



Kent Sussex Ecology

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Biodiversity Net Gain Report

Huggens College, Gravesend
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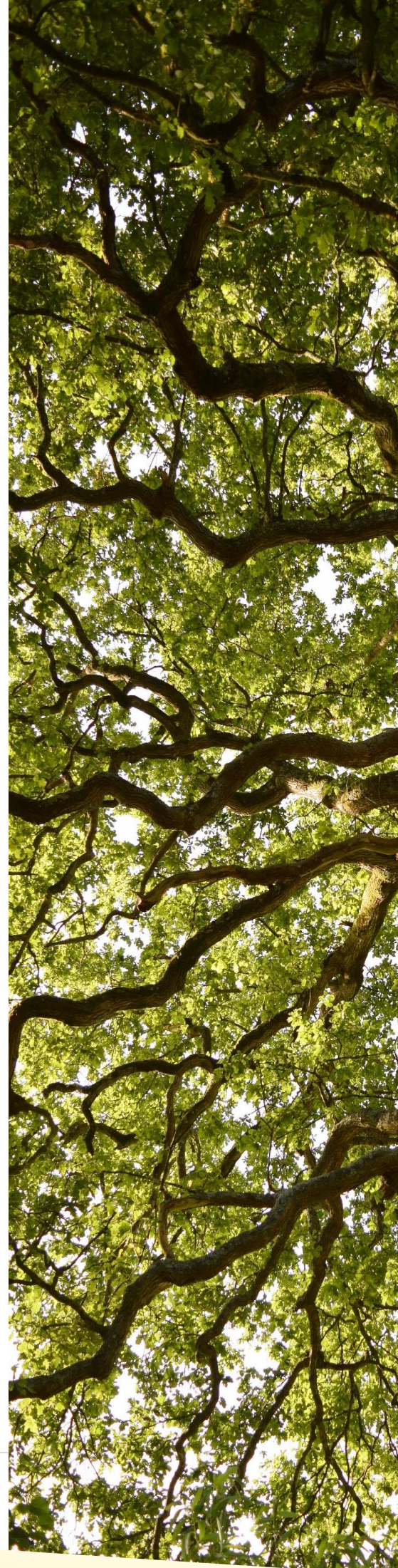
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1.0. OVERVIEW

The proposed development is for the redevelopment of Huggens College Retirement Community, located in Gravesend, Kent. In addition to the obligations under paragraph 180 of the National Planning Policy (2023) and Section 40 of the Natural Environment and Rural Communities Act (2006), developments are now legally required to deliver a biodiversity net gain of 10%. This is in accordance with Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021). As such, biodiversity net gain calculations have been produced for this proposed development and summarised in this report.

The site's habitat value predominately consists of modified grassland, with two tree lines, individual trees and a hedgerow comprising the rest of the green space. While the proposed development will only entail a minor loss of the site's grassland, as well as the partial loss of the hedgerow and the removal of several trees, measures will need to be taken to achieve a biodiversity net gain of 10% on-site.

To achieve a biodiversity net gain and adhere to the legal requirement of 10%, the development will convert a large proportion of central grassland into a 'lowland meadow' environment, establish a new native hedgerow along the eastern boundary and replace the removed trees. With the implementation of these measures, the development can achieve a biodiversity net gain of 15% and 55% for area and linear habitat, respectively.



Figure 1. Site location plan.



