategy and Managing Development Delivery local plans. It is anticipated that

[3] The NPPF defines irreplaceable habitats as "*Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen."*
[4] Natural England defines ancient woodland as "An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites (PAWS)."

the Local Plan Update (LPU) will be adopted in May 2026 (Wokingham Borough Council, 2024).

3.0 METHODOLOGY

3.1 Introduction

This section provides the methodology followed as part of the Biodiversity Net Gain Assessment.

3.2 Desk Study

3.2.1 Biological Records Centre

Thames Valley Environmental Records Centre was consulted on 27th September 2023 for the following data:

- Records of non-statutory designated sites (Local Wildlife Sites (LWSs)) within one kilometre of the site boundary; and
- Records of Habitats of Principal Importance for the Conservation of diversity in England notified under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and as listed in the England Biodiversity List (**Appendix 2**).

3.2.2 Multi-Agency Geographic Information for the Countryside

The Multi-Agency Geographic Information for the Countryside (MAGIC) database (DEFRA, 2024b) was reviewed on 20th March 2024 to establish the location of statutory designated sites located within the vicinity of the site. This included a search for all internationally and nationally designated sites such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Wetlands of International Importance (Ramsar sites), Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs) within one kilometre of the site.

A search was also made for the presence of any Habitats of Principal Importance potentially identified either on or adjacent to the site and any other features of importance which may require consideration when assessing the strategic significance of habitat features on site (see Paragraph 3.4.3).

3.2.3 Other Sources of Information

Given the requirement of the Environment Act that where operations have taken place which would decrease the unit value of the site after 30th January 2020, which are not otherwise part of a lawful operation, a review of publicly available aerial photography was undertaken to ensure that site conditions appear similar to those before the 30th January 2020.

In addition, a review was also undertaken of aerial photography to identify any potential features which may require consideration when assessing the strategic significance of habitat features on site (see Paragraph 3.2.2).

The Ecological Impact Assessment was also used to inform this Biodiversity Net gain report (ECOSA, 2024).

3.3 Field Survey

3.3.1 Habitat Classification and Condition Assessment

Areas of existing habitat that make up the on-site baseline and their current condition were identified during a field survey undertaken by ECOSA on 26th October 2023.

The field survey followed UK Habitat Classification (UKHab) methodology (UKHab Ltd, 2023). UKHab is the classification system used (with some minor modifications) within DEFRA's Statutory Biodiversity Metric Calculation Tool.

The field survey covered all accessible areas of the site within the defined red line boundary.

The UKHab Survey Application, developed using the digital survey platform Coreo was used to map habitats in the field, collect the field survey data and photograph the site.

The condition assessment was based on the criteria within the Statutory Biodiversity Metric Condition Assessments (DEFRA, 2024d). Some habitat types (for example most agricultural habitats and hardstanding) are not subject to assessment and are assigned default scores by the calculation tool.

3.3.2 Field Survey Details

The field survey was carried out by Joanne Richmond, Principal Ecologist of ECOSA on 26th October 2023. The weather conditions were dry with approximately 25% cloud cover, an ambient temperature of 15ºC and a light breeze.

During the survey, the surveyor was equipped with 10x40 binoculars, a high powered torch and a digital camera.

3.4 Biodiversity Net Gain Assessment Methods

The Biodiversity Net Gain Assessment was undertaken using DEFRA's Statutory Biodiversity Metric Calculation Tool (DEFRA, 2024a).

The calculator provides a score which represents the biodiversity value of each area of habitat by applying multipliers, which can have a positive or negative effect on the

overall score, based on a number of components of biodiversity quality. These components are set out in the paragraphs below.

Once these calculations are completed a pre- and post-development biodiversity value of the site is provided, which allows an assessment to be made of the net biodiversity losses or gains at the site.

As standard, the pre-development situation is based on the current ecological baseline as recorded during the field survey (see Paragraph 3.3.1). However, the pre-development situation may be based on a historic ecological baseline if a review of aerial imagery indicates that activities have been undertaken at the site on or after the 30th January 2020, which would have resulted in the site having a lower biodiversity value than otherwise would have been achieved (e.g. site clearance). In these instances, in accordance with the Environment Act 2021 (see Paragraph 2.2.1) the biodiversity value should be calculated based on the value of the site prior to the activity commencing.

3.4.1 Pre-Development Assessment

The site boundary on which this assessment was based was received by ECOSA on 1st March 2024 provided by Kingacre Estates Limited to be submitted as part of the planning application. The red line boundary on which the assessment is based is shown in **Map 1**.

The pre-development biodiversity value of the site is based on the baseline recorded in October 2023.

3.4.2 Post-Development Assessment

The post-development biodiversity value of the site is based on information provided by Pegasus Planning Group Limited with the following plans utilised in order to complete the assessment:

- Detailed Landscape Proposals – Pegasus Planning Group Limited, dated 17th December 2024 (Drawing No. P23-1686_EN_008D) (**Appendix 1**).

In order to assess post-development habitats the Detailed Landscape Proposals plan was categorised into likely UKHab classifications based on the best information available at the time of preparation of this report.

3.4.3 Components of Biodiversity Quality

Habitat Type

The field survey followed UK Habitat Classification (UKHab) methodology (UKHab Ltd, 2023), to classify all habitats on site into specific habitat types. The UKHab

classification system is used (with some minor modifications) within DEFRA's Statutory Biodiversity Metric Calculation Tool.

Habitat Area

Areas of existing, retained and proposed habitats were mapped and measured by ECOSA using QGIS. The extents of existing habitats are based on information collected during the field survey and using aerial photography and Ordnance Survey (OS) mapping resources (**Map 2**).

The extents for retained and proposed habitats were based on the Detailed Landscape Proposals – Pegasus Planning Group Limited, dated 17th December 2024 (Drawing No. P23-1686_EN_008D) (**Appendix 1**). This information was subsequently used to generate a Post-Development Habitat Map in QGIS (**Map 4**). Non-linear habitats are measured in hectares while linear features are measured by length in kilometres. Therefore, for the purposes of the calculation they are addressed separately with separate biodiversity units calculated for linear and non-linear features.

In both the pre-development and post-development mapping a Minimum Mapping Unit (MMU) is applied. This means that where individual habitats are smaller than the MMU these are not accounted for in the metric. The MMU for the baseline was the small-scale UKHab unit of five metres by five metres. For the post-development measurements this was based on plans provided by the design team which allowed mapping resolution to be increased to match the resolution of the plans provided.

In order to ensure that habitats can be tracked from pre-development through to post-development each polygon created is based on the final post-development layout. For example, if an individual area of developed land; sealed surface is being created on a an area of modified grassland this polygon will be visible both before (as modified grassland) and after (as developed land; sealed surface). The measurements are all made in hectares with each individual polygon rounded to three decimal places (ten square metres).

When measuring habitat areas for the purposes of inputting into the metric these polygons are combined into a single measurement based on that habitats characteristics (i.e. habitat, condition and strategic significance). The polygon numbers which are associated with each metric entry are then referenced in the GIS reference number section of the metric to allow cross referencing back to the pre and post-development habitat maps.

Habitat Distinctiveness

The distinctiveness of a habitat represents its relative quality and importance compared to other habitat types, based on an assessment of the distinguishing features of a

habitat, including consideration of species richness, rarity and the degree to which a habitat supports species rarely found in other habitats. The Habitat Distinctiveness scores are automatically assigned by the calculator in accordance with the assessment methodology detailed in the Statutory Biodiversity Metric User Guide (DEFRA, 2024c).

Habitat Condition

The condition of a habitat represents its relative quality judged against the perceived ecological optimum state for that particular habitat type. Therefore, habitat condition is specific to the habitat type and not comparable between habitat types (unlike Habitat Distinctiveness).

The condition assessment was based on the criteria within the Statutory Biodiversity Metric Condition Assessments (DEFRA, 2024d). Some habitat types (for example most agricultural habitats and hardstanding) are not subject to assessment and are assigned default scores by the calculation tool.

For proposed habitat creation, retention and enhancement a 'Target Condition' is assigned, this is the condition that it is proposed the habitat will achieve post-development and is based on the same criteria as the condition assessment.

Strategic Significance

The Strategic Significance multiplier gives additional unit value to habitats that are located in preferred locations for biodiversity and other environmental objectives. Strategic significance is the local significance of the habitat based on its location and habitat type. The strategic significance of an area may change between pre- and post-development scenarios, where the strategic value of the habitat features has changed post-development. For example, newly developed residential units may no longer be strategically significant compared to the pre-development situation, whereas a newly created ecological corridor or buffer may be deemed as more strategically significant if created post-development.

Where a Local Nature Recovery Strategy (LNRS) has been published, this will set out the descriptions to allow strategic significance to be assigned. Where no LNRS has yet been published, a relevant planning authority should specify alternative documents for assigning the strategic significance. Examples include, but not limited to, Local Plans, Tree Strategies, Biodiversity Action Plans, and Green Infrastructure Strategies (DEFRA, 2024c). Where a LNRS has not yet been published, nor documents from the Local Planning Authority (LPA) issued, further information from within the DEFRA User Guide (DEFRA, 2024c) must be followed.

There are three categories of strategic significance.

High (Formally Identified In Local Strategy)

Where an LNRS has been published, this category can be applied where the habitat in question falls within the parameters of the Local Habitat Map as an area with potential to deliver the priorities of the LNRS. If this is true, then strategic significance is recorded as 'Low' in the baseline, and 'High' in the post-intervention.

Where an LNRS has not been published, to allow high strategic significance to be assigned, the habitat is mapped and described as locally ecologically important within a specific location in the documents supplied by the LPA. If the project delivers the actions set out within the document, it can be recorded as 'High' in the post-intervention scenario. If the LPA document identified existing habitat as locally important, then strategic significance can be assigned as 'High' in the baseline.

Medium (Location ecologically desirable but not in local strategy)

This category cannot be applied where an LNRS has been published. Where the LPA have not identified a suitable alternative document, 'Medium' significance can only be assigned where it can be explained how the habitat type is ecologically important, demonstrated that the habitat is important in providing ecological linkage to other strategically significant locations, or by using professional judgement.

Low (Area/compensation not in local strategy/no local strategy)

Low significance is assigned where the definition for High (in LNRS) or for High or Medium (without LNRS) are not met. Within a scheme where there is an LNRS available, if the project is a potential area, if it does not deliver the specific actions outlined in the LNRS then it must be recorded as 'Low'.

3.4.4 Additional Factors for Habitat Creation and Enhancement

In addition to the above components, several additional multipliers are assigned to habitats which are proposed to be created or enhanced post-development. These factors take into account the risks associated with attempting to establish new habitats and are detailed below.

Difficulty Risk

This is the risk associated with the delivery of biodiversity creation or enhancement due to uncertainty in the effectiveness of techniques to create or restore a particular habitat type. For some habitat types it is much more difficult to replicate habitat losses because of the unique physical and ecological features of the habitat.

Temporal Risk

For some habitat types, it can take a long time to achieve the Target Condition (see Habitat Condition paragraph above). If there is a significant time lag between initial habitat loss and establishing new habitats of adequate condition to compensate for this loss, there will be lower levels of biodiversity for this period of time. The temporal risk multiplier reflects this temporary reduction in quality.

