BIODIVERSITY NET GAIN REPORT

FOR

POSSINGHAM FARM,

CHILMINGTON GREEN

Date of report	17th March 2023
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CORYLUS ECOLOGY

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1.0 INTRODUCTION

1.1 Corylus Ecology has carried out ecological surveys in relation to the proposed development at Possingham Farm near Chilmington Green, hereinafter referred to as 'the Site'. The proposals involve the building of residential dwellings with associated roads, parking and open space. The Site is located at OS grid reference TQ 96680 40060 and covers an area of approximately 24.27 hectares (ha).

1.2 Within the design of the proposals for the Site, measures to mitigate the effects of the development and enhance areas of the Site for biodiversity have been provided. However, the scale of the proposed mitigation and enhancements need to be assessed against the predicted effects of the development in order to assess whether there will be a net gain in biodiversity.

1.3 The Defra Biodiversity Metric 3.1 approach to quantifying biodiversity net gain, which was issued in April 2022 (Panks *et al*, 2022a) and developed in relation to biodiversity offsetting, has been used to assess the level of biodiversity gain within the proposals. The metric has been designed to provide a method of measuring whether proposed compensation for biodiversity loss can result in an overall biodiversity gain.

1.4 The metric calculates the value of habitat currently present within the Site in 'biodiversity units' and then calculates the level of biodiversity gain post-development, based on the habitat types being created, restored and/or managed. The metric uses a variety of multipliers depending on how long habitats are expected to take to develop and the level of difficulty in developing those habitats.

1.5 The key principles of the updated Defra biodiversity metric are:

- *The metric does not change policy or the protection afforded to biodiversity: existing levels of protection afforded to protected species and to habitats are not affected by the use of this metric.*

- *The metric sits within a decision framework based on the mitigation hierarchy: it informs decision-making where application of the mitigation hierarchy and good practice principles have concluded that compensation for habitat losses is justified.*

- *The metric is a proxy for biodiversity: while it is underpinned by ecological evidence, the metric is only a proxy for biodiversity and has been kept deliberately simple to make it of practical use.*

- *The metric focuses on widespread species and typical habitats: it is a suitable proxy for widespread species found in typical examples of different habitats. Scarce and protected species are likely to need separate consideration to the biodiversity metric.*

- The metric recognises the importance of place and connectivity: it seeks to enhance biodiversity in the locality of impacts, so far as possible, as well as contributing to wider ecological networks by creating more, bigger, better and joined areas for biodiversity.

- The metric informs decisions: decisions and management interventions need to take account of expert ecological advice and not just the biodiversity unit outputs of the metric. The historic or landscape significance of a habitat, and relevant planning policies, are also relevant.

Policy and legislation background

National biodiversity net gain policy

1.6 Existing Government policy for England on biodiversity net gain is set out in the National Planning Policy Framework (NPPF, 2021). Section 15 of the NPPF is considered particularly relevant. Paragraph 8 states: "*Achieving sustainable development... (so that opportunities can be taken to secure net gains across each of the different objectives)...*"

1.7 In paragraph 174 the following statement is made:

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

- *protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*

1.8 Paragraph 180 of the NPPF states that:

"When determining planning applications, local planning authorities should apply the following principles:

- *if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*

- *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…"*

Environment Act 2021

1.9 As a result of the newly granted Environment Act 2021, schedule 14 makes provision for conditions to secure the biodiversity gain objective.

Paragraph 2 sets out the Biodiversity gain objective as:

(1) *The biodiversity gain objective is met in relation to development for which planning permission is granted if the biodiversity value attributable to the development exceeds the pre-development biodiversity value of the onsite habitat by at least the relevant percentage.*

(2) The biodiversity value attributable to the development is the total of—

(a) the post-development biodiversity value of the onsite habitat,

(b) the biodiversity value, in relation to the development, of any registered offsite biodiversity gain allocated to the development, and

(c) the biodiversity value of any biodiversity credits purchased for the development.

(3) The relevant percentage is 10%.

(4) The Secretary of State may by regulations amend this paragraph so as to change the relevant percentage.

1.10 This report has been prepared for the exclusive use of Hodson Development. No part of this report should be considered as legal advice.

1.11 It should be noted that the survey information and recommendations within this report have a life span, please refer to Appendix 1 for details on survey data and update timeframes.

