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Biodiversity Net Gain Assessment

Brighstone, Botley Road, Horton
Heath

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Client:

Alderbury Homes

16th June 2023

Report	Biodiversity Net Gain Assessment
Site Name	Brighstone, Botley Road, Horton Heath
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Client	Alderbury Homes Ltd
Date of Issue	16 th June 2023
Status	<i>Final</i>

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1.0 INTRODUCTION

1.1 Background

Ecosupport Ltd. were commissioned by Alderbury Homes Ltd to undertake a Biodiversity Net Gain Assessment at Brighstone, Botley Road, Horton Heath.

The purpose of this assessment is to quantify the biodiversity value of the site prior to its development, and the predicted value post development. This is measured in biodiversity units, calculated according to the habitats present based on their size, distinctiveness and condition. This enables the quantitative calculation of the predicted change in biodiversity value as a result of the proposed development, with the objective of achieving a net gain in biodiversity.

This report has been prepared by Project Ecologist Darla Brown BSc (Hons).

This report should be read in conjunction with the submitted PEA report (Ecosupport 2023).

1.2 Site Location and Description

The site comprises of a bungalow (Brighstone), a large garage, three sheds, a greenhouse and associated garden and drive located off Botley Road, Horton Heath, Hampshire, SO50 7DQ (centred on OS grid reference SU 49551 16625) (**Fig 1**). The immediate wider environment is predominantly sub-urban with agricultural fields to the south and woodland parcels to the east. Additionally, the village of Horton Heath located to the north of the site.

Figure 1. Google aerial image of the site with approximate redline boundary (Google Earth 2023).



1.3 Development Proposals

The proposals involve the demolition of all buildings on site to make room for five residential dwellings with associated landscaping and access (**Fig 2**).

Figure 2. Plan of the proposed new development (GRK Architecture, Drawing Ref 20/001/100, April 2023).

2.0 METHODOLOGY

The methodology for the assessment follows the Natural England Biodiversity Metric 4.0 habitat condition assessment protocols and uses the Biodiversity Metric 4.0 calculation tool to calculate biodiversity losses and gains (Natural England, 2022).

2.1 Habitat Assessment

Habitats on site pre-development were identified in accordance with the categories specified for a UK Habitats survey using Habitat Definitions Version 1.1 (UKHab Ltd., 2020). This was chosen as an appropriate habitat categorisation system as it fits within the Biodiversity Metric 4.0 calculation. The habitat definitions used were based on those identified during the PEA (Ecosupport, 2023). The PEA should be referred to for information on UKHab habitat classifications on site and plant species recorded.

A condition assessment, in line with the Biodiversity Metric 4.0 Technical Supplement, was carried out on site on the 20th February 2023. The area of identified habitats is calculated in hectares (ha), ignoring linear features or ditches (the area is measured to the centre line of such features). The length of linear features is measured separately in kilometres (km). The dominant habitat type was selected, according to those defined by UKHab Ltd (2020). Where there was disparity between the UK classification for habitat type and those present within the Biodiversity Metric 4.0 calculator tool, this was noted within the condition assessment tables.

2.2 Habitat Distinctiveness

Each habitat was assigned a score for distinctiveness, according to the Biodiversity Metric 4.0 calculator tool and Technical Supplement (Natural England, 2022). This ranged from Poor - High for most habitats, or Not Applicable (e.g. Developed Land – Sealed Surface). Using the tool, habitats were assigned a score based on their distinctiveness.

2.3 Habitat Condition

The condition of each habitat was assessed following criteria set out in the Biodiversity Metric 4.0 Technical Supplement (Natural England, 2022), which includes detailed assessment criteria for different habitats. Full results of the condition assessments can be found within **Section 3.0**. The condition of each habitat was assessed individually on site, but was found to be the same for each type across the site. Therefore, the results of the habitat condition for each habitat are grouped together for each habitat.