In addition, where habitat creation is delayed from the initial impact (for example if a landscaping scheme is delivered in the latter stages of a construction program) an additional temporal risk is applied to represent the time delay from the loss of biodiversity though to creation/enhancement of new habitats.

Spatial Risk

Where habitat creation is being undertaken to offset habitat loss as a result of the proposals, it is beneficial for such offsetting to be delivered in proximity to the original loss, ideally within the site itself, so that the ecosystem services provided by such habitat will benefit receptors that are affected by the proposals. Where this is not possible, it is considered that locating off-site compensation within the local planning authority area or the same National Character Area represents a minimal risk. For offsetting delivered further afield a negative multiplier is applied.

Trading Rules

When undertaking habitat creation it is also necessary to take into account trading rules. This means that “trading down” must be avoided. Habitat losses need to be compensated for on a “like for like” or “like for better” basis. This means that newly created habitats should be similar (for example grassland type habitats being replaced by grassland type habitats) and new habitat should aim to achieve either a higher distinctiveness and/or better condition that those which are lost. The only exception applies where low distinctiveness habitats are lost these can be offset with different but higher distinctiveness habitats. Losses of irreplaceable or very high distinctiveness habitat cannot be adequately accounted for through the metric. This should be avoided or a bespoke compensation scheme would need to be devised and agreed with the relevant authority.

3.5 Assumptions and Limitations

Whilst a best assessment is made of the post-development habitat types these do not always directly correlate into UKHab Classifications. Therefore, the creation of the habitats proposed are also subject to any future management and monitoring regime to ensure that the post-development creation and target condition is achieved.

It has been assumed that all habitats proposed will be created within one year of their loss. This is considered to feasible given the nature of the proposals.

4.0 BASELINE ECOLOGICAL CONDITIONS

4.1 Introduction

This section sets out a summary of the baseline ecological conditions at the site, supported by a pre-development habitat map (**Map 2**) with the full baseline assessment and evaluation provided within the accompanying Ecological Impact Assessment (ECOSA, 2024).

4.2 Important Ecological Features

Following the completion of the Ecological Assessment the following Important Ecological Features were identified:

- The site is located 350 metres from Big Wood LWS;
- The site supports native hedgerow habitat of ecological value;
- The site is suitable to support foraging and commuting bats, [redacted] breeding birds, reptiles, great crested newt, common toad and European hedgehog.

These features have been used to help design the Biodiversity Net Gain solution on site and also inform the strategic significance assessment. For full understanding of the Important Ecological Features identified within the scheme please refer to the Ecological Impact Assessment (ECOSA, 2024).

4.3 Baseline Habitats

4.3.1 Baseline Date

A review of historic aerial imagery as part of the desk study indicates that the land has been managed in its current use since before January 30th 2020, and there is no evidence of activities that would result in a lower biodiversity value at the site since this date, therefore the pre-development scenario has been based on the most recent field survey.

4.3.2 Habitat Type and Distinctiveness

The baseline habitats within the development red-line boundary are shown on **Map 2** and their distinctiveness is shown on **Map 3.**

The majority of the site comprises **modified grassland**. Sections of Waterloo Road, categorised as '**developed land; sealed surface'**, are present in the south and west of the site, where the proposed link road will connect to the existing road network. **Built linear features** are present in the form of post and rail fences, which border the existing road and a recently created drainage basin that lies adjacent to the red line. An

unsurfaced track passes through the site, which provides access from Waterloo Road to the drainage basin adjacent to the site. This has been categorized as **bare ground**.

A **native hedgerow** (H1) is present on the southern site boundary, bordering Waterloo Road. A **species-rich native hedgerow with trees** (H2 and H11) and **tree line** (H3) are present in the centre of the site, between Plots 10 and 14. A small section of **species rich native hedgerow – associated with bank or ditch**[5] (H10) is present in the north of Plot 10.

4.4 Condition Assessment

The on-site modified grassland and bare ground are in poor condition. The line of trees on site is in moderate condition, while the native hedgerow and species-rich native hedgerow are in good condition, as in one of the species-rich native hedgerows with trees (H11). The species-rich native hedgerow – associated with bank or ditch and one of the species-rich native hedgerows with trees (H2) is in moderate condition. All other habitat types are assigned a default condition score by the metric. Habitat condition is shown on **Map 3** and details of the condition criteria met by each habitat are provided in **Appendix 3** and **Appendix 4.**

4.5 Strategic Significance

The Strategic Significance multiplier gives additional unit value to habitats that are located in preferred locations for biodiversity and other environmental objectives. Strategic significance designations are based on the criteria set out in Paragraph 3.4.3.

4.5.1 Strategic Significance Context

The Local Nature Recovery Strategy (LNRS) for Berkshire is currently in development and no other local plans have been officially specified for use for determining strategic significance in relation to Biodiversity Net Gain. As such, in accordance with the Biodiversity Net Gain User Guide (DEFRA, 2024c) high strategic significance (Formally identified in local strategy) cannot be assigned. It is therefore necessary to determine whether the habitat type is ecologically important within a specific location, and whether the habitat is important in providing ecological linkage to other strategically significant locations, based on ‘professional judgement’. Although not formally specified for use in determining strategic significance, local plans have been used to support the use of professional judgement.

[5] In previous assessments associated with the outline application, this was mapped separately as ‘species rich hedgerow native hedgerow’ and ‘ditch’ habitats, however, based on the current guidance (DEFRA, 2024c), it has been recategorized as the ditch lies within two metres of the centre of the hedgerow. Although extensive data has not be gathered to determine how much of the year the ditch holds water, given the design and function of the ditch it is considered reasonable to assume that it may hold water fewer than four months of the year.

4.5.2 Assigned Significance

The habitats on the site are not included in any other local plans such as the Local Plan 2002, Core Strategy 2008, or the Biodiversity Action Plan 2018-2023. While the hedgerows on site are connected to a hedgerow network that links to Big Wood LWS 350 metres east of the site, due to the presence of William Heelas Way and Waterloo Road, the hedgerow network associated with the site is relatively limited and the on-site hedgerows do no provide any important ecological corridors between Big Wood LWS and any other strategically significant habitats. Therefore all habitats on site are assigned Low (Area / compensation not in local strategy).

4.6 Baseline Biodiversity Units

The on-site pre-development biodiversity units for the site are 4.09 habitat units and 1.49 hedgerow units. The full calculation available in the Statutory Biodiversity Net Gain Metric provided (ECOSA, 2024).

5.0 PROPOSED DESIGN

5.1 Introduction

This section set outs the proposed design and how it has been informed by Biodiversity Net Gain Design. The associated Post-Development Habitat Plan is provided in **Map 4**.

5.2 Biodiversity Net Gain Good Practice Principles

An assessment of the proposals against the Biodiversity Net Gain Good Practice Principles for Development (CIEEM, 2016) is provided in **Appendix 7**.

5.3 Habitat Retention

Due to the nature of the proposals and limited extent of the red line, all habitats on site will be lost (**Map 6**), with the exception of the short stretches of hedgerow in the north of the site (H10 and H11).

5.4 Habitat Creation

5.4.1 Habitat Type and Distinctiveness

The anticipated post-development habitats are shown on **Map 4** and their distinctiveness is shown on **Map 5**.

Post development **developed land; sealed surface** will be created associated with the proposed link road. Three **sustainable drainage basins** will be constructed, one adjacent to an existing drainage basin which lies just outside the site boundary in Plot 10 and two on the western boundary of Plot 14. **Mixed scrub** will be planted on the banks and a **native species-rich hedgerow (H5)** planted along the edge of the drainage basin in Plot 10, this involves both new planting and replanting of an existing very immature hedgerow which was planted along the existing drainage basin adjacent to the site. As the whips associated with this hedgerow will be removed, planted in an alternative location and then returned to their original location, in their current condition, on completion of the works (within two years) this has been considered a 'temporary impact' and is not accounted for within the metric. The translocated hedgerow has been shown on **Map 4** for completeness. A double row of **native species-rich hedgerow (H7, H8 and H9)** is also proposed lining a smaller drainage basin in the west of Plot 14. A **native species-rich hedgerow with trees (H6)** will be planted, creating a double row with retained hedgerow (H2), on the western boundary of Plot 14, north of the proposed link road. Small **rain gardens** will be created adjacent to the proposed link road. **Modified grassland** will be created in road verges and on the banks of the sustainable drainage basin. Fifty six **urban trees** will also be planted throughout the site, along the road verges and around the drainage features.

5.4.2 Condition Assessment

Newly created modified grassland, mixed scrub and urban trees will be targeted to achieve moderate condition. The proposed sustainable drainage system and rain garden will be targeted to achieve good condition. 'Developed land; sealed surface' is given a standard condition score by the metric calculator ('N/A – Other'). The newly created hedgerows will be targeted to achieve moderate condition. Retained hedgerows will target their current condition (Good). Post-development habitat condition is shown in **Map 5** and details of the condition criteria met by each anticipated post-development habitat and hedgerow are provided in **Appendix 5** and **Appendix 6** respectively.

5.4.3 Assigned Significance

There will be no changes to the site post-development that would change the assessment of strategic significance undertaken for the site baseline. Therefore all habitats have been assigned a strategic significance of Low (Area/compensation not in local strategy/ no local strategy).

5.5 Stakeholder Engagement

There has been ongoing consultation between ECOSA and the client and landscape architects to ensure the best outcomes for biodiversity. In addition, a meeting was held with Wokingham Borough Council on Thursday 19th August 2024 to discuss how Biodiversity Net Gain at the site could best be delivered, particularly within the context of the wider Project Site.

5.6 Verification of Audit Process

It is anticipated that the net gain to be delivered as part of the scheme will be secured through a Landscape and Ecological Management Plan (LEMP) to ensure that habitats created are managed in a way that means they will meet their target conditions.

6.0 RESULTS AND CONCLUSIONS

6.1 Introduction

This section sets out the results of the Biodiversity Net Gain assessment. The full metric assessment is available in the Statutory Biodiversity Net Gain Metric Calculation provided (ECOSA, 2024) with the Baseline Habitats and Post-Development Habitats shown on **Map 2** and **Map 4** respectively.

6.2 Results

The on-site baseline hedgerow unit value is 1.49 hedgerow units. Post-development this value is 1.96 hedgerow units. This is achieved through the retention of hedgerows in the north of the site and creation of several new species-rich native hedgerows (one with trees) targeting moderate condition, both on the edge of the proposed sustainable drainage basin in R10 and on the boundaries of R14. **This represents a net gain of 0.47 hedgerow units (31.45%).**

The on-site baseline habitat unit value is 4.09 habitat units. Post-development this value is 5.53 habitat units. This is achieved through the conversion of modified grassland (a low distinctiveness habitat) in poor condition into a range of habitat types with greater distinctiveness (such as mixed scrub and urban trees) and/or in better condition. **This represents a net gain of 1.44 habitat units (35.22%).**

The trading rules for both habitats and hedgerows have been achieved within the metric as the habitats and hedgerows created and enhanced have an equal to or higher distinctiveness to those lost.