2.0 METHODOLOGY

2.1 Background

2.1.1 The Defra Biodiversity Metric 3.1 is considered to be the emerging 'national standard' and is therefore appropriate to apply to the Site. There is no existing locally derived biodiversity metric that can be applied. The Biodiversity Metric 3.1 Calculation Tool May 2022 has been used for this Biodiversity Metric. The biodiversity net gain assessment method is based on the information contained in the User Guide that accompanies the Defra Biodiversity Metric 3.1 (Panks *et al*, 2022a).

2.1.2 The on-site habitats have been assessed following the standard '*Handbook for Phase 1 Habitat Survey*' (JNCC, 2010) with a Phase 1 Habitat Survey completed in March 2022 and updated in May 2022. The Phase 1 Habitat categories have been converted into the habitat categories set out in the calculator, which are based on the UK Habitat Classification. However, rather than just taking a straight conversion as set out in the calculator, the habitats have been reviewed and directly classified using the UK Habitat Classification definitions (UK Habitat Classification Working Group, 2018).

2.2 Pre-development Biodiversity Value

2.2.1 The information obtained from the habitat survey, the calculation of areas/lengths and the condition of the habitats are used as inputs to the Defra Biodiversity Metric 3.1 calculator. The calculator outputs the pre-development biodiversity value expressed as the number of Biodiversity Units.

2.2.2 To calculate the number of Biodiversity Units the MS Excel spreadsheet has been pre-populated with a series of formulae that take account of the following factors:

- Distinctiveness Score: An automatic ranking of the habitat based on a combination of its listed conservation status and its value to wildlife as a habitat (expressed as very high, high, medium, low or very low);
- Condition Score: A score (as per Table 1) is automatically attributed to the inputted Condition;

Table 1: Metric score for different habitat conditions.

Description of condition	Metric score
N/A	0
Poor	1
Fairly Poor	1.5
Moderate	2
Fairly Good	2.5
Good	3

- Extent: The area or length of the habitat. Hedgerows, tree lines and rivers are recorded by measured length (km) whilst habitats such as grassland, woodland etc are measured in area (ha);

- Connectivity: The relationship of a particular habitat patch to other surrounding similar or related semi-natural habitats;
- Strategic Significance: Whether the habitat is located in a preferred location for local biodiversity and environmental objectives, such as Nature Recovery Areas or areas identified in local Biodiversity Action Plans.

2.2.3 The habitat condition was assessed using the Technical Supplement that accompanies the biodiversity metric calculation tool, which provides information relating to specific criteria for each condition score (Panks *et al.*, 2022).

2.2.4 The formulae translate extent, habitat distinctiveness, habitat condition and strategic significance into a score which is presented in biodiversity units. The calculation tool separates areas into units for habitats, hedgerows and rivers.

2.3 Post-development Biodiversity Value

2.3.1 The proposed post-development land uses and associated habitat types that are set out in the 'Illustrative masterplan' and the Parameters Plan (Clague Architects May 2021) have been used as inputs to the calculator. The calculator has specific scores and timeframes for creating the various habitats. The metric then outputs the post development biodiversity value, again expressed as the number of Biodiversity Units. The calculator has been pre-populated with a series of formulae that calculate the Biodiversity Units.

2.3.2 The 'total net unit change' in biodiversity value (net gain or loss) is automatically calculated by subtracting the Site's pre-development value in biodiversity units from the post-development value that is the sum of the values for the retained, created and enhanced habitats on the Site. A net percentage change is then automatically calculated to provide a more comparable figure between the net unit change baseline units and the net unit change. Habitat area, hedge and river habitats are all calculated independently with hedgerow units and river units provided.

2.4 Assumptions and limitations

2.4.1 It should be noted that the Defra Biodiversity Metric 3.1 is based on habitats only and it does not take account of any required species actions, such as those for legally protected species. The actions identified in the Ecological Impact Assessment in relation to legally protected species remain relevant. The habitat types proposed within this report have taken into account any ecology mitigation measures detailed in these reports.

2.9 The assessment does not give credit (in terms of a score or biodiversity units) to any actions that are taken as part of the development that add particular features to the Site, such as the provision of bird nesting boxes, that enhance the potential of the Site to support particular species. Such measures fall outside the scope of the metric.

2.10 The naming of natural and man-made features can differ between this document and documents prepared by other technical specialists.