2.4 Limitations

There were not considered to be any significant limitations on the results of the habitat survey with all areas of the site accessible. Despite the survey being conducted outside of the optimal season for vascular flowering plants, given the nature of the habitat types present and the species recorded this is not considered to have affected the accuracy of the site's valuation.

3.0 EXISTING HABITATS AND DEVELOPMENT PROPOSALS

Information on the existing habitats was initially provided by Ecosupport's 'Preliminary Ecological Appraisal of Brighstone, Botley Road, Horton Heath' which covered the entire site. The following habitats were found within the site itself at that time (according to UKHab habitat types):

- Built-up Areas & Gardens (u1), with vegetated garden (secondary code: 230), scattered trees (secondary code: 11), introduced shrub (secondary code: 1160), and ruderal / ephemeral (secondary code: 17)
- Hedgerow (h2b)
- Developed land; sealed surface (u1b), with introduced shrub (secondary code: 1160)
- Buildings (u1b5)

The following sections provide the condition assessment undertaken with reference to the Biodiversity Metric 4.0 Technical Supplement (Natural England, 2022).

3.1 Non-linear Habitats

Apart from Hedgerow (h2b), all of the aforementioned habitats in Section 3.0 are non-linear habitats. The habitat types which were not subject to a condition assessment included developed land; sealed surface, buildings, and built-up areas and gardens as they have a predetermined condition of 'N/A – Other' or 'Condition Assessment N/A' under current guidance within Metric 4.0.

3.2 Linear Habitats

Hedgerow (h2b) was the sole linear habitat identified on site, forming the northern and southern site boundary. The following table outline the condition assessment undertaken on the 20th February 2023.

Table 1: Condition assessment of h2b hedgerow.

Map location	Hedgerow (present along the northern and southern)		
Length	0.111km north hedgerow, 0.115km south hedgerow		
Distinctiveness	Low		
UK Hab Habitat Type	h2b – Hedgerow (native)		
Condition	Good condition (score 3): Passes all conditions but D2.		
	Hedgerow favourable condition attributes		
	Attributes and functional groupings (A, B, C, and D)	Criteria (the minimum requirements for 'favourable condition')	Description
	Core groups – applicable to all hedgerow types		
	A1. Height	>1.5m average along length	The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees.

			Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5m height).
	A2. Width	>1.5m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (e.g. blackthorn suckers) are only included in the width estimate when they are >0.5m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).
	B1. Gap – hedge base	Gap between ground and base of canopy <0.5m for 90% of length (unless 'line of trees')	This is the vertical gappiness of the woody component of the hedgerow and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable.
	B2 – Gap – hedge canopy continuity	• Gaps make up <10% of total length and • No canopy gaps >5m	This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall gappiness, but are not subject to the >5m criterion (as this is the typical size of a gate).
	C1. Undisturbed ground and perennial vegetation	>1m width of undisturbed ground with perennial vegetation for >90% of length:	This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small).

		• Measured from outer edge of hedgerow, and • Is present on one side of the hedge (at least)	Access points and gates contribute to the overall gappiness but are not subject to the >5m criterion (as this is the typical size of a gate).
	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	The indicator species used are nettles (<i>Urtica</i> spp.), cleavers (<i>Galium aparine</i>) and docks (<i>Rumex</i> spp.). Their presence, either singly or together, should not exceed the 20% cover threshold.
	D1. Invasive neophyte species	>90% of the hedgerow is free of invasive non-native and neophyte species.	Neophytes are plants that have naturalised in the UK since AD 1500.
	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g. excessive hedge cutting).
Note: Passes are emboldened in Table above. Condition categories for hedgerows with trees: ☒ Good condition (3): No more than 2 failures in total; AND No more than 1 failure in any functional group ☐ Moderate condition (2): No more than 5 failures in total; AND Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition) ☐ Poor condition (1): Fails a total of more than 5 attributes; AND Fails both attributes in more than one functional group (e.g. fails attributes A1, A1, B1 & B2 = Poor condition)			