6.3 Implementation

In order to ensure that the proposed habitat types are established and maintained in the condition targeted within the metric, an appropriate plan for implementation of the measures set out in this document during the construction phase, as well as a management and monitoring plan for a minimum period of 30 years will be produced.

6.4 Conclusion

The metric calculation undertaken complies with all metric rules and best practice principles. The results of the calculation confirm that the proposals will deliver a measurable biodiversity net gain of at least 10% in both habitat and hedgerow units.

7.0 REFERENCES

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Map 1 Site Location Plan

R10 - R14 LINK ROAD, SOUTH WOKINGHAM, BERKSHIRE

BIODIVERSITY NET GAIN ASSESSMENT

Map 1 - Site Location Plan

Client:	Kingacre Estates Limited
Date:	January 2025
Status:	Draft

KEY

Site Boundary

Scale at A4 1:10,000

0 100 200 300 400 m

N

Prepared by: JP	Date: 141124
Last amended by: JP	Date: 070125

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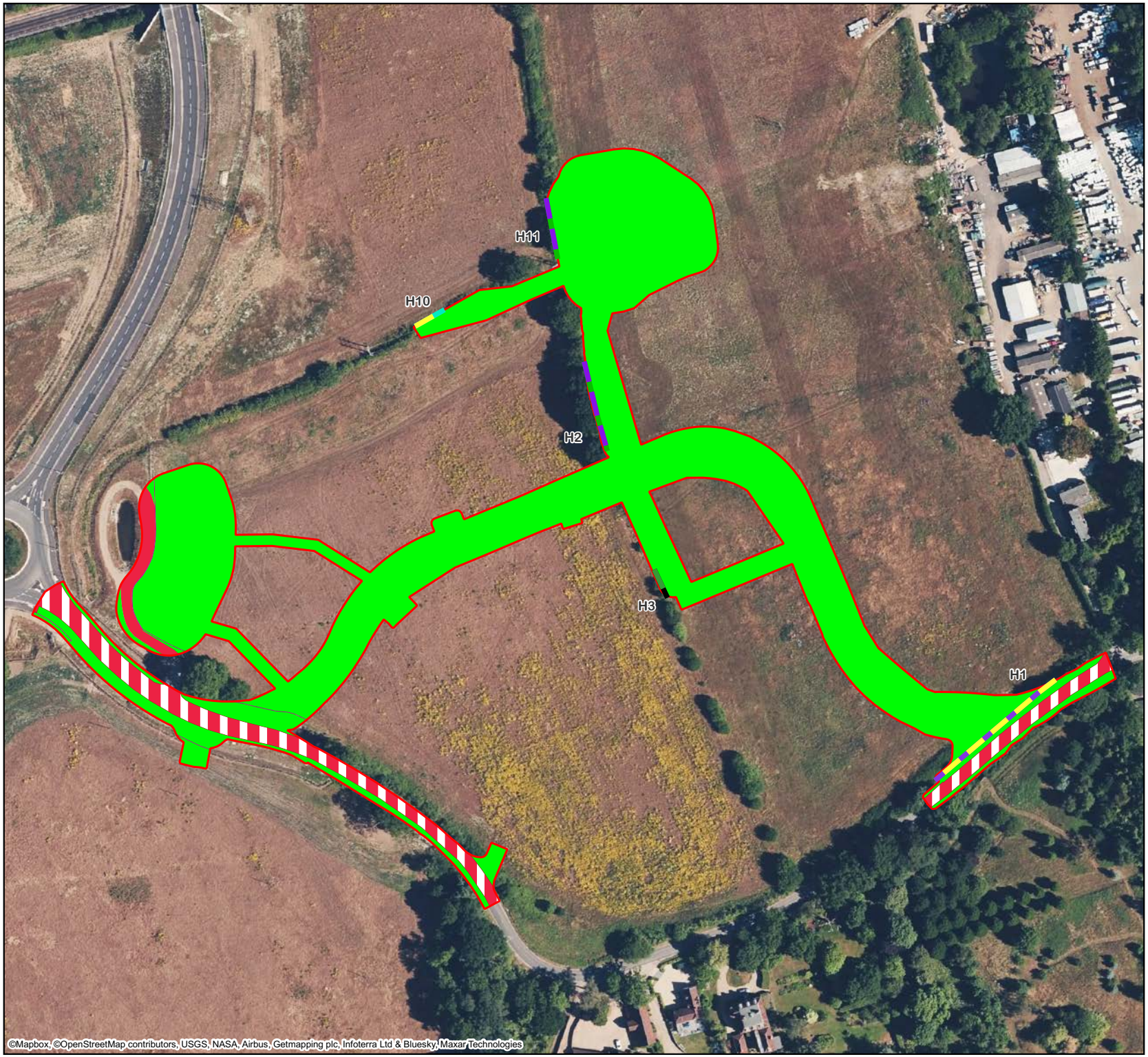
Map 2 Baseline Habitats



R10 - R14 LINK ROAD, SOUTH WOKINGHAM, BERKSHIRE

BIODIVERSITY NET GAIN ASSESSMENT

Map 2 - Baseline Habitats

Client:	Kingacre Estates Limited
Date:	January 2025
Status:	Draft

KEY

- Site Boundary
- Built linear features
- Developed land; sealed surface
- Modified grassland
- Bare ground
- Line of trees
- Native hedgerow
- Native hedgerow - associated with bank or ditch
- Species-rich native hedgerow with trees

Scale at A4 1:2,250

0 25 50 75 100 m

N

Prepared by: JP	Date: 141124
Last amended by: JP	Date: 100125

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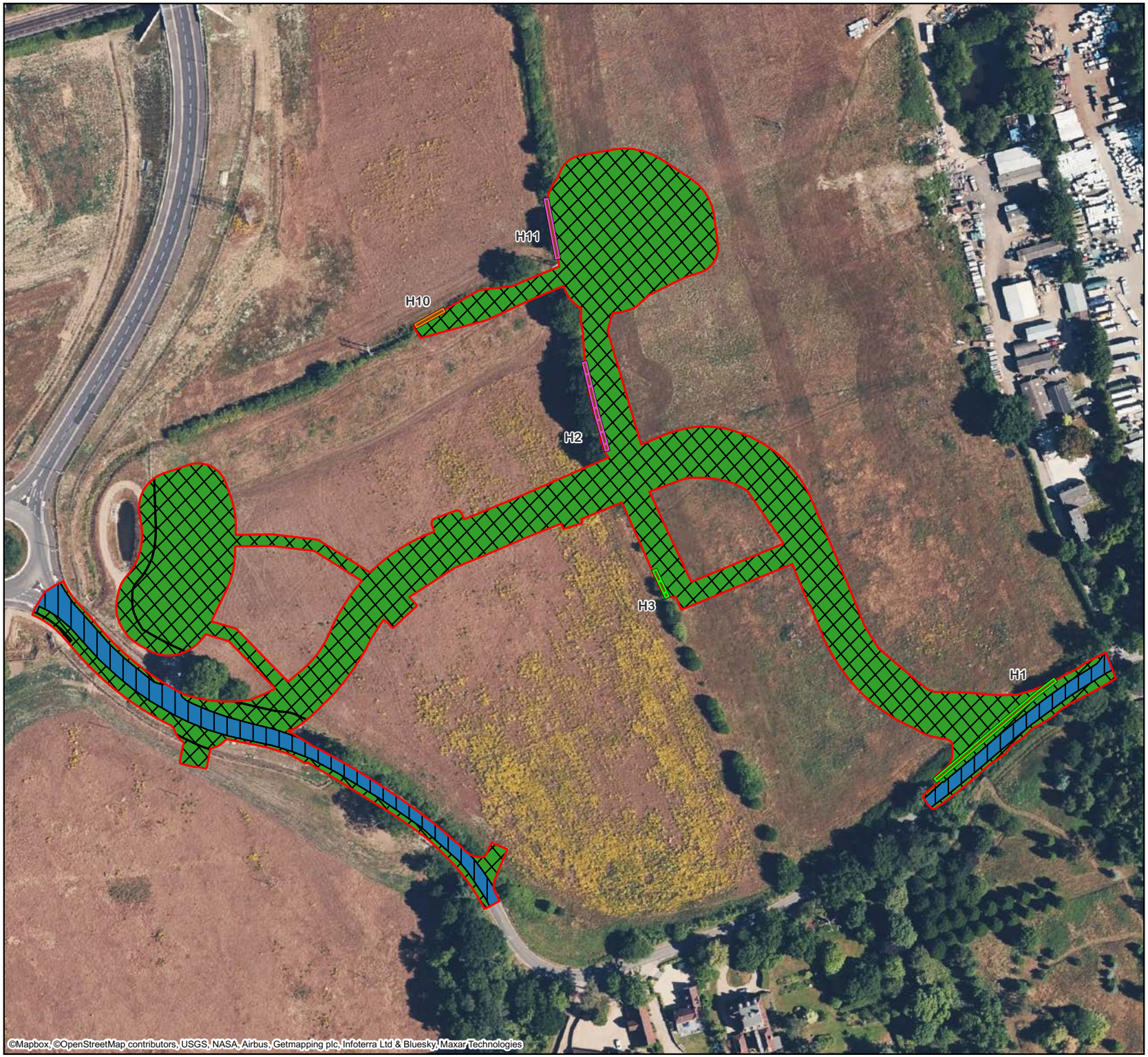
Map 3 Baseline Habitats Condition and Distinctiveness