3.0 SITE DESCRIPTION AND BACKGROUND

3.1 The Site measures approximately 24.27ha and consists of arable fields with areas of unmanaged ruderal vegetation and some areas of spoil, ditches and hedgerows. The eastern boundary is hedge and tree lined beyond which is a public footpath. The western boundary borders Ashford Road and the southern is fomed by a hedgerow which then borders an access road to adjacent farmland. The northern boundary borders the Chilmington Green development.

3.2 The habitat types were identified during the Phase 1 Habitat Survey in March 2022 and were updated in May 2022 (Corylus Ecology, 2023). These have been measured, along with the landscape and proposals plan, on QGIS and AutoCAD software, scaled and matched to ensure accuracy. All measurements were taken from these plans and the habitats are shown on Figure 1.

Protected Species Mitigation and Habitat Enhancements

3.3 Surveys for dormice have been undertaken and are continuing. Dormice have been recorded in the eastern and southern boundary features.

3.4 The design of the scheme and the habitat creation have been led both by the need to mitigate for the presence of protected species, and by what would be most appropriate within the Site and the general area. The habitat creation within the Site includes:

- Mixed scrub planting throughout the area to increase the available dormouse habitat;
- Wildflower planting around attenuation basins and in areas of open space;
- Urban tree planting in areas of open space, shrub and wildflower planting;
- Hedgerow planting around dwellings and along Site boundaries; and
- Sustainable Urban Drainage features.

4.0 BIODIVERSITY METRIC CALCULATION

4.1 Summary

4.1.1 The headline results of the metric calculation are shown in Appendix 2 and the attached metric spreadsheet/calculation tool should be considered alongside this report. The distinctiveness bands for the habitats are based on an assessment of their features, including consideration of species richness and rarity, and are in preassigned bands ranging from very low (scoring 0) for habitats with little or no value, to very high (scoring 8) for priority habitats that are highly threatened, internationally scarce and require conservation action.

4.2 Baseline Units

4.2.1 Within the biodiversity metric there is a conversion of habitats identified using the Phase 1 Habitat system to the UK Habitats Classification system. Table 2 below shows the habitat types within the Site. Once the habitat types have been identified, the condition of these habitats needs to be determined. The Defra metric is currently subject to consultation and changes may be made. The classification and condition of the various habitats, distinctiveness and connectivity scores of each of the above habitats on Site, their strategic significance and their resulting baseline habitat unit scores are provided in Table 2 below:

4.2.2 The overall biodiversity unit score for the existing Site (pre-development) is 47.27 habitat units, 28.08 hedgerow units and 3.24 river units.

Table 2 - Site Habitat Baseline

Phase 1 Habitat	Metric Habitat – UK Habitat Classification	Species list / description	Justification of Metric Habitat and Condition	Distinctiveness and Strategic Significance	Unit Score
Site Habitat Baseline					
Arable	Cropland	Cereal crops were planted in 2022	N/A	Distinctiveness = Medium Strategic Significance = Medium	47.18
Hardstanding	*Developed land: sealed surface*				0.00
Tall Ruderal and Spoil covered in vegetation	Sparsely vegetated land – Ruderal/Ephemeral	Along the layby in the east is an area of tall ruderal species, predominately Alexanders *Smymium olusatrum.* In the north-west is a vegetated chalk mound covered with butterfly bush *Buddleja davidii* and common nettle.	Poor Passes only 2 of the 4 criteria	Distinctiveness = Low Strategic Significance = Medium	0.06
Total Habitat Units					47.24
Site Hedgerow Baseline					
Intact, Species-Rich Hedgerow	Native Species-rich hedgerow associated trees	H2n, H3 and H4	Good Generally, fulfil the criteria of good under the metric.	Distinctiveness = High	15.59
Intact, Species-Rich Hedgerow	Native Species-rich hedgerow with trees associated	H1 and H5	Good Generally, fulfil the criteria of good	Distinctiveness = High Medium	8.81

	with bank or ditch		under the metric.		
Intact Hedgerow	Native Hedgerow	H2s	Moderate – the hedgerow fails the criteria for undesirable perennial vegetation and undisturbed ground	Distinctiveness = Low	1.51
Tree line	Line of trees	C1	Generally, fulfil the criteria of good under the metric.	Distinctiveness = Medium	2.17
Total Hedgerow Units					28.08