2.0. BIODIVERSITY NET-GAIN ASSESSMENT METHODOLOGY

- 2.1. To objectively assess whether a biodiversity net gain (BNG) can be achieved by the development, Natural England's biodiversity net-gain metric (version 4.0) was used. This is the standardised approach in alignment with the Environment Act (2021) and its legal requirements.
- 2.2. As the site (red-line boundary) is c.1ha in size and includes over nine dwellings, the main biodiversity net-gain metric tool was used for calculations. The guidance in the 'Statutory Biodiversity Metric User Guide' (February 2024) and the condition assessment sheets (Technical Annex 1) were used to inform the metric inputs. More details of the metric's input criteria can be found in Appendix C.
- 2.3. Regarding metric inputs, the four rules to be adhered to for results to be valid are:
 - Satisfying the *in-metric* trading rules;
 - Unit outputs for each type of units, must not be summed, traded, or converted between types. The requirement to deliver a minimum 10% gain applies to each unit type;
 - To accurately apply the biodiversity metric formula, the statutory biodiversity metric calculation tool must be used, and;
 - Deviation from this biodiversity metric methodology may be permitted by the relevant planning authority in exceptional circumstances only.
- 2.4. To ensure accurate input baseline data was used, botanical surveys (undertaken in March) were undertaken in alignment with Kent Wildlife Trust guidance for biodiversity net-gain surveys. This consisted of 10 randomly selected quadrat samples within the central area of grass. Selected quadrats were undertaken within perimeter grassland. The m² quadrats were georeferenced on-site using Mergin Maps and synchronised with QGIS for mapping. The maps produced for this report use the colour coding as denoted within the 'UKHab Category Definitions V1.1'.
- 2.5. The surveyor is a qualified (BSc) and CIEEM-accredited ecologist with over a decade of experience in the field of ecology, including botanical surveys. The two primary field guides for reference were The Vegetative Key to the British Flora Guide (Poland and Clement 2009) and The Collins Wildflower Guide (David Streeter 2009), as well as supplementary online resources where necessary. A hand-lens was used where appropriate. Trees and hedgerow species were recorded (with the exception of those within the individual gardens).
- 2.6. An on-site survey was undertaken on 14th February 2024. Individual gardens were not surveyed, some of which did contain trees (mainly along the western boundary); however, most of these trees will remain in situ regarding the development and are detailed in the accompanying arboricultural report. Given the time of year, the identification of some grass specimens was not certain (a full species list can be supplied with condition assessments if requested), and not all flowering annuals may have been observable at the time. The survey was carried out during dry, calm and bright conditions and in accordance with best practice guidelines.



3.0. METRIC INPUTS

3.1. BASELINE CONDITIONS AND IMPACTS

- 3.1.1. In general terms, the site's 'green space' consists of maintained lawn, tree lines, scattered trees and a hedgerow. The rest of the site is a built environment, consisting of buildings, an access road, parking areas, hardstanding pathways and mostly unvegetated gardens. The majority of the site's grassland is regularly mown and subject to grass seeding with cultivated seed mix.
- 3.1.2. The maintained grassland is classified as 'modified grassland', with a dominance of *Lolium ssp.* and *Trifolium repens* in many areas. The presence of common grasses was also noted. Forb species indicative of low ecological value grassland, such as *Ranunculus repens*, *Cirsium sp.* and *Bellis perennis*, were present throughout. Relatively small areas around the perimeter contained species of 'longer grassland', such as *Dactylus glomerata* and *Anthriscus sylvestris*. The condition of the grassland was scored as 'moderate' in accordance with the criteria within the condition assessment.
- 3.1.3. While the majority of the site's grassland is indicative of moderate condition, low distinctiveness (by default) modified grassland, the central area of grassland held a population of c.30 bee orchids *Ophrys apifera* (as rosettes). These have likely never been able to produce flowers in recent times due to regular mowing and are likely remnants of a richer grassland in the distant past. While the presence of bee orchids does not significantly change the metric score or classification of the grassland, this uncommon species is notable, especially in the south-east. Furthermore, this species does not colonise new areas easily and is relatively vulnerable to local extinction. As such, efforts should be made to retain and promote the bee orchid population on-site (discussed further on).
- 3.1.4. While the proposed development would entail the removal of over half of the extant grassland, some of this will be replaced with bioswale and rain garden habitat, reinstated in new areas or enhanced to form meadow habitat, as detailed in the next section.
- 3.1.5. The trees within the southern tree line were identified as sweet chestnuts *Castanea sativa*. The northern tree line also contained areas of sweet chestnut, as well as several non-native conifers and a row of poplars *Populus sp.* These will remain in situ.
- 3.1.6. The majority of the 'individual' trees throughout the site are fruit trees (cherry, apple, pear and plum), along with some silver birch *Betula pendula*. Some of the fruit trees are considered to be mature and, therefore, of high biodiversity value, but these have been subject to heavy pruning over the years, and most are relatively small in height. Several immature elm trees are located along the eastern boundary. The majority of the trees within the western boundary curtilages were non-native conifers and were included in the 'garden' category within the metric.
- 3.1.7. Only the individual trees to be directly impacted (removed) by the development have been inputted into the metric's baseline. Seven trees (three fruit trees, two silver birch