R10 - R14 LINK ROAD, SOUTH WOKINGHAM, BERKSHIRE

BIODIVERSITY NET GAIN ASSESSMENT

Map 3 - Baseline Habitats Condition and Distinctiveness

Client:	Kingacre Estates Limited
Date:	January 2025
Status:	Draft

KEY

Site Boundary

Condition

- Poor
- N/A - Other
- Good
- Moderate

Distinctiveness

- Low
- V.Low
- High
- Medium
- Low

Scale at A4 1:2,250

0 25 50 75 100 m

N

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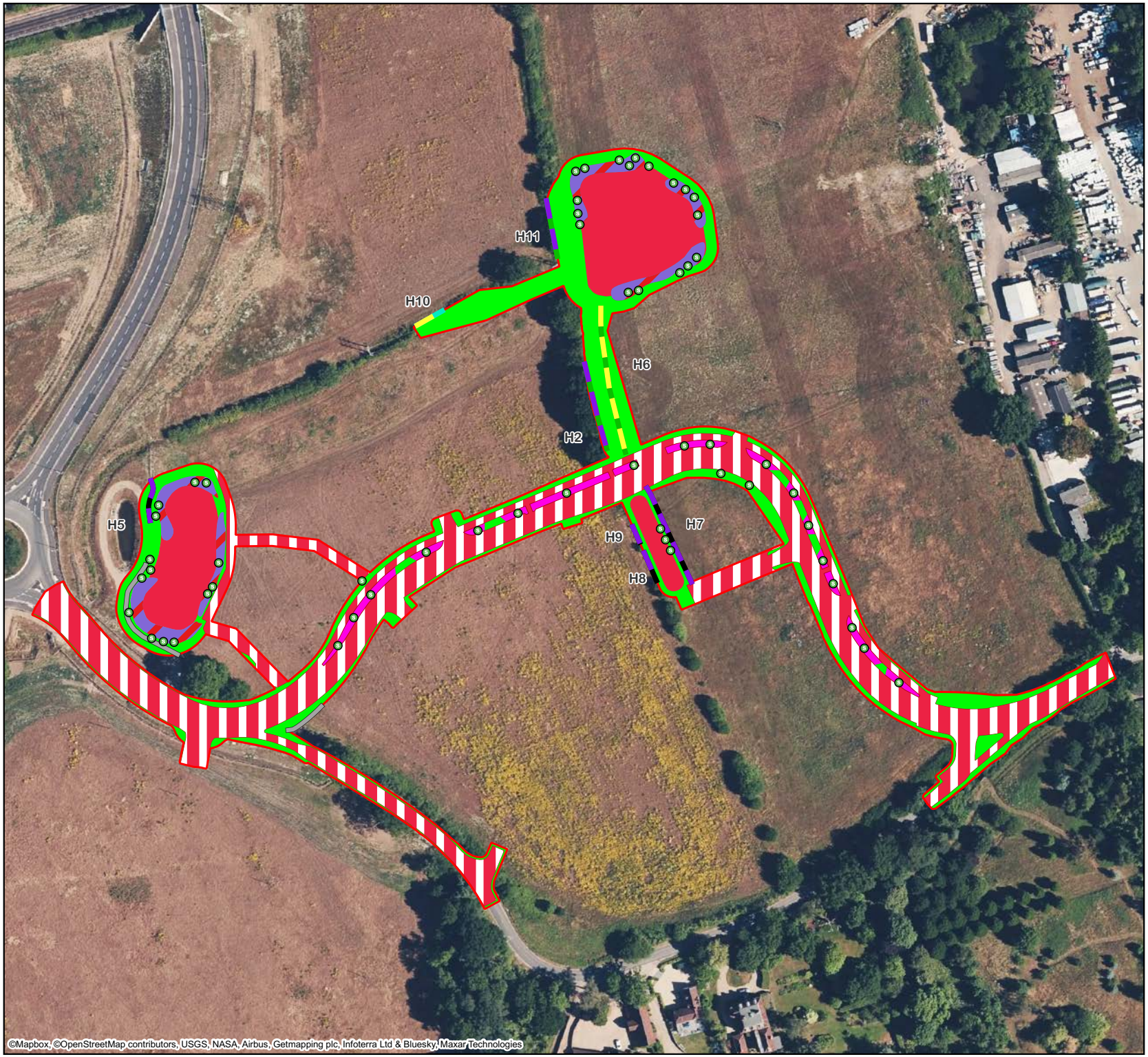
Map 4 Post-Development Habitats



R10 - R14 LINK ROAD, SOUTH WOKINGHAM, BERKSHIRE

BIODIVERSITY NET GAIN ASSESSMENT

Map 4 - Post-development Habitats

Client:	Kingacre Estates Limited
Date:	January 2025
Status:	Draft

KEY

- Site Boundary
- Developed land; sealed surface
- Mixed scrub
- Modified grassland
- Rain garden
- Sustainable drainage system
- Native hedgerow - associated with bank or ditch
- Native hedgerow with trees
- Species-rich native hedgerow
- Species-rich native hedgerow with trees
- Relocated Hedgerows - (A total of 71m of newly planted hedgerow will be translocated to facilitate the works, the hedgerow will be returned to it's current position and condition within 2 years)
- Proposed Small Urban Tree

Scale at A4 1:2,250

0 25 50 75 100 m

N

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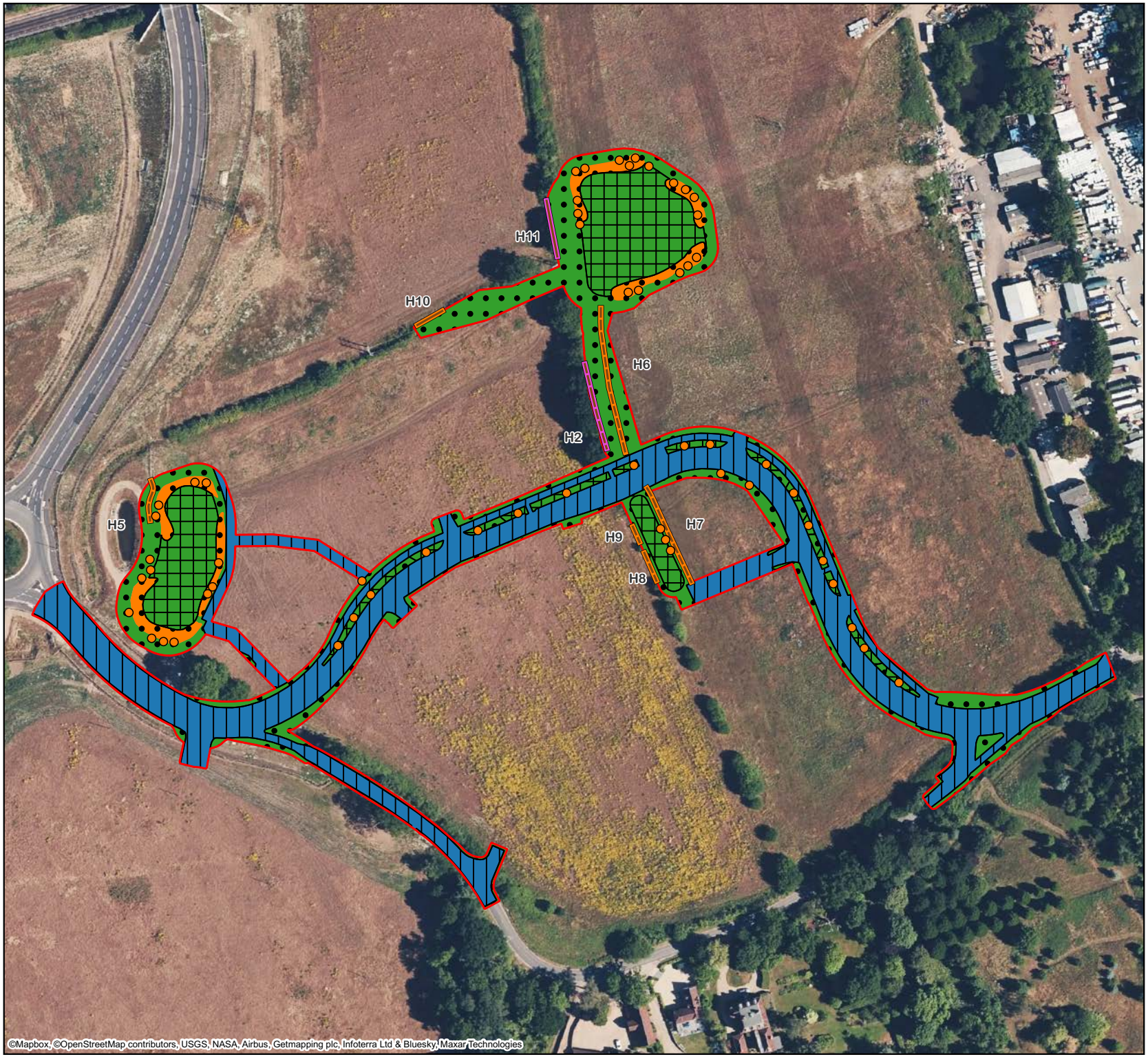
Map 5 Post-Development Habitats Condition and Distinctiveness



R10 - R14 LINK ROAD, SOUTH WOKINGHAM, BERKSHIRE

BIODIVERSITY NET GAIN ASSESSMENT

Map 5 - Post-development Habitats Condition and Distinctiveness

Client:	Kingacre Estates Limited
Date:	January 2025
Status:	Draft

KEY

Site Boundary

Condition

- Good
- Moderate
- N/A - Other
- Good
- Moderate
- Moderate

Distinctiveness

- Medium
- Low
- V.Low
- High
- Medium

Scale at A4 1:2,250

0 25 50 75 100 m

N

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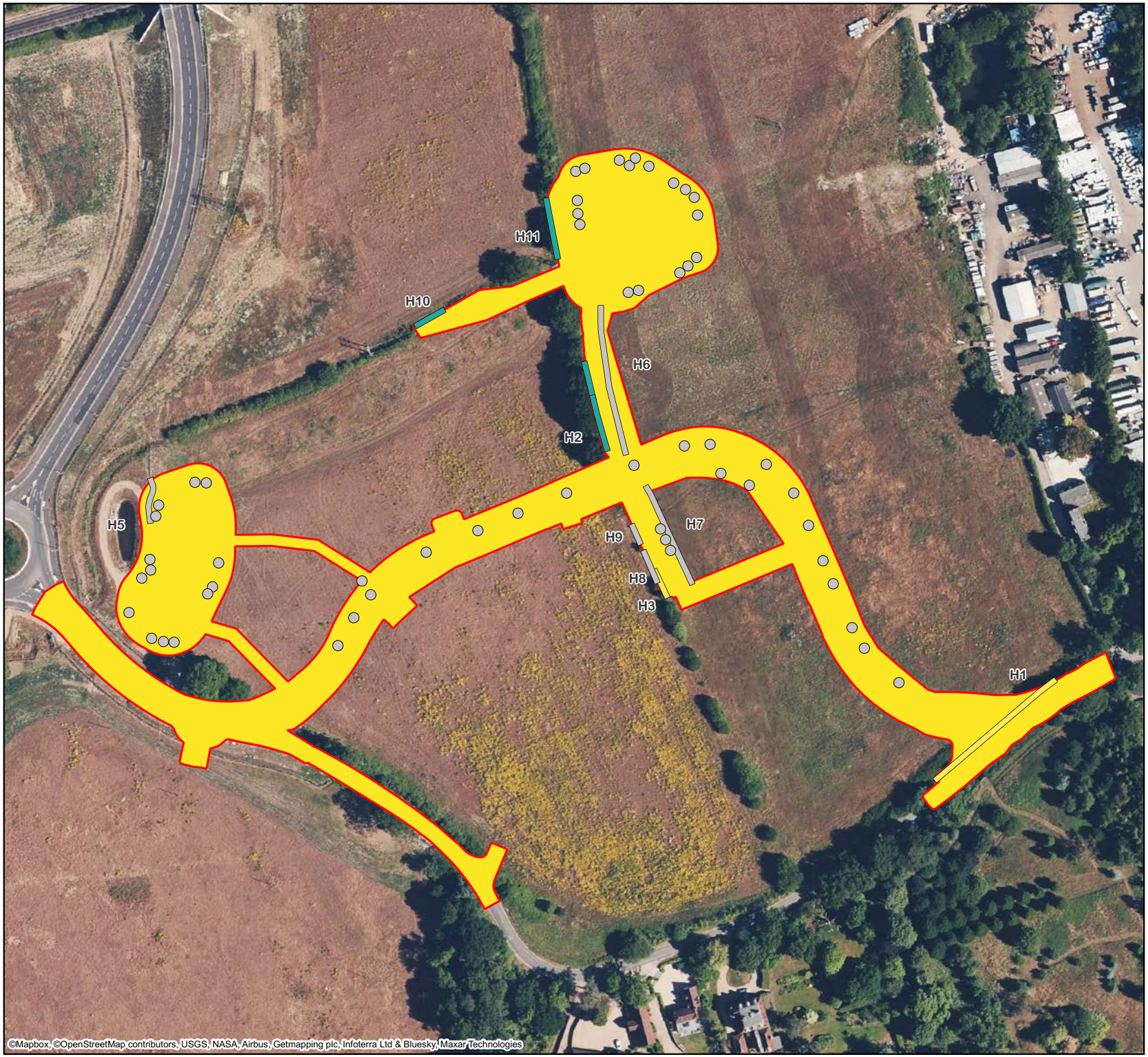
Map 6 Habitat Retention