Site River Baseline					
Seasonally wet ditch	Ditch	*Two ditches (D1 and D2) bisecting the arable field support water during the winter and 5cm water during summer and are not subject to shading. The two ditches (D3 and D4) associated with the boundary hedgerows are heavily shaded and are also seasonally wet*	Poor – D1, D3 and D4 fail due to lack of water and lack of marginal vegetation. Moderate – D2 scores more highly as it heldslightly deeper water during the summer	Distinctiveness = High Strategic Significance = Low	3.24
Total River Units					3.24

4.3 Post intervention

Development Area - Creation

4.3.1 Table 3 below, shows the habitats due to be created on Site and their target condition scores, where applicable. The justification for reaching the target condition scores is provided in more detail in Section 5.0 below.

4.3.2 For the purposes of the scoring based on this outline design, the parcels of development have been measured and split into 50% built form, 45% garden and 5% ornamental planting. This is based on other large developments and the proportion of built development to gardens. To ensure an achievable BNG score is calculated the following have been input:

- The areas of wildflower grassland creation within the areas of public open space have been input as modified grassland rather than other neutral grassland; the aim will be to create species rich grassland, however, with the level of human activity in the area it is recognised that the diversity of species may not be achieved to be able to quality as other neutral grassland;
- The areas of wildflower grassland around the attenuation ponds has also been input as modified grassland of good condition, however, it is considered that this would be possible to achieve other neutral grassland of moderate potential;
- All urban trees have been input as small and of moderate condition

Table 3 - Habitat Types to be Created and Target Condition Scores

Habitats to be Created	Area (ha)	Target Condition	Habitat Units
Urban - Developed land; sealed surface	8.59	N/A - Other	0
Urban – Un-vegetated garden	6.23	N/A - Other	0
Urban - Introduced shrub	0.69	Condition Assessment N/A	1.33
Grassland - Other neutral grassland	3.63	Moderate	30.50
Urban - Sustainable urban drainage feature	0.98	Moderate	2.36
Urban - Urban Tree	0.65	Moderate	1.99
Grassland - Modified grassland	0.34	Moderate	1.45
Heathland and shrub - Mixed scrub	3.16	Moderate	29.21
			66.84

Development Area – Retention

4.3.2 Table 4 below shows the habitats due to be retained on Site and their condition scores.

Table 4 - Habitat Types to be Retained and Existing Condition Scores

Baseline habitat	Area (ha)	Existing condition score	Units retained
Sparseley vegetated land - Ruderal	0.03	Poor	0.09

Development Area – Enhancement

4.3.3 No habitats are due to be enhanced on Site.

4.4 Post intervention – Hedge Creation

4.4.1 The majority of hedgerows are due to be retained or enhanced within the Site. Hedgerow creation will also occur throughout the Site. Table 5 below shows the hedgerows due to be created and their target condition scores. The justification for reaching the target condition scores is provided in more detail in Section 5.0 below.

Table 5 - Hedgerows to be Created and Target Condition Scores

Hedgerows to be created	Length (km)	Target Condition	Hedgerow Units
Native Species Rich Hedgerow	0.68	Good	5.85

4.5 Post intervention – Ditches

4.4.1 A series of ditches are to be created as part of the SUDS system with 0.5km of new ditch created and 0.127km of ditch D3 enhanced.

Table 6 - Ditches to be Created and Target Condition Scores

Ditches to be created	Length (km)	Target Condition	River Units
Ditches	0.5	Moderate	3.18

4.5 Metric Calculator Summary

4.5.1 Overall, the habitat creation results in +19.66 habitat units, which is an increase of +41.62%. The hedgerow creation results in +5.01 hedgerow units, which is an increase of +17.83%. The ditch creation and enhancement results in +1.46 river units which is an increase of 44.79%. The trading rules have been satisfied for all distinctiveness groups for habitats hedgerows and for ditches.

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5.0 HABITAT CREATION, ENHANCEMENT AND MONITORING

5.1 Overview

5.1.1 A critical part of the biodiversity metric is the need for monitoring: this will involve an assessment of the condition of the habitats within the Site to determine whether the desired condition of the habitats has been achieved and therefore, whether biodiversity gain has been achieved post-development.