trees and two sweet chestnut trees) to be removed were classified as 'rural' and assigned a value of 0.0163 each in accordance with their size and condition (in alignment with the net gain metric guidance and criteria within the condition assessment, respectively).

- 3.1.8. The category of 'linear' tree-line habitat was assigned to the line of chestnuts along the southern border and poplars along the northern border. The mixed, native hedgerow (around the chaplain's curtilage) was also included in this category, a section of which will be removed to facilitate the secondary access route.

3.2. HABITAT ENHANCEMENT AND CREATION

- 3.2.1. To achieve an acceptable level of biodiversity net gain, the following habitats will be created as part of the proposed development:

Broad Habitat	Proposed Habitat	Size (ha)	Condition
Grassland	Modified grassland	0.21	Moderate
Urban	Vegetated garden	0.1	Condition Assessment N/A
Urban	Developed land; sealed surface	0.54	N/A - Other
Individual trees	Urban tree	0.521	Moderate
Urban	Rain garden	0.013	Moderate
Urban	Bioswale	0.025	Moderate
Urban	Allotments	0.006	Moderate
Urban	Introduced shrub	0.078	Condition Assessment N/A

- 3.2.2. An area of modified grassland will also be enhanced by converting it to 'lowland meadows' of 'moderate' condition over a period of 10 years:

Baseline Habitat	Condition	Size (ha)	Proposed Habitat	Condition
Modified Grassland	Moderate	0.025	Moderate Meadows	Moderate

- 3.3. The creation of 'modified grassland' habitat will mostly replace the current unvegetated garden environments. Modified grassland is dominated by a few fast-growing grasses and is characterised by *Lolium ssp.* and White Clover *Trifolium repens*. As this is the dominant ground-flora habitat throughout the site already, the creation of this grassland will be straightforward. Establishment can take place by using turf or top soil from areas



to be lost. Other less desirable options include collecting and using seed from the grassland on-site, or purchasing wild-sourced seed from a reputable source.

- 3.4. To ensure the modified grassland reaches the required minimum 'moderate condition' in alignment with the metric inputs, the grassland must contain at least 6-8 vascular plants per m² (including at least two forbs), have variation in sward height and bare ground must be 10% or less. This habitat can be established in approximately four years in accordance with the metric results. The management to promote the establishment of this will be the same as it is currently.
- 3.5. The enhancement of an existing section of central grassland (250m²) from 'Modified Grassland' to 'Lowland Meadow' grassland will significantly enhance biodiversity by increasing wildflower abundance and diversity. Importantly, the meadow will be allowed to grow throughout the entire flowering period (March to October). When mown during November to February, the cuttings must be removed to keep soil fertility low. Native hemi-parasitic species, such as Yellow Rattle *Rhinanthus minor*, can be added to further reduce the colonisation of the dominant grasses. If managed in this way for approximately 10 years, the required lowland meadow habitat should have been sufficiently established.
- 3.6. To ensure the lowland meadow grassland reaches a 'moderate condition', as prescribed in the metric calculations, it must contain key indicator species, such as crested dog's tail, common knapweed, ox-eye daisy and bird's foot trefoil (see figure 2). A moderate example should achieve an approximate species density of 35 species per 2m² x 2m².
- 4.1. To ensure the 'lowland meadow' habitat (described above) is effectively created, the site's central grassland area will be subject to the following establishment and management regime:
 - Scarifying and seeding from a wild-sourced, appropriate seed mix. Such a seed mix can be obtained through 'green haying' of local meadows or from one of a few reputable national sellers of wild-sourced wildflower seed.
 - With the exception of regularly mown pathways, mowing will take place once or twice outside the flowering season (October to February).
 - The cuttings must be removed and, ideally, composted in a shaded area for the benefit of wildlife.