R10 - R14 LINK ROAD, SOUTH WOKINGHAM, BERKSHIRE

BIODIVERSITY NET GAIN ASSESSMENT

Map 6 - Habitat Retention

Client:	Kingacre Estates Limited
Date:	January 2025
Status:	Draft

KEY

- Site Boundary
- Lost
- Created
- Retained
- Lost
- Created

Scale at A4 1:2,250

0 25 50 75 100 m

N

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Appendix 1 Site Proposals Plan

KEY

- Application Boundary
- Existing vegetation to be retained / Refer to ACD AIA Drawing
- Hedgerow to be removed / Refer to ACD AIA Drawing
- Landscaping which forms part of Eastern Gate Landscape proposals to be relocated
- Verge tree planting
- POS tree planting
- Proposed native hedgerow
- Relocated Eastern Gateway hedgerow
- Proposed areas of native shrub planting
- Amenity grass
- Wildflower meadow grassland Emorsgate EM1 Basic General Purpose Meadow Mix - Top of Basin
- Wildflower meadow e.g. Emorsgate EM8 Meadow mixture for Wetlands - Bottom of Bas
- Proposed rain gardens
- Visibility splays - Ref to dwg. A389 - LR - 101- P5 Gen. Arrangement plan

INDICATIVE STREET TREES

Acer x freemanii 'Armstrong'
Mature Height: 7-12m
Mature Spread: 5-10m
Crown Shape: Upright/Columnar
NHBC offset: 9m
Soil Volume requirement: 14m³
Moderately tolerant to drought
Moderately tolerant to waterlogging

Liquidambar styraciflua 'Slender Silhouette'
Mature Height: 7-12m
Mature Spread: 1.5-2.5m
Crown Shape: Columnar
NHBC offset: 9m
Soil Volume requirement: 10m³
Moderately sensitive to drought
Moderately tolerant to waterlogging

Gleditsia tricanthos 'Draves Street Keeper'
Mature Height: 12-17m
Mature Spread: 5-7m
Crown Shape: Ovoid
NHBC offset: 7m
Soil Volume requirement: 17m³
Tolerant to drought
Moderately tolerant to waterlogging

PLANTING SCHEDULE

TREE PLANTING

Species	Specification	Girth	Height cm	Clear Stem (cm)	Root Condition
Acer x freemanii	EHS	14-16	400-450	Min 200	BSL
Alnus cordata	EHS	14-16	425-600	175-200	BSL
Alnus glutinosa	EHS	14-16	400-450	Min 200	BSL
Betula nigra	EHS	14-16	400-450	Min 200	BSL
Betula pendula	EHS	14-16	400-450	Min 200	BSL
Betula pubescens	EHS	14-16	400-450	Min 200	BSL
Gleditsia triacanthos	EHS	14-16	400-450	175-200	BSL
Quercus palustris	EHS	16-18	400-450	Min 200	BSL
Salix caprea	EHS	14-16	400-450	175-200	BSL

RAIN GARDEN TREE PLANTING

Species	Specification	Girth	Height (cm)	Clear stem	Root condition
Acer x freemanii 'Armstrong'	EHS	14-16	400-450	Min 300	BSL
Amelanchier Arborea 'Robin Hill'	EHS	14-16	425-600	Min 300	BSL
Gleditsia tricanthos 'Draves Street Keeper'	EHS	16-18	400-450	Min 200	BSL

NATIVE SHRUB PLANTING MIX - to be planted at 2/m²

Species	%	Height/ Spread cm	Specification	Root Condition
Acer campestre	5	60-80	1+1branched; 3 breaks	B
Cornus sanguinea	20	60-80	1+1branched;3 breaks	B
Euonymus europaeus	15	60-80	Branched; 5 breaks	B
Rosa canina	10	60-80	1+1branched;3 breaks	B
Salix cinerea	20	60-80	1+1branched;3 breaks	B
Sambucus nigra	10	60-80	1+1branched;3 breaks	B
Viburnum opulus	10	60-80	branched; 3 breaks	B

NATIVE HEDGEROW PLANTING - to be planted at 0.45 centres in double staggered rows (5 per linear metre)

Species	%	Height/ Spread cm	Specification	Root Condition
Carpinus betulus	10	100-125	1+2; Feathered	B
Corylus avellana	10	80-100	1+2; Transplant; Branched; 4 breaks	B
Crataegus monogyna	45	100-125	1+2; Transplant	B
Ilex aquifolium	2.5	80-100	Leader with laterals	3L
Prunus spinosa	5	100-125	1+2; Transplant	B
Rosa canina	2.5	60-80	1+1; Transplant' branched; 3 breaks	B
Salix caprea	15	80-100	0/1 Transplant	B
Quercus robur	10	100-125	1+2 Transplant	B

EMORSGATE EM8 MEADOW MIXTURE FOR WETLANDS

Mixture to be sown at a rate of 4g/m2.

%	Latin Name	Common Name
	Wildflowers (20%)	
2	Achillea millefolium	Yarrow
0.6	Agrimonia eupatoria	Agrimony
3.6	Centaurea nigra	Common Knapweed
1	Filipendula ularia	Meadowsweet
2	Galium verum	Lady's Bedstraw
0.2	Geum rivale	Water avens
0.5	Lathyrus pratensis	Meadow Vetchling
0.1	Leontodon hispidus	Rough Hawkbit
1.2	Leucanthemum vulgare	Oxeye Daisy (Moon Daisy)
0.1	Lotus corniculatus	Birdsfoot Trefoil
0.4	Lotus pendunculatus	Greater Birdsfoot Trefoil
3.2	Plantago lanceolata	Ribwort Plantain
0.2	Primula veris	Cowslip
0.1	Prunella vulgaris	Selfheal
0.4	Ranunculus acris	Meadow Buttercup
1.4	Rhinanthus minor	Yellow Rattle
1.2	Rumex acetosa	Common Sorrel
1	Sanguisorba officinalis	Great Burnet
0.3	Silene flos-cuculi	Ragged Robin
0.1	Succisa pratensis	Devil's-bit Scabious
0.4	Vicia cracca	Tufted Vetch
	Grasses (80%)	
4	Agrostis capillaris	Common Bent (w)
4	Anthoxanthum odoratum	Sweet Vernal-grass (w)
2	Carex divulsa ssp divulsa	Grey Sedge (w)
38.4	Cynosurus cristatus	Crested Dogstail
1.6	Deschampsia cespitosa	Tufted Hair-grass (w)
20	Festuca rubra	Red Fescue
4	Hordeum secalinum	Meadow Barley (w)
8	Poa trivalis	Rough-stalked Meadowgrass
2.4	Schedonorus arundinaceus	Tall Fescue

EMORSGATE EM1 BASIC GENERAL PURPOSE MEADOW MIXTURE

EM1 - Mixture to be sown at a rate of 4g/m2.

%	Latin Name	Common Name
	Wildflowers (10%)	
0.3	Achillea millefolium	Yarrow
1.6	Centaurea nigra	Common Knapweed
1.6	Leucanthemum vulgare	Oxeye Daisy
1.6	Malva moschata	Musk Mallow
1.6	Plantago lomceolata	Ribwort Plantain
1.6	Poterium sanguisorba ssp sanguisorba	Salad Burnet
0.7	Ranunculus acris	Meadow Buttercup
0.5	Rhinatus minor	Yellow Rattle
0.5	Daucus carota	Wild Carrot
	Grasses (90%)	
9	Agrostis capillaris	Common Bent
31.5	Cynosurus cristatus	Crested Dogstail
27	Festuca rubra	Red Fescue
4.5	Phleum bertolonii	Smaller Cat's-tail
18	Poa pratensis	Smooth-stalked Meadow grass

RAIN GARDEN MIX

Species	Mix (%)	Specification	Pot Size	Density /m2
Aster frikartti 'Monch'	10	C	3L	6
Bergenia cordifolia	5	C		
Geranium Rozanne	15	C		
Iris sibirica	10	C		
Liatris spicata 'Kobold	10	C		
Panicum virgatum 'Shenandoah	10	Full pot		
Persicaria officinalis 'Darjeeling Red'	10	C		
Rudbeckia 'Goldstrum'	5	C		
Sanguisorba officinalis 'Pink Tanna'	10	C		
Sesleria autumnalis	15	Full Pot		

NOTE:

Planting location and quantities in blue are shown indicatively and will be confirmed within the residential reserved matters planning applications. Proposed hedgerow planting is to be provided as shown on this plan for BNG. All planting is to be in accordance with The Landscape Design Statement (P19-0052_41) and ensure planting is appropriate for it's location (including but not limited to NHBC requirements, soil volume, soil condition, visibility splay requirements, nature of growth and character of landscape and/or streetscape as set out within the Design Code and Landscape Design Statement)

PLANTING SPECIFICATION

These implementation and maintenance guidelines are for planning purposes only to indicate the level of workmanship to be specified and do not constitute a detailed specification.

1. GENERAL

1.1. All landscape operatives will be appropriately trained, certified and qualified to undertake the tasks required. When required, the relevant certificates will be made available for inspection. All work is to be carried out in accordance with the relevant British Standards, Codes of Practice and Legislation.

1.2. All plants shall conform to BS 3936 and be in accordance with the National Plant Specification. Supplying nurseries shall be registered under the HTA Nursery Certification Scheme. All plants shall be packed and transported in accordance with the Code of Practice for Plant Handling as produced by CPSE.

1.3. Prior to planting soil percolation tests will be undertaken to ensure the soil is free draining and that planting will not become waterlogged. If soil is not free-draining the landscape architect should be informed and advice should be sought from a soil scientist, following which remediation/drainage solutions undertaken to ensure planting will thrive.

1.4. Planting shall not be carried out when the ground is waterlogged, frost bound or during periods of cold drying winds. All bareroot planting stock will be kept covered until actually planted in order to minimise water-loss and prevent the roots from drying out. Tree handling, storage and planting shall be in accordance with BS 8545 Chapters 9 to10 and Annexes E to F.

1.5. The landscape contractor shall maintain all areas of new planting for a period of 12 months following practical completion. All stock deemed to be dead, dying or diseased within the defects period shall be replaced by the contractor at his own cost.

1.6. A minimum intervention approach will be used in terms of weed control. In areas of transplant tree/shrub or ornamental shrub planting this is to be achieved by using mulch mats and hand-weeding. Weed killer and other chemicals will be used as little as possible on site. Spot removal of weeds will be carried out by hand removal as necessary.