5.1.2 The monitoring at the Site will require the following specific targets to be met and will be carried out over a 20 year period, with enhanced habitats monitored every five years. If required, following the periodic monitoring assessments, further recommendations for management may be provided. In addition, if the target habitat and/or condition is not met by the end of the monitoring period the monitoring will need to be extended until such time as the target condition is reached. The proposed habitat enhancements, creation and monitoring are set out below.

5.2 Onsite Habitat Creation

Wildflower Grassland Creation

5.2.1 Areas of new wildflower grassland are proposed throughout the Site particularly around the SUDS and in areas within the open space to the south. The metric calculates that the creation of moderate condition other neutral grassland will take five years and is of low difficulty to achieve.

5.2.2 Moderate condition other neutral grassland needs to pass three or four of the six criteria, including essential criterion one, to be considered moderate condition. The condition assessment criteria is listed below.

1. There are greater than 9 species per metre squared.

2. The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.

3. Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.

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4. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.

5. Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.

6. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.

5.2.3 In order to achieve moderate condition other neutral grassland, the proposed areas will be sown with a species rich meadow grass and herb mix. A lowland meadow species mixture is suitable, such as Emorsgate Standard General Purpose Meadow Mix (EM2). Areas of wildflower grassland to be planted around the attenuation basins would be sown with a mixture suitable for wetter habitats such as Emorsgate Meadow Mixture for Wetlands (EM8). Further details on the maintenance and establishment of the Emorsgate seed mixtures can be found on their website. The aim will be to have a species diversity of 9 species per metre squared.

5.2.4 Existing topsoil should be retained and reused. If existing topsoil is not available, a low fertility topsoil should be used and seeded. Undesirable species such as thistles will be removed as part of the long-term management plan of the grassland; these will be hand weeded and no herbicides will be used. There will be monitoring and removal of any invasive species. Once established, the grass will be cut to a minimum height of 150mm and this will be done on a rotational basis to create habitat variety and allow long grass (over 7cm tall) to develop in over 20% of the area. Wildflower grassland around the attenuation basin shall be maintained as stated below.

5.2.5 The grassland will be monitored in years two, five, fourteen and twenty post-development to ensure it meets the criteria for other neutral grassland in moderate condition.

Modified Grassland – LEAPS and Public Open Space Creation

5.2.6 For the purposes of the metric the LEAPS and areas of Public Open Space have been input as modified grassland. The metric calculates that the creation of moderate condition modified grassland will take four years to create and is of low difficulty to achieve. This grassland will be subject to the same management and conditions listed above however, the seed mixture will need to be more suited towards open space and public pressure. Emorsgate Flowering Lawn Mix (EL1) would be suitable. Moderate condition modified grassland should pass four or five of the seven criteria, including essential criterion one, below.

1) There must be 6-8 species per m^2. If a grassland has 9 or more species per m^2 it should be classified as a medium distinctiveness grassland habitat type.

2) Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.

3) 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.

4) Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.

5) Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).

6) Cover of bracken less than 20%.

7) There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).

5.2.7 The grassland will be monitored in years two, five and fourteen post-development to ensure it meets the criteria for modified grassland in moderate condition.

Mixed Scrub – Native Mix Creation

5.2.8 Mixed scrub habitat is proposed throughout the Site, concentrated along the northern and eastern boundaries and in the south. The metric calculates that the creation of moderate condition mixed scrub will take five years to create and is of low difficulty to achieve.

5.2.9 Moderate condition mixed scrub must pass three or four of the five criteria listed below.

1. Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).

2. There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.

3. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.

4. The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).

5. There are clearings, glades or rides present within the scrub, providing sheltered edges.

5.2.10 A mixed scrub habitat of moderate condition will be achieved by sparsely planting a low number of scrub species, such as hawthorn *Crataegus monogyna*, blackthorn, wayfaring-tree *Viburnum lantana*, hazel *Corylus avellana*, wild service tree *Sorbus torminalis*, field maple *Acer campestre*, and guelder rose *Viburnum opulus.* Once established, the scrub will be subject to rotational management to ensure it does not become over-mature and to maintain the mosaic of scrub and more open grassland.

5.2.11 The scrub will be monitored in years two, five, fourteen and twenty post-development and any suggestions for management will be followed.

Sustainable Urban Drainage (SUDs) Features – Attenuation Basin Creation

5.2.12 Attenuation basins have been incorporated into the proposals. The metric calculates that the creation of moderate condition sustainable urban drainage features will take three years to create and are of medium difficulty to achieve.