4.0 PROPOSED CREATED HABITATS & NET GAIN ASSESSMENT

4.1 On-site Proposals

Following consultation with Alderbury Homes Ltd, in order to minimise the loss of biodiversity on site, the following habitats are being provided / created (approximate spatial extent shown in the UK Habs map appended):

- Modified Grassland – Small public grassland areas will be planted on site adjacent to the roads and parking plots. It will be seeded with EM1 Basic general purpose Meadow mixture (available from Emorsgate).
 - This seed mixture includes, but is not limited to, Common Bent (*Agrostis capillaris*), Crested Dogstail (*Cynosurus cristatus*), Oxeye Daisy (*Leucanthemum vulgare*), Yarrow (*Achillea millefolium*), Ribwort plantain (*Plantago lanceolata*) and Meadow buttercup (*Ranunculus acris*). For management, the aim should be to achieve a mosaic of sward heights through rotational cutting of different parts of the grassland on a three-year cycle.

This will provide a range of thermal niches which will benefit wildlife in general. Any invasive, scrub or bracken species will be removed, and the areas replanted. Any patches of bare ground should be seeded as outlined above.

- Native Hedgerow – Although the existing native hedgerow is to be retained, new native hedgerow will be created on site adjacent to the new roads and parking plots.
 - These will be planted with species including Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*), Bramble (*Rubus fruticosus*), Spindle (*Euonymus europaeus*), Honeysuckle (*Lonicera periclymenum*) and Dog-rose (*Rosa canina*).

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

- Urban Trees – 20 trees, categorised as ‘small’ will be planted across the site which was measured at 0.0814ha using the ‘Urban Tree Helper’ within the 4.0 metric
 - Recommended species planting includes Alder (*Alnus glutinosa*), Beech (*Fagus sylvatica*), Blackthorn, Hawthorn, Hazel, Oak, Wild Cherry (*Prunus avium*), Dog Rose (*Rosa canina*), Crab Apple (*Malus sylvestris*), Dog Wood (*Cornus sanguinea*), Elder (*Sambucus nigra*), Field Maple (*Acer campestre*), Guelder Rose (*Viburnum opulus*) and Small-leaved Lime (*Tilia cordata*).

4.2.1 Metric Calculation Conclusion

Following the incorporation of the above measures into the Defra 4.0 metric, **on site there is a net gain of +27.46% in habitats (or +0.13 habitat units), a net gain of +39.99% in hedgerows (or +0.54 hedgerow units), and the trading rules are satisfied (Fig 3)**. Therefore, no additional measures are required in regards to achieving a biodiversity net gain on site.

Figure 3. Screenshot of the 'headline results' output from the BNG assessment undertaken for the site using the Defra 4.0 metric.

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.13
	Hedgerow units	0.54
	Watercourse units	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	27.46%
	Hedgerow units	39.99%
	Watercourse units	0.00%
Trading rules satisfied?	Yes ✓	