2. TREE PLANTING

Ground Preparation and Tree Pit Excavation

2.1. Where necessary remove existing weeds by hand. Chemical removal using a glyphosate based herbicide will be avoided unless large areas need clearing – following which allow a suitable period to elapse, as recommended by the manufacturer, for the herbicide to take effect.

2.2. Tree pits of at least 75mm diameter greater than the root system and no deeper than the rootball / container depth are to be excavated and the sides well scarified to prevent smearing. All extraneous matter such as plastic, wood, metal and stones greater than 50mm in any dimension shall be removed from site.

2.3. During excavation of the pit, the soil dug should be placed to one side separating topsoil and subsoil as far as is practical.

2.4. Drainage prior to tree planting a review of the soil type should be undertaken to ensure that the tree pit base will allow water to percolate, and the pit will not become waterlogged. If free vertical drainage will not occur through the base of the tree pit, then a drainage system must be put in place, such as connection to a land drain or additional excavation to reach the gravel seam. Professional advice should be sought from a soil scientist and, if required, a drainage engineer.

Tree Planting

2.5. Trees shall be planted as per the planting arrangement as set out on the planting plan and plant schedule.

2.6. The typical rooting depth for trees is 900mm. The first 300mm shall be made up of topsoil; it shall be ensured that a suitable subsoil provides the remainder of the minimum rooting depth.

2.7. The root system of the tree should be wetted prior to planting. The tree should be planted at the correct depth taking into account the position of the root flare and the finished level – the rootball or root stem transition should be level with the existing host soil or surface. The base of the rootball should typically sit on subsoil, for larger rootballs the subsoil will sit around the lower portion of the rootball.

2.8. Tree pits should be backfilled with the excavated topsoil, if the original topsoil is not available or deemed unsuitable, a multi-purpose topsoil should be used. Any subsoil excavated should be discarded and the subsoil depth (beyond 300mm deep) backfilled with a high sand content subsoil. Backfill should be added gradually, in layers of 150mm to 200mm depth, ensuring the tree is held upright At each stage the fill should be firmed in to eliminate all air pockets under and around the root system, but with care being taken not to excessively compact the soil. The final layer should not be consolidated.

2.9. General-purpose slow release fertiliser (at the rate of 75grm/m2) and Tree Planting and Mulching Compost at the rate of (20litres/m2) are to be incorporated into the top 150mm of topsoil during final cultivations.

2.10. Standard trees are to be single staked with 75mm dia stakes. All extra heavy standard size trees are to be double staked with 75mm dia stakes. Stakes should be driven at least 300mm into undisturbed ground before planting the tree, taking care to avoid underground services and cables etc. and should typically be one third the height of the tree stem above ground.

2.11. Staked trees shall be secured to stakes with suitable proprietary rubber tree ties and spacers.

2.12. Immediately after planting, but before applying the below bark mulch, all trees should be saturated to field capacity.

2.13. Ornamental composted bark mulch will be spread to a depth of 75mm across a 0.8m dia circle around individual trees, ensuring that the root flare and base of the stem, along with any ground cover plants, are not buried.

3. NATIVE SHRUB PLANTING

Ground Preparation

3.1. Cut existing rough grass and weeds to between 20mm and 30mm and remove 300x300mm squares of turf at 1m².

Planting

3.2. The minimum overall recommended rooting depth for shrubs is 600mm and for trees is 900mm. The first 300mm shall be made up of multi-purpose topsoil; it shall be ensured that a suitable subsoil provides the remainder of the minimum rooting depth. Before receiving topsoil, subsoils should be loosened using ripping equipment; this shall be done when the subsoil is dry to encourage soil shattering. All stones and other objects larger than 50 mm shall be removed from the prepared surface.

3.3. Shrub / tree planting is to be as per the planting pattern as set out on the planting plan and planting schedule, with shrubs / trees planted at even spaces into the prepared soil at the specified number per centre, with minimal disturbance to the rootball, and well firmed in. Planting should avoid man-made grids and lines, and should group species together in groups of 5–7 plants. Spread ornamental pine bark mulch to a depth of 75mm to a 900mm diameter around each planting station.

3.4. All bare-root planting stock will be protected from rabbit damage using approved proprietary 0.6m (for shrub species) or 1.2m (for tree species) plastic shrub/tree guards, supported with 0.9m (or 1.35m for trees) x 32mm x 32mm softwood stakes as advised by the manufacturer.

3.5. All container-grown planting stock will be protected from rabbit damage using approved proprietary 600mm plastic shrub shelters, supported with 0.9m x 32mm x 32mm softwood stakes as advised by the manufacturer.

Maintenance

3.6. Using approved herbicides, a 900mm diameter circle centred on each planting station shall be kept weed free throughout the maintenance period. In the autumn following planting the CA will prepare a list of all plants which are dead, dying or diseased and are to be replaced during the following planting season.

4. NATIVE HEDGE PLANTING

4.1. Ground Preparation

4.2. Where necessary existing weeds will be treated with a glyphosate-based herbicide and a suitable period allowed to elapse, as recommended by the manufacturer, for the herbicide to take effect.

4.3. All extraneous matter such as plastic, wood, metal and stones greater than 50mm diameter will be removed from site to a registered waste disposal facility.

Planting

4.4. The planting arrangement shall be as set out in the plant schedule on the relevant planting plan.

4.5. Bare-root hedge plants shall be notch planted in a double staggered row at the rate of 5 plants per linear metre (using V- shaped notches) using spades of a design suitable for this purpose. The notches must be vertical and deep enough for the roots to hang freely, with the transplant being planted so that the root collar is exactly level with the ground surface. The notch must then be closed and the soil will be well firmed round the roots in line with the guidelines as set out in BS 4428 (1989).

4.6. All bare-root hedge planting stock will be protected from rabbit damage using approved proprietary 600mm clear plastic spiral guards, supported with 0.9m 12/14lb canes as advised by the manufacturer.

Maintenance during first growing season

4.7. All dead, dying or diseased hedge plants will be replaced with plants of similar size and species. If the failure of the plant is due to disease and the disease is considered likely to re-occur then an alternative species may be used as replacement if agreed with the LPA.

4.8. The planting area will be kept weed free throughout the maintenance period using approved herbicides in April, June and August

5. SHRUB/ HERBACEOUS PLANTING

5.1. Shrubs/herbaceous plants are to be set out as shown on the drawing and pit planted into the prepared soil at the specified densities with minimal disturbance to the rootball and well firmed in.

5.2. Recommended rooting depths are 600mm for shrubs/herbaceous plants. Multi-purpose topsoil depths shall be 300mm for shrubs/herbaceous, ensuring that a suitable subsoil shall provide the remainder of the minimum rooting depth. Before receiving topsoil, subsoils should be loosened using ripping equipment, this shall be done when the subsoil is dry to encourage soil shattering. All stones and other objects larger than 50 mm shall be removed from the prepared surface.

5.3. Within the day of planting shrub/herbaceous plants should be saturated to field capacity, this shall be done before applying the below bark mulch.

5.4. Spread ornamental pine bark mulch to a depth of 75mm across all new planted areas, taking care not to bury groundcover plants.

5.5. Shrubs to be planted as ornamental hedges, to be planted in trenches 150 mm wider than roots when fully spread and 300 mm deep. Set out plants evenly in a single row at the density indicated on the associated planting schedule. Upon completion hedge trenches are to be mulched with 75mm depth bark mulch or similar.

6. AMENITY GRASS

Preparation

6.1. Areas to be turfed or seeded shall be sprayed out with a glyphosate herbicide and cultivated to a depth of 100mm removing all weeds, debris and stones over 25mm diameter. The surface shall be raked to smooth flowing contours with a fine tilth. Amenity grass areas will receive pre-seeding fertiliser at 70 g/m2. Meadow grass areas will not be fertilised.

6.2. The minimum overall recommended rooting depth for grass is 450mm, the first 150mm shall be made up of a multi-purpose topsoil, it shall be ensured that a suitable subsoil shall provide the remainder of the minimum rooting depth. Before receiving topsoil, subsoils should be loosened using ripping equipment; this shall be done when the subsoil is dry to encourage soil shattering. All stones and other objects larger than 50 mm shall be removed from the prepared surface

6.3. Grass/turf finish levels will be 25mm above surrounding kerbs, paving and plant bed edges.

Turf

6.4. Turf shall be supplied in accordance with BS3969. It shall be close textured and green in colour and be sufficiently fibrous to withstand handling. Turves shall be regular in shape, 300mm wide and of uniform thickness (minimum 25mm). The grass shall be closely mown and shall not exceed 25mm in height. Turf shall be stacked in piles of up to 1 metre. It shall not be laid in frosty or waterlogged conditions and shall not be stacked in rolls for more than three days. Turfing operations shall be in accordance with BS 4428. Whole turves shall be laid around the perimeter of the area to be turfed. The central area shall be laid in rows with staggered joints, well butted together, working from planks positioned on turves already laid. The turf shall be watered on completion. Any unevenness shall be made good by lifting the turf and adjusting the levels. Should shrinkage occur, fine topsoil shall be brushed into the joints.

Seeding

6.5. Grass seed shall be sown either in April/May or September/October during calm weather and not when the ground is frost bound or waterlogged. Seed shall be sown in two equal sowings in transverse directions at 35 g/m2 for amenity grass. After sowing the contractor shall lightly rake the seed into intimate contact with the soil.

Initial Cut

6.6. When newly seeded amenity grass areas reach 50mm they should be lightly rolled and cut to a height of 25mm. All arisings shall be removed. Any bare patches shall be made good at this time. Amenity grass shall be regularly maintained between 25 and 50mm during the first season after sowing. Long or rough mown grass will be maintained between 50 and 75mm during the first season after sowing.

7. WILDFLOWER MEADOWS GRASSLAND

Preparation

7.1. Areas of wildflower meadow to be seeded shall be sprayed out with a glyphosate herbicide and cultivated to a depth of 100mm removing all weeds debris and stones over 75mm diameter. The surface shall be raked to smooth flowing contours with a fine tilth.

Seeding

7.2. Seeds shall be sown either in April/May or September/October during calm weather and not when the ground is frost bound or waterlogged.

7.3. To achieve an even sowing, bulk with an inert carrier, such as sand. Seed shall be sown in two equal sowings in transverse directions at e.g. 4g/m2 for Emorsgate EM1 Basic General Purpose Meadow Mixture and EM8 Meadow mix for Wetlands. After sowing the contractor shall roll in the seed to guarantee intimate contact with the soil, ensuring not to rake or cover the seed with soil.

Initial Cut

7.4. During first 12 months sward to be regularly cut to minimise competition and weed seed production. Cutting should be frequent enough to disperse the cuttings, or if less frequent remove the cuttings. Cutting to be suspended between April and July to allow flowering of the cornfield annuals.

7.5. Both amenity and meadow grass shall be regularly maintained between 25 and 50mm during the first season after sowing. The meadow mixture for seasonally wet areas – EM8 and EM1 will then be maintained at a height of approx. 600-1000mm.