5.2.13 Moderate condition sustainable urban drainage features must pass two or three of the four criteria listed below. The SUDs feature may also pass all four of the criteria, but without satisfying the essential criteria required to create good condition SUDs features.

1) Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.

2) There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife.

3) Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area.

4) The water table is at or near the surface throughout the year. This could be open water or saturation of soil at the surface.

5.2.14 A moderate condition score will be achieved through monitoring of invasive and undesirable species to ensure they do not establish within the features. Once the attenuation basins are established, a third of the vegetation will be cut once a year in the autumn and all arisings will be removed. The grass around the attenuation basin will be cut to a minimum height of 200mm in order to avoid harming amphibians. A rotational management regime around the attenuation basin will be used to encourage habitat variety within the area.

5.2.15 The attenuation basins will be monitored in years two, five and fourteen post-development to ensure they meet the condition criteria above.

Urban Trees

5.2.16 Urban trees are to be planted throughout the Site. Trees within residential gardens and around dwellings have not been included as these trees could be subject to removal in the future. Likewise, trees within areas of proposed mixed scrub have not been included as these are included within the scrub. Trees within areas of proposed open space, shrub and wildflower grassland have been included. The metric calculates that the creation of moderate condition urban trees will take twenty-seven years to create and is of low difficulty to achieve.

5.2.17 Moderate condition urban trees must pass three or four of the six criteria listed below.

1) The tree is a native species (or more than 70% within the block are native species).

2) 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).

3) The tree is mature or veteran (or more than 50% within the block are mature or veteran).

4) There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime so the trees retain >75% of expected canopy for their age range and height.

5) Micro-habitats for birds, mammals and insects are present e.g. presence of deadwood, cavities, ivy or loose bark

6) More than 20% of the tree canopy area is oversailing vegetation beneath.

5.2.18 In total, 160 trees small urban trees of moderate condition have been incorporated. These will be a mixture of native and non-native including English oak *Quercus robur*, small leaved lime *Tilia cordata*, wild cherry, silver birch *Berula pendula*, whitebeam *Sorbus aria*, hornbeam *Carpinus betulus* and field maple. Standard trees should be selected rather than whips, to decrease the time taken to reach maturity. The tree planting areas will be under planted with a native seed mixture suitable for shaded areas. Emorsgate Hedgerow Mixture (EH1) is a suitable choice for seeding under new trees, as the species included can thrive in partial shade. Further details on the maintenance and establishment of the Emorsgate seed mixture can be found on their website. Monitoring of the trees should take place in years five, fourteen, twenty and twenty-seven post development.

Introduced Shrub – Shrub Planting

5.3.19 Borders of landscape planting are proposed around new dwellings. Shrubs (likely ornamental species) are to be planted to screen the houses. The metric calculates that the creation of introduced shrub will take one year to create and is of low difficulty to achieve. Whilst ornamental shrubs do not have a condition score, flowering plants should be made available for as long as possible through the year by planting a combination of plants which flower during spring, summer and late summer. Species such as lavenders, heathers and honeysuckles are good nectar sources for bumblebees and other insects. Honeysuckle can also be used by birds to forage and nest in. A list of nectar rich species for bumblebees prepared by the RHS is given in Appendix 3. The landscape planting will not require monitoring and can be managed as and when required.

Developed Land, Vegetated and Un-Vegetated Gardens

5.3.20 No monitoring of buildings or gardens is required as these do not have a condition score. Bulb planting has been placed under vegetated gardens and will not be monitored for the same reason.

Native Hedgerow Creation

5.3.21 Approximately 680m of native hedgerows are to be planted across the development and around areas of public space. The metric calculates that it will take five years to reach the target condition of moderate and will be of low difficulty to achieve.

5.3.22 Moderate condition hedgerows must not fail more than four criteria in total; and cannot fail both attributes in more than one functional group as stated on the Biodiversity Net Gain 3.1 Habitat Condition Assessment Sheets (Panks *et al.,* 2022b).

5.2.23 A mixture of the following, locally sourced and native species should be planted in the hedgerows: hawthorn, blackthorn, wayfaring-tree, hazel, field maple, dog-rose *Rosa canina*, guelder rose *Viburnum opulus,* with traveller's-joy *Clematis vitalba* and honeysuckle *Lonicera pericyclemum* to thicken the vegetation. A 2m wide buffer of long, unmanaged grassland should be allowed to establish at the base of the boundary hedgerows to provide habitat for reptiles, amphibians, small mammals and invertebrates. This will be cut once a year to a minimum height of 200mm.