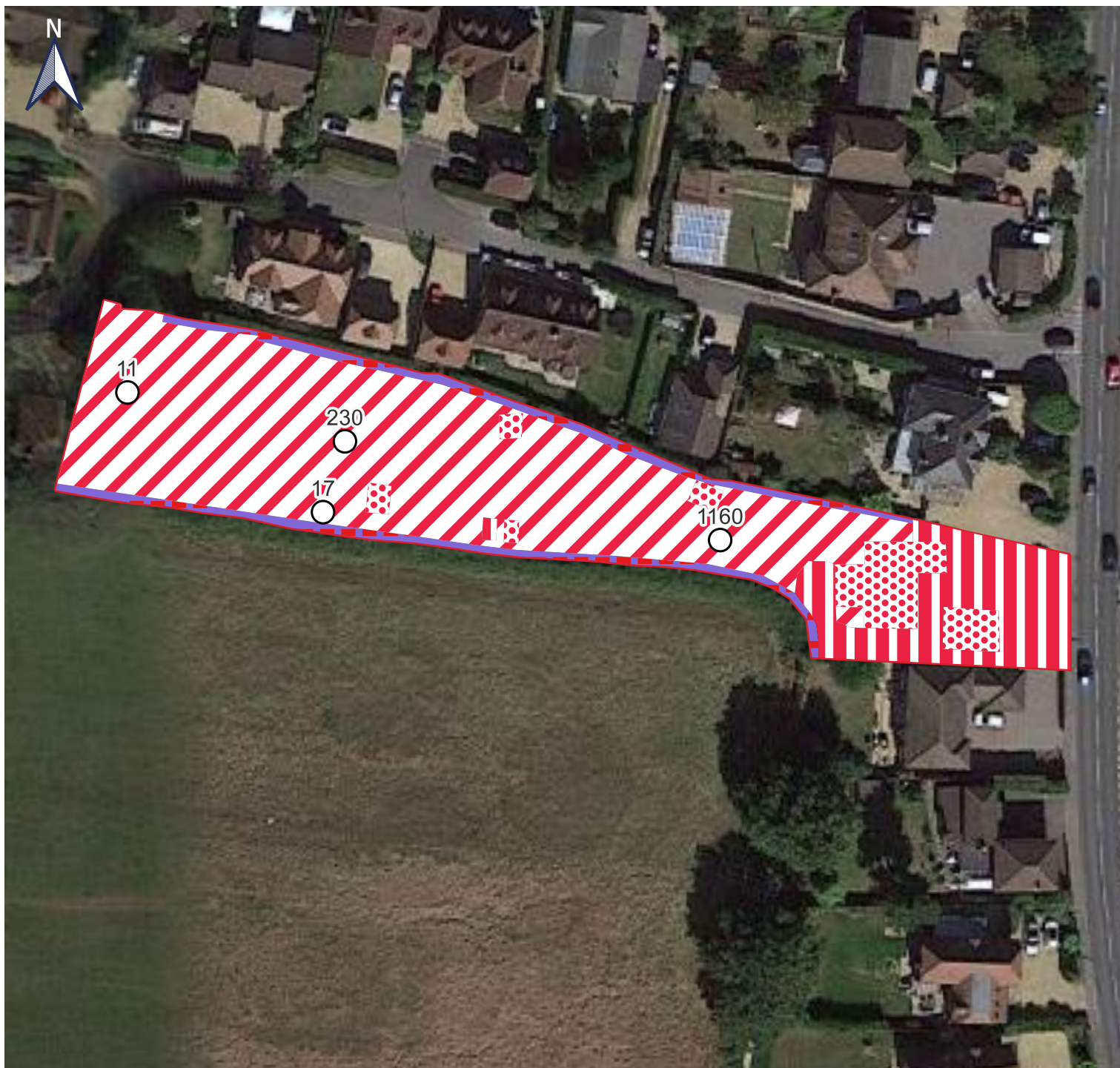
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Natural England (2022). *The Biodiversity Metric 4.0 (JP039)*. Available from: <http://publications.naturalengland.org.uk/publication/6049804846366720>

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UKHab Ltd. (2020). *UK Habitat Classification – Habitat Definitions Version 1.1* (September 2020).



Legend

— Redline boundary

Other hedgerows (h2b)

Built-up areas and gardens (u1)
 Secondary habitat code:
 11 - Scattered trees
 17 - Ruderal / ephemeral
 230 - Garden
 1160 - Introduced shrub

Buildings (u1b5)

Developed land. sealed surface (u1b)
 Secondary habitat code:
 1160 - Introduced shrub



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Map UK Habs Map

Site Brighstone, Horton Heath

Client Alderbury Homes Ltd

Date 13/06/2023

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Legend

-  Redline boundary
-  Modified grassland (g4)
-  Other hedgerows (h2b)
-  Built-up areas and gardens (u1)
-  Buildings (u1b5)
-  Developed land. sealed surface (u1b)
-  Trees (Minimum of 20 - Please refer to GRK Architecture drawing 20/001/100 April 2023)



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Map	UK Habs Map : Post-Development
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Site	Brighstone, Horton Heath
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Client	Alderbury Homes Ltd
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Date	16/06/2023
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