17/12/2024	D	Revised to LPA comments
30/10/2024	C	Updated to BNG requirements and LPA (Landscape) comments
05/09/2024	B	Landscape updated to LPA comments (landscaping) and revised road layout
26/03/2024	A	Revised to red line and inclusion of Eastern Gateway Planting
20/02/2024	First Issue	

Landscape Proposals

R10/R14 Link Road

CLIENT
Miller Homes, Kier Ventures, Kingacre Estates

DATE	SCALE	TEAM	APPROVED
17/12/2024	1:500 @A0	ASK	RVF

DRAWING NUMBER
P23-1686_EN_008D

PEGASUS GROUP

N 0 25 50 m

Appendix 2 Relevant Legislation

Species and Habitats of Principal Importance in England

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The England Biodiversity List is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions. There are currently 943 species of principal importance and 41 habitats of principal importance included on the England Biodiversity List.

Appendix 3 Baseline Habitat Condition Assessment

Habitat Ref.	1 (R10) and 5 (R14)
Broad Habitat	Grassland (g)
Habitat Type	Modified grassland (g4)

The site mainly comprises two fields of modified grassland. The western field is at a long sward of around 30 centimetres with no evidence of recent management. The field is dominated by perennial rye grass *Lolium perenne* with frequent hogweed *Heracleum sphondylium* and broad-leaved dock *Rumex obtusifolius* with some common knapweed *Centaurea nigra*. The eastern field has a sward of around 30 centimetres, species recorded include soft brome *Bromus hordeaceus*, perennial rye, broad-leaved dock, hogweed, creeping buttercup and creeping thistle *Cirsium arvense*.

	Indicator	Condition
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs. **Note - this criterion is essential for achieving Moderate or Good condition.** Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m^2, please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	FALSE
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	TRUE
C	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	TRUE
D	Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	TRUE
E	Cover of bare ground between 1% and 10%, including localised areas, for example, rabbit warrens.	TRUE
F	Cover of bracken less than 20%.	TRUE
G	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species[1] make up less than 5% of ground cover.	TRUE
	Total Score	**6**
	All Essential Criteria Met?	**No**
	Condition	**Poor**

Habitat Ref.	4
Broad Habitat	Urban (g)
Habitat Type	Bare ground (510)

Bare ground around recently constructed drainage basin adjacent to site boundary.

	Indicator	Condition

A	Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.	FALSE
B	The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.	FALSE
C	Invasive non-native plant species (listed on Schedule 9 of WCA[1]) and others which are to the detriment of native wildlife (using professional judgement)[2] cover less than 5% of the total vegetated area[3]. **Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).**	TRUE
	Total Score	**1**
	All Essential Criteria Met?	**Yes**
	Condition	**Poor**

Appendix 4 Baseline Hedgerow Condition Assessment

Habitat Ref.	H1
Broad Habitat	Heathland and shrub (h)
Habitat Type	Native hedgerow

A native hedgerow is located along the south-eastern boundary of the site and extending beyond the boundary of the site to the west. The hedgerow is comprised of blackthorn *Prunus spinosa*, ash *Fraxinus excelsior*, pedunculate oak, field maple *Acer campestre*, dog rose *Rosa canina* and ivy *Hedera helix*. Fewer than five species were recorded in a 30 metre stretch. Cow parsley *Anthriscus sylvestris*, creeping bent *Agrostis stolonifera*, cock's foot *Dactylus glomerata*, bramble *Rubus fruticosus* aggregate, bracken *Pteridium aquilinum*, hogweed and cleavers *Galium aparine* were recorded in the ground flora. The hedgerow is approximately three metres high and one metre wide.

	Indicator	Condition
A1	**Height** >1.5m average along length	TRUE
A2	**Width** >1.5m average along length	FALSE
B1	**Gap - Hedge Base** Gap between ground and base of canopy <0.5m for >90% of length (unless line of trees)	TRUE
B2	**Gap - Hedge Canopy Continuity** Gaps make up <10% of total length, and no canopy gaps > 5m	TRUE
C1	**Undisturbed Ground and Perennial Vegetation** >1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: Measured from outer edge of hedgerow; and Is present on at least one side of the hedge	TRUE
C2	**Undesireable Perennial vegetation** Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	FALSE
D1	**Invasive and neophyte species** >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	TRUE
D2	**Current Damage** >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	TRUE
Applicable to Hedgerows with Trees only		
E1	**Tree Age** At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.	N/A
E2	**Tree Health** At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	N/A
	No. of failures:	**2**
	Number of functional groups where both attributes failed:	**0**
	Condition	**Good**

Habitat Ref.	H2
Broad Habitat	Heathland and shrub (h)
Habitat Type	Native species-rich hedgerow with trees

A species-rich native hedgerow is located running north-south through the centre of the site. Species present include field maple *Acer campestre*, dogwood *Cornus sanguinea*, hazel *Corylus avellana*, hawthorn *Crataegus monogyna*, ash *Fraxinus excelsior*, blackthorn/bullace/wild plum *Prunus spinosa/domestica*, pedunculate oak *Quercus r*obur and rose *Rosa* species. This hedgerow was recorded as supporting six woody species in a 30 metre section and notable plant species lords-and-ladies *Arum maculatum*, wood avens *Geum urbanum*, bluebell *Hyacinthoides non-scripta*, dog's mercury *Mercurialis perennis* and primrose *Primula vulgaris* have been historically recorded within the ground flora. The hedgerow is approximately three metres high and one metre wide.

	Indicator	Condition
A1	**Height** >1.5m average along length	TRUE
A2	**Width** >1.5m average along length	FALSE
B1	**Gap - Hedge Base** Gap between ground and base of canopy <0.5m for >90% of length (unless line of trees)	TRUE
B2	**Gap - Hedge Canopy Continuity** Gaps make up <10% of total length, and no canopy gaps > 5m	TRUE
C1	**Undisturbed Ground and Perennial Vegetation** >1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: Measured from outer edge of hedgerow; and Is present on at least one side of the hedge	TRUE
C2	**Undesirable Perennial vegetation** Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	FALSE
D1	**Invasive and neophyte species** >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	TRUE
D2	**Current Damage** >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	TRUE
Applicable to Hedgerows with Trees only		
E1	**Tree Age** At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.	TRUE
E2	**Tree Health** At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	FALSE
	No. of failures:	**3**
	Number of functional groups where both attributes failed:	**0**
	Condition	**Moderate**

Habitat Ref.	H3
Broad Habitat	Heathland and shrub (h)
Habitat Type	Line of Trees

A line of trees is present running north to south in the centre of the site, to the south of H2. The line of trees comprises semi-mature pedunculate oak *Quercus robur* with willow *Salix* species and hawthorn *Crataegus monogyna*.

	Indicator	Condition
A	At least 70% of trees are native species	TRUE
B	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	TRUE
C	One or more trees has veteran features and or natural ecological niches for vertebrates and invertebrates, such as presence of standing and attached deadwood, cavities, ivy or loose bark.	FALSE
D	There is an undisturbed naturally-vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other human activities (excluding grazing). Where veteran trees are present, root protection areas should follow standing advice.	TRUE
E	At least 95% of the trees are in a healthy condition (deadwood or veteran features valuable for wildlife are excluded from this). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	TRUE
	Total Score:	**4**
	Condition	**Moderate**

Habitat Ref.	H10
Broad Habitat	Heathland and shrub (h)
Habitat Type	Native hedgerow – associated with bank or ditch

A native hedgerow is located running east-west along the north of Plot 10. The hedgerow supports fewer than five woody species in a 30m stretch. There is a ditch running alongside this hedgerow, within two metres of the centre of the hedge. Although detailed data has not been collected to confirm, based on the structure and function of the ditch it is considered feasible that it would only be wet for four months of the year.

	Indicator	Condition
A1	**Height** >1.5m average along length	TRUE
A2	**Width** >1.5m average along length	TRUE
B1	**Gap - Hedge Base** Gap between ground and base of canopy <0.5m for >90% of length (unless line of trees)	TRUE
B2	**Gap - Hedge Canopy Continuity** Gaps make up <10% of total length, and no canopy gaps > 5m	FALSE
C1	**Undisturbed Ground and Perennial Vegetation** >1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: Measured from outer edge of hedgerow; and Is present on at least one side of the hedge	TRUE

C2	**Undesirable Perennial vegetation** Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	TRUE
D1	**Invasive and neophyte species** >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	TRUE
D2	**Current Damage** >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	TRUE
Applicable to Hedgerows with Trees only		
E1	**Tree Age** At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.	N/A
E2	**Tree Health** At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	N/A
	No. of failures:	**1**
	Number of functional groups where both attributes failed:	**0**
	Condition	**Good**

Habitat Ref.	H11
Broad Habitat	Heathland and shrub (h)
Habitat Type	Native species-rich hedgerow with trees

A species-rich native hedgerow is located running north-south through the centre of the site. Species present include field maple *Acer campestre*, dogwood *Cornus sanguinea*, hazel *Corylus avellana*, hawthorn *Crataegus monogyna*, ash *Fraxinus excelsior*, blackthorn/bullace/wild plum *Prunus spinosa/domestica*, pedunculate oak *Quercus r*obur and rose *Rosa* species. This hedgerow was recorded as supporting six woody species in a 30 metre section and notable plant species lords-and-ladies *Arum maculatum*, wood avens *Geum urbanum*, bluebell *Hyacinthoides non-scripta*, dog's mercury *Mercurialis perennis* and primrose *Primula vulgaris* have been historically recorded within the ground flora. The hedgerow is approximately five to ten metres high and six metres wide.

	Indicator	Condition
A1	**Height** >1.5m average along length	TRUE
A2	**Width** >1.5m average along length	TRUE
B1	**Gap - Hedge Base** Gap between ground and base of canopy <0.5m for >90% of length (unless line of trees)	TRUE
B2	**Gap - Hedge Canopy Continuity** Gaps make up <10% of total length, and no canopy gaps > 5m	TRUE
C1	**Undisturbed Ground and Perennial Vegetation** >1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: Measured from outer edge of hedgerow; and Is present on at least one side of the hedge	TRUE
C2	**Undesirable Perennial vegetation** Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	FALSE
D1	**Invasive and neophyte species** >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	TRUE

D2	**Current Damage** >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	TRUE
Applicable to Hedgerows with Trees only		
E1	**Tree Age** At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.	TRUE
E2	**Tree Health** At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	FALSE
	No. of failures:	**2**
	Number of functional groups where both attributes failed:	**0**
	Condition	**Good**

Appendix 5 Post-Development Habitat Target Condition

On-site Habitats

Broad Habitat.	Grassland (g)
Habitat Type	Modified grassland (g4)
Treatment	Created
Description	Newly created grassland will be seeded with a suitable grass and wildflower seed mix, resilient to regular management, which will provide a range of native species within the sward. The grassland will be managed to ensure there is no bare ground and that the grassland does not become encroached with bracken or scrub.

	Indicator	Condition
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs. **Note - this criterion is essential for achieving Moderate or Good condition.** Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m^2, please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	TRUE
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	FALSE
C	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	TRUE
D	Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	FALSE
E	Cover of bare ground between 1% and 10%, including localised areas, for example, rabbit warrens.	TRUE
F	Cover of bracken less than 20%.	TRUE
G	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species[1] make up less than 5% of ground cover.	TRUE
	Total Score	**5**
	Condition	**Moderate**

Broad Habitat.	Heathland and shrub (h)
Habitat Type	Mixed scrub (h3h)
Treatment	Created
Description	Mixed scrub will be planted with native species including field maple, dogwood, dog rose, guelder rose and spindle. The scrub will be managed to maintain a dense structure.