5.2.24 The progress of the hedgerows will be monitored in years two, five and fourteen post-development. Once established, the hedgerow vegetation will be managed infrequently (every two to three years) outside the bird breeding season (1st September – 28th February inclusive).

6.0 CONCLUSION

6.1 The Defra biodiversity metric 3.1 has been used to quantify the biodiversity net gain for the proposed proposals at Possingham Farm, Chilmington Green. As a minimum the aim of the proposals was to achieve no net loss and a target of biodiversity gain was set.

6.2 The assessment has concluded that a biodiversity gain of +19.66 habitat units, which is an increase of +41.62% is achieved. The hedgerow creation results in +5.01 hedgerow units, which is an increase of +17.83%. The ditch creation and enhancement results in +1.46 river units which is an increase of 44.79%. The trading rules have been satisfied for all distinctiveness groups for habitats hedgerows and for ditches.

6.3 The success of delivering these net gains will be based on a robust long term management that falls outside the scope of this report. A Landscape and Ecological Management Plan will need to be finalised in line with the BNG prior to construction.

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Key

- Site Survey Area
- Modified Grassland
- LEAPS and NEAPS
- Created Ditches
- Developed Land, Sealed Surface
- Created Hedge
- Created Mixed Scrub
- Urban Tree
- Residential Parcel - Divided between developed sealed land / garden space / introduced shrubs

revision	description	date	checked by

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Project:

21142 Possingham Farm, Kent

Title:

Post-Development Plan

status		drawing no.		
		Figure 1		
scale	size	date	drawn	checked
NTS	A3	23.03.2023	AW	HL

CAD filename

Figure_1.dwg

Appendix 1 - CIEEM Advice Note on the Lifespan of Ecological Reports and Surveys (April 2019)

Age of Survey Data	Report/Survey Validity
Less than 12 months	Likely to be valid in most cases.
12-18 months	Likely to be valid in most cases with the following exceptions: • Where a site may offer existing or new features which could be utilised by a mobile species within a short timeframe (see scenario 1 example); • Where a mobile species is present on site or in the wider area, and can create new features of relevance to the assessment (see scenario 2 example); • Where country-specific or species-specific guidance dictates otherwise. Report authors should highlight where they consider it likely to be necessary to update surveys within a timeframe of less than 18 months.
18 months to 3 years	A professional ecologist will need to undertake a site visit and may also need to update desk study information (effectively updating the Preliminary Ecological Appraisal) and then review the validity of the report, based on the factors listed below. Some or all of the other ecological surveys may need to be updated. The professional ecologist will need to issue a clear statement, with appropriate justification, on: • The validity of the report; • Which, if any, of the surveys need to be updated; and • The appropriate scope, timing and methods for the update survey(s). The likelihood of surveys needing to be updated increases with time, and is greater for mobile species or in circumstances where the habitat or its management has changed significantly since the surveys were undertaken. Factors to be considered include (but are not limited to): • Whether the site supports, or may support, a mobile species which could have moved on to site, or changed its distribution within a site (see scenario 1&2 examples); • Whether there have been significant changes to the habitats present (and/or the ecological conditions/functions/ecosystem functioning upon which they are dependent) since the surveys were undertaken, including through changes to site management (see scenario 3 example); • Whether the local distribution of a species in the wider area around a site has changed (or knowledge of it increased), increasing the likelihood of its presence (see scenario 4 example).
More than 3 years	The report is unlikely to still be valid and most, if not all, of the surveys are likely to need to be updated (subject to an assessment by a professional ecologist, as described above).