Figure 2. Left: Bee Orchids in flower. Right: An example of a lowland meadow during late summer.

- 3.7. The seven trees to be removed will be replaced with 32 native species; ideally, with native 'old variety' fruit trees of local-provenance stock. These will be planted as whips, with guards, in appropriate locations and managed to a minimum 'moderate' condition. Watering during prolonged dry periods and replacement trees will be required where necessary. These were assigned a value of 0.0163 within the metric.
- 3.8. In alignment with the metric inputs, it will take 27 years for the trees to reach their required condition and size of at least 30cm in diameter breast-height. The tree's progression can be assessed when the net gain update reports are produced as part of the ongoing monitoring.
- 3.9. Regarding the linear habitat units, the 90m of native species hedgerow along the western boundary will take approximately five years to establish and achieve a 'moderate' condition after planting. The hedgerow will encompass three native species and be allowed to reach a height of at least 1.5m.

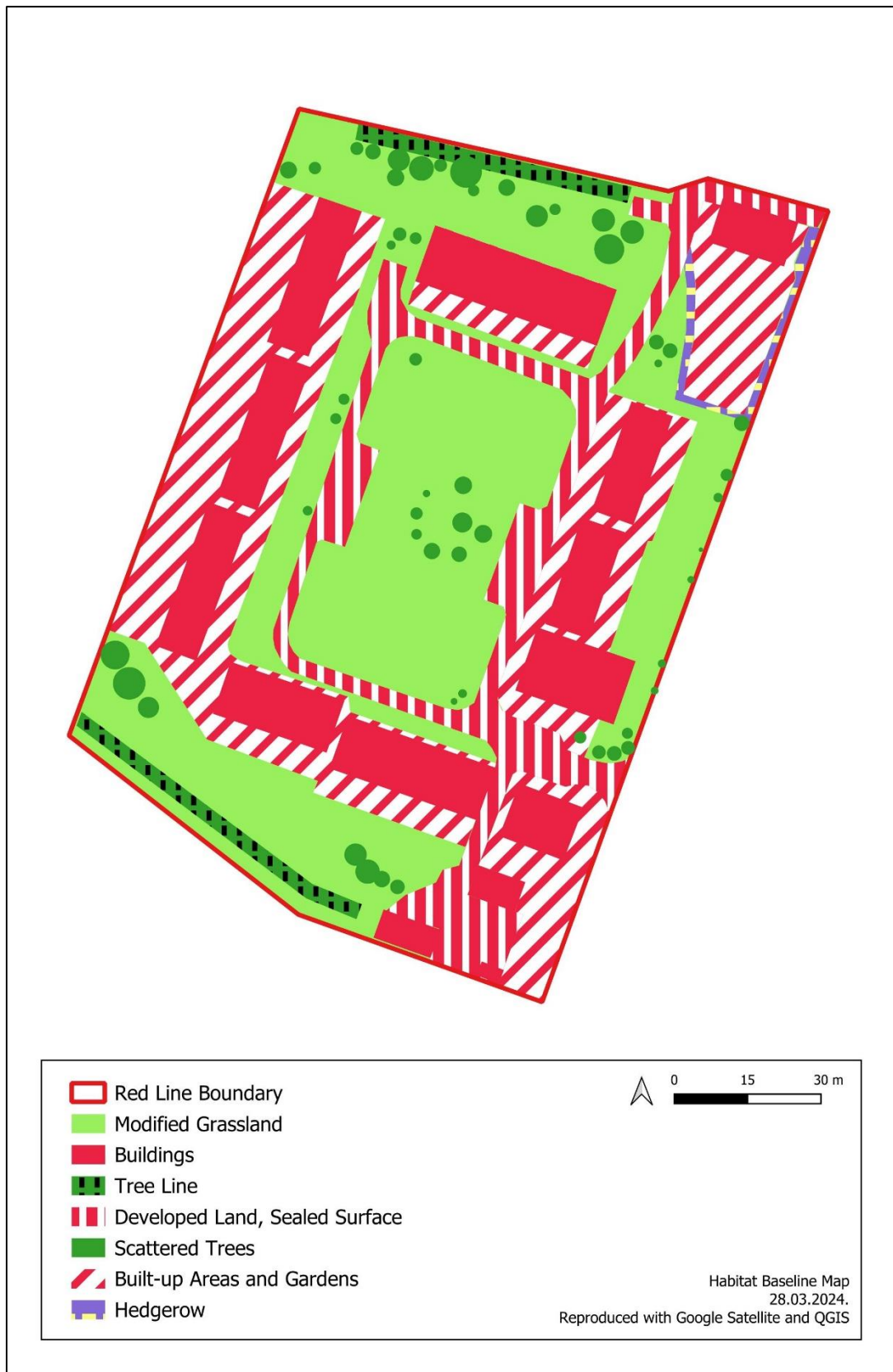


Figure 3. Existing site plan.