	Indicator	Condition

A	The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range).[1] - At least 80% of scrub is native, - There are at least three native woody species[2], - No single species comprises more than 75% of the cover (except hazel *Corylus avellana*, common juniper *Juniperus communis*, sea buckthorn *Hippophae rhamnoides* (only in its restricted native range), or box *Buxus sempervirens*, which can be up to 100% cover).	TRUE
B	Seedlings, saplings, young shrubs and mature (or ancient or veteran[3]) shrubs are all present.	FALSE
C	There is an absence of invasive non-native plant species[4] (as listed on Schedule 9 of WCA[5]) and species indicative of suboptimal condition[6] make up less than 5% of ground cover.	TRUE
D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	TRUE
E	There are clearings, glades or rides present within the scrub, providing sheltered edges.	FALSE
	Total Score	**3**
	Condition	**Moderate**

Broad Habitat.	Urban (u)	
Habitat Type	Rain garden	
Treatment	Created	
Description	The rain garden habitat will be planted with a mixture of appropriate species including tail grass *Anemanthele lessionia*, heart-leaf begenia *bergenia cordifolia*, orange New Zealand sedge *carex Testacea,* and dogwood *Cornus sanguinea* 'midwinter fire'.	
	Indicator	**Condition**
A	Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.	TRUE
B	The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.	TRUE
C	Invasive non-native plant species (listed on Schedule 9 of WCA[1]) and others which are to the detriment of native wildlife (using professional judgement) cover less than 5% of the total vegetated area. **Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).**	TRUE
	Total Score	**3**
	Condition	**Good**

Broad Habitat.	Urban (u)	
Habitat Type	Sustainable urban drainage system	
Treatment	Created	
Description	The sustainable urban drainage system will be seeded with an appropriate meadow mixture such as Emorsgate EM8 mixture suitable for seasonally wet soils, especially soils that may flood for periods of time. .	
	Indicator	**Condition**
A	Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.	TRUE
B	The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.	TRUE
C	Invasive non-native plant species (listed on Schedule 9 of WCA[1]) and others which are to the detriment of native wildlife (using professional judgement) cover less than 5% of the total vegetated area. **Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).**	TRUE
Additional Criteria - must be assessed for Bioswale and SuDS habitat types only:		
E1	Plant species are mostly native. If non-native species are present, they should not be detrimental to the habitat or native wildlife.	TRUE
E2	The vegetation is comprised of plant species suited to wetland or riparian situations.	TRUE
	Total Score	**5**
	Condition	**Good**

Broad Habitat.	Grassland (g)	
Habitat Type	Individual trees	
Treatment	Created	
Description	New tree planting will take place in the first available planting season after construction. Where necessary newly planted saplings should be protected using stakes and tree guards. Some trees will comprise native species, but others will be non-native. This has not affected the overall condition score targeted for all trees on site.	
	Indicator	**Condition**
A	The tree is a native species (or at least 70% within the block are native species).	TRUE / FALSE
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	TRUE
C	The tree is mature (or more than 50% within the block are mature).	FALSE

D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	TRUE
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	FALSE
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	TRUE
	Total Score	**3-4**
	Condition	**Moderate**

Appendix 6 Post-Development Hedgerow Target Condition

On-site Hedgerows

Habitat Ref.	H5 and H7
Broad Habitat	Heathland and shrub (h)
Habitat Type	Native species-rich hedgerow

Species-rich native hedgerows will be planted on the edge of the proposed sustainable drainage basin and on the western border of Plot 14. Given the location of the hedgerow adjacent to a proposed residential area, and currently lack of clarity over the remainder of the design of this parcel it may not be possible to maintain a one metre width of undisturbed ground along more than 90% of the hedgerows length. It has been conservatively predicted that the soils in the vicinity may become nutrient enriched and that there may damage caused by human activities. However, it is considered likely that appropriate long-term management of the hedgerows could prevent the spread of invasive non-native and neophyte species.

	Indicator	Condition
A1	**Height** >1.5m average along length	TRUE
A2	**Width** >1.5m average along length	TRUE
B1	**Gap - Hedge Base** Gap between ground and base of canopy <0.5m for >90% of length (unless line of trees)	TRUE
B2	**Gap - Hedge Canopy Continuity** Gaps make up <10% of total length, and no canopy gaps > 5m	TRUE
C1	**Undisturbed Ground and Perennial Vegetation** >1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: Measured from outer edge of hedgerow; and Is present on at least one side of the hedge	FALSE
C2	**Undesireable Perennial vegetation** Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	FALSE
D1	**Invasive and neophyte species** >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	TRUE
D2	**Current Damage** >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	FALSE
Applicable to Hedgerows with Trees only		
E1	**Tree Age** At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.	N/A
E2	**Tree Health** At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	N/A
	No. of failures:	**3**
	Number of functional groups where both attributes failed:	**1**
	Condition	**Moderate**

Habitat Ref.	H6
Broad Habitat	Heathland and shrub (h)
Habitat Type	Native species-rich hedgerow with trees

A species-rich native hedgerow with trees will be planted on the western border of Plot 14. Given the location of the hedgerow adjacent to a proposed residential area, and currently lack of clarity over the remainder of the design of this parcel it may not be possible to maintain a one metre width of undisturbed ground along more than 90% of the hedgerows length. It has been conservatively predicted that the soils in the vicinity may become nutrient enriched and that there may damage caused by human activities. However, it is considered likely that appropriate long-term management of the hedgerows could prevent the spread of invasive non-native and neophyte species. Trees planted within the hedgerow will be immature initially and although it is anticipated that they will become mature over time, this is unlikely to be within the standard time to target condition applied to hedgerows with trees (10 years), therefore this criteria has been failed.

	Indicator	Condition
A1	**Height** >1.5m average along length	TRUE
A2	**Width** >1.5m average along length	TRUE
B1	**Gap - Hedge Base** Gap between ground and base of canopy <0.5m for >90% of length (unless line of trees)	TRUE
B2	**Gap - Hedge Canopy Continuity** Gaps make up <10% of total length, and no canopy gaps > 5m	TRUE
C1	**Undisturbed Ground and Perennial Vegetation** >1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: Measured from outer edge of hedgerow; and Is present on at least one side of the hedge	FALSE
C2	**Undesireable Perennial vegetation** Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	FALSE
D1	**Invasive and neophyte species** >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	TRUE
D2	**Current Damage** >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	FALSE
Applicable to Hedgerows with Trees only		
E1	**Tree Age** At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.	FALSE
E2	**Tree Health** At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	TRUE
	No. of failures:	**3**
	Number of functional groups where both attributes failed:	**1**
	Condition	**Moderate**

Appendix 7 Biodiversity Net Gain Good Practice Principles for Development

The principles set out in **Table 1** are taken from (CIEEM, 2016) and set out the best practice principles that projects should adhere to where designing Biodiversity Net Gain and sets out how the principle has been applied in the design of these proposals.

Table 1: Biodiversity Net Gain Good Practice Principles for Development

Principle	Descriptor	Proposal Design
Principle 1. Apply the Mitigation Hierarchy	Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision-makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.	It is necessary for the baseline habitats (which are primarily of low or very low distinctiveness) to be cleared to facilitate the development, which is key to the future construction of the South Wokingham SDL. The habitats will be replaced with habitats of higher distinctiveness/better condition both on site and off site once the development has been completed.
Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere	Avoid impacts on irreplaceable biodiversity - these impacts cannot be offset to achieve No Net Loss or Net Gain.	No irreplaceable habitats will be lost as part of the proposals.
Principle 3. Be inclusive and equitable	Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluating the approach to Net Gain. Achieve Net Gain in partnership with stakeholders where possible and share the benefits fairly among stakeholders.	Close liaison with the client and Design Team, and consultation with Wokingham Borough Council, about the best ways to achieve net gains have been ongoing throughout this project.
Principle 4. Address risks	Mitigate difficulty, uncertainty and other risks to achieving Net Gain. Apply well-accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised.	We have targeted habitats which are realistic and achievable based on the proposed long-term use and management of the site.
Principle 5. Make a measurable Net Gain contribution	Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.	A measurable net gain in biodiversity units has been established through this document. A separate Ecological Impact Assessment (ECOSA, 2024) has been produced which ensures that protection and

Principle	Descriptor	Proposal Design
		enhancement of the site for Important Ecological Features has also been considered.
Principle 6. Achieve the best outcomes for biodiversity	Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly-justified choices when: ▪ Delivering compensation that is ecologically equivalent in type, amount and condition, and that accounts for the location and timing of biodiversity losses ▪ Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation ▪ Achieving Net Gain locally to the development while also contributing towards nature conservation priorities at local, regional and national levels ▪ Enhancing existing or creating new habitat ▪ Enhancing ecological connectivity by creating more bigger, better and joined areas for biodiversity	The proposals meet trading rules, meaning that habitats lost have been replaced with those of the same distinctiveness or higher. Net gain will delivered within the boundary of the site itself. New medium distinctiveness habitats will be created including mixed scrub, urban trees and species-rich native hedgerows. High distinctiveness habitat, species-rich native hedgerow with trees, will also be created. Although the nature and location of the link road mean there are necessarily breaches in existing hedgerows, these have been designed sensitively (ECOSA, 2024) to avoid fragmentation. The double hedgerows created and the tree planting following the rain garden along the edge of the link road will provide additional connectivity.
Principle 7. Be additional	Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e., do not deliver something that would occur anyway).	The scheme will deliver creation of medium and high distinctiveness habitats such as mixed scrub and species-rich hedgerow with trees to achieve a net gain in habitat units and provide habitats beneficial for wildlife. These are not required to achieve the primary purpose of the development which is provision of a transport link and associated drainage.
Principle 8. Create a Net Gain legacy	Ensure Net Gain generates long-term benefits by: ▪ Engaging stakeholders and jointly agreeing practical solutions that secure Net Gain in perpetuity ▪ Planning for adaptive management and securing dedicated funding for long-term management ▪ Designing Net Gain for biodiversity to be resilient to external factors, especially climate change	The delivery of an appropriate long-term management plan will secure the net gain legacy (Paragraph 6.3).

Principle	Descriptor	Proposal Design
	▪ Mitigating risks from other land uses ▪ Avoiding displacing harmful activities from one location to another ▪ Supporting local-level management of Net Gain activities	
Principle 9. Optimise sustainability	Prioritise Biodiversity Net Gain and, where possible, optimise the wider environmental benefits for a sustainable society and economy.	The habitats proposed will provide an enhancement to the visual setting of the link road, use of a sustainable drainage system has provided an opportunity to deliver habitat enhancements at the site, but will also provide wider benefits to the environment.
Principle 10. Be transparent	Communicate all Net Gain activities in a transparent and timely manner, sharing the learning with all stakeholders.	The preparation of this report sets out transparently how biodiversity net gain has been designed and achieved at the site.