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Chartered Institute of Ecology and Environmental Management (2019). *Advice Note On the Lifespan of Ecological Reports and Surveys*

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Appendix 2 Condition Scores

Ditch Condition Assessment

Target note	1 Good water quality, no obvious signs of pollution	2 Range of emergent, submerged and floating leaved plants present	3 Less than 10% cover of algae/duckweed	4 Fringe of marginal vegetation present along more than 75% of ditch	5 Physical damage evident along less than 5%, such as excessive poaching, damage from machinery use	6 Sufficient water levels are maintained	7 Less than 10% of ditch is heavily shaded	8 Absence of non-native plant and animal species	Score	Notes
D1	Fail (no water)	Fail	Succeed	Fail	Succeed	Fail	Succeed	Succeed	Poor	
D2	Succeed	Fail (emergent only)	Succeed	Succeed	Fail (ploughed to wintin 1m of top)	Succeed	Succeed	Succeed	Moderate	0.5 inch deep water but has lots of emergent veg. and water skaters. V. beccabanga, rosebay is prevalent and water cress
D3	Fail (no water)	Fail	Succeed	Fail	Succeed	Fail	Fail (all shaed)	Fail	Poor	
D4	Fail (muddy water)	Fail	Succeed	Fail	Succeed	Fail	Fail (all shaed)	Succeed	Poor	

Condition Assessment Result (non-woodland ponds)	Condition Score
Passes 8 of 8 criteria	Good (3)
Passes 6 or 7 of 8 criteria	Moderate (2)
Passes 0, 1, 2, 3, 4 or 5 of 8 criteria	Poor (1)

Hedgerow Condition Assessments

									Additional group - applicable to hedges with trees			
Hedgerow Reference Number	A1 Height	A2 Width	B1 Gap - hedge base	B2 Gap Hedge Continuity	C1 Undisturbed ground and perennial vegetation	C2 Undesirable perennial vegetation	D1 Invasive and neophyte species	D2 Current Damage	E1 - Tree Age	E2 - Tree Health	Condition Score	Notes
	>1.5m average along length	>1.5m average along length	Gap between ground and base of canopy <0.5m for >90% of length (unless a line of trees)	Gaps make up <10% of total length AND no canopy gaps >5m	>1m width of undisturbed ground with perennial herbaceous veg for >90% of length measured from outer edge of hedgerow and is present on one side of the hedge (at least)	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	At least 1 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.	At least 95% of hedgerow trees are healthy condition(exc veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock, wild animals pests or diseases or human activity		
H1	Succeed	Succeed	Succeed	Succeed	Succeed	Succeed	Succeed	Succeed	Succeed	Succeed	Good	
H2N	Succeed	Succeed	Succeed	Succeed	Fail (cropped very close)	Fail	Succeed	Fail	Succeed	Succeed	Good	
H2S	Succeed	Succeed	Succeed	Succeed	Fail (1m only)	Fail	Succeed	Succeed	NA	NA	Moderate	
H3	Succeed	Succeed	Fail	Succeed	Succeed	Succeed	Succeed	Succeed	NA	NA	Good	
H4	Succeed	Succeed	Succeed	Succeed	Succeed	Succeed	Succeed	Succeed	Succeed	Succeed	Good	A few thin spots
H5	Succeed	Succeed	Succeed	Fail	Succeed	Fail	Succeed	Succeed	Succeed	Succeed	Good	20% nettle, creeping thistle, dock

Condition Assessment Result (hedgerows with trees)	Condition Score
No more than 2 failures in total AND no more than 1 in any functional group	Good (3)
No more than 5 failures in total AND does not fail both attributes in more than 1 functional group	Moderate (2)
Fails a total of more than 5 attributes OR fails both attributes in more than 1 functional group	Poor (1)

Condition Assessment Result (hedgerows without trees)	Condition Score
No more than 2 failures in total AND no more than 1 in any functional group	Good (3)
No more than 4 failures in total AND does not fail both attributes in more than 1 functional group	Moderate (2)
Fails a total of more than 4 attributes OR fails both attributes in more than 1 functional group	Poor (1)

Treeline Condition Assessments

		1	2	3	4	5		
Treeline Ref number	UK Hab Habitat Type	More than 70% of trees are native species	Tree canopy is predominantly continuous with gaps in canopy cover making up less than 10% of total area and no individual gap being greater than 5m wide	Includes one or more mature or veteran trees	There is an undisturbed naturally vegetated strip of at least 6m on both sides to protect the line of trees from farming and other anthropogenic operations	At least 95% of the trees are in a healthy condition (excl 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.	Score	Condition
C1	Ecologically valuable treeline with ditch	Succeed	Fail	Succeed	Fail	Succeed	2	Moderate

Condition Assessment Result	Condition Score
Passes 5 of 5 criteria	Good (3)
Passes 3 or 4 of criteria	Moderate (2)
Passes 0 – 2 criteria	Poor (1)