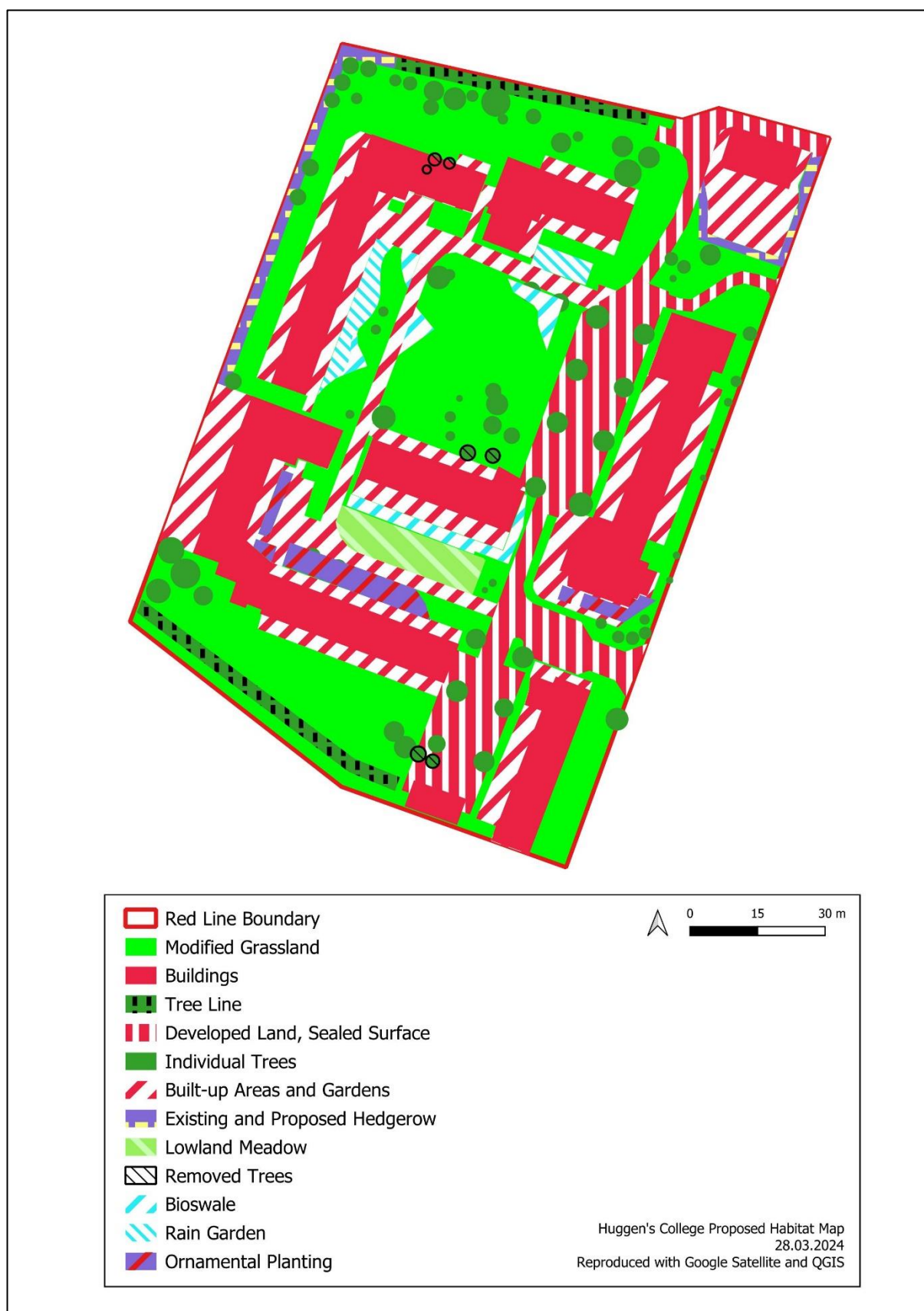


Figure 4. Proposed site plan.



5.0. RESULTS AND CONCLUSION

- 5.1. The results of the metric calculations denote a 15.18% uplift in 'area' of habitat (0.68 habitat units) and a 55.14% uplift in 'linear' habitat (hedgerow units); see the final results table below. All trading rules, including the in-metric trading rules, have been met (see accompanying metric calculations). The associated condition assessments and species list are available on request.

Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	0.64
	<i>Hedgerow units</i>	0.37
	<i>Watercourse units</i>	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	15.18%
	<i>Hedgerow units</i>	55.14%
	<i>Watercourse units</i>	0.00%
Trading rules satisfied?	Yes ✓	

Headline results.

- 5.2. The results assume that the development is implemented in accordance with the supplied drawing C01 (Haysom Ward Miller Architects) and the 'habitat areas' plan (Emily Haysom April 2023). It also assumes that all habitat creation and enhancement can be established and managed to the assigned condition within the metric.
- 5.3. Overall, the majority of the 'area' gain (habitat units) will result from the enhancement of the existing grassland to lowland meadow grassland (considered achievable within 10 years if specific management is implemented) and the establishment of 32 trees to a minimum of 30cm in diameter breast-height. Delivering the meadow habitat would also act to safeguard the site's notable bee orchids. With the presence of orchids and other colourful species, the grassland has the potential to be an aesthetically attractive feature of the development. A small area of modified grassland, allotments, bioswales and rain gardens will also be created to contribute to the gain.
- 5.4. In addition to 'area' habitat creation and enhancement, 90m of new hedgerow (linear habitat) will be established along the western boundary.
- 5.5. Another significant benefit for biodiversity will be to retain the removed fruit trees as 'deadwood habitat'; this wood can be placed discretely within the periphery of the site.



It is also important to highlight that all new planting (including the proposed hedgerow) must consist of native species only to maximise biodiversity potential.

- 5.6. As part of biodiversity net gain obligations, there will be a requirement to ensure the habitats develop as described as part of the granted planning permission. This will be a 30-year plan, subject to reporting as per the details within the associated legal agreement with the local planning authority.



APPENDIX A: PHOTOGRAPHS



The central grassland area (July 2023).



The first grassland quadrat (March 2024), showing the dominant grass species, *Trifolium repens*, *Geranium molle* and *Daucus carota*.



One of the bee orchid rosettes found in the central grassland area.



The sweet chestnuts along the southern boundary.



The northern boundary (July 2023), showing the poplars, chestnuts and three fruit trees due to be removed (in the foreground).



A view of the central grassland area (July 2023), viewing east.



APPENDIX B: LEGISLATION

SCHEDULE 7A Biodiversity gain in England

PART 1 Overview and interpretation

Overview

1 (1) This Schedule makes provision for grants of planning permission in England to be subject to a condition to secure that the biodiversity gain objective is met.

(2) Paragraphs [2](#) to [12](#) have effect for the purposes of this Schedule.

Biodiversity gain objective

2 (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.

Biodiversity value and the biodiversity metric

3 References to the biodiversity value of any habitat or habitat enhancement are to its value as calculated in accordance with the biodiversity metric.

4 (1) The biodiversity metric is a document for measuring, for the purposes of this Schedule, the biodiversity value or relative biodiversity value of habitat or habitat enhancement.

(2) The biodiversity metric is to be produced and published by the Secretary of State.

(3) The Secretary of State may from time to time revise and republish the biodiversity metric.

(4) Before publishing or republishing the biodiversity metric the Secretary of State must consult such persons as the Secretary of State considers appropriate.

(5) The Secretary of State may by regulations make transitional provision in relation to the revision and republication of the biodiversity metric.

(6) The Secretary of State must lay the biodiversity metric, and any revised biodiversity metric, before Parliament.

Pre-development biodiversity value

5 (1) In relation to any development for which planning permission is granted, the pre-development biodiversity value of the onsite habitat is the biodiversity value of the onsite habitat on the relevant date.

(2) The relevant date is—

- (a) in a case in which planning permission is granted on application, the date of the application, and
- (b) in any other case, the date on which the planning permission is granted.

(3) But the person submitting the biodiversity gain plan for approval and the planning authority may agree that the relevant date is to be a date earlier than that specified in sub-paragraph [\(2\)\(a\)](#) or [\(b\)](#) (but not a date which is before the day on which this Schedule comes into force in relation to the development).



(4) This paragraph is subject to paragraphs [6](#) and [7](#).

6 If—

(a) a person carries on activities on land on or after 30 January 2020 otherwise than in accordance with—

(i) planning permission, or

(ii) any other permission of a kind specified by the Secretary of State by regulations, and

(b) as a result of the activities the biodiversity value of the onsite habitat referred to in paragraph [5\(1\)](#) is lower on the relevant date than it would otherwise have been,

the pre-development biodiversity value of the onsite habitat is to be taken to be its biodiversity value immediately before the carrying on of the activities.

7 Where planning permission is granted in respect of land which is registered in the biodiversity gain site register under section 100 of the Environment Act 2021, the pre-development biodiversity value of the land is the total of—

(a) the biodiversity value of the onsite habitat on the relevant date, and

(b) to the extent that it is not included within that value, the biodiversity value of the habitat enhancement which is, on that date, recorded in the register as habitat enhancement to be achieved on the land.

Post-development biodiversity value

8 (1) In relation to any development for which planning permission is granted, the post-development biodiversity value of the onsite habitat is the projected value of the onsite habitat as at the time the development is completed.

(2) That value is to be calculated by taking the pre-development biodiversity value and—

(a) if at the time the development is completed the development will, taken as a whole, have increased the biodiversity value of the onsite habitat, adding the amount of that increase, or

(b) if at the time the development is completed the development will, taken as a whole, have decreased the biodiversity value of the onsite habitat, subtracting the amount of that decrease.

This is subject to paragraph [9](#).

9 (1) This paragraph applies in relation to any development for which planning permission is granted where—

(a) the person submitting the biodiversity gain plan for approval proposes to carry out works in the course of the development that increase the biodiversity value of the onsite habitat, and

(b) the planning authority considers that the increase is significant in relation to the pre-development biodiversity value.

(2) The increase in biodiversity value referred to in sub-paragraph [\(1\)](#) is to be taken into account in calculating the post-development biodiversity value of the onsite habitat only if the planning authority is satisfied that the condition in sub-paragraph [\(3\)](#) is met.

(3) The condition is that any habitat enhancement resulting from the works referred to in sub-paragraph [\(1\)\(a\)](#) will, by virtue of—

(a) a condition subject to which the planning permission is granted,

(b) a planning obligation, or

(c) a conservation covenant,

be maintained for at least 30 years after the development is completed.

(4) The Secretary of State may by regulations amend sub-paragraph [\(3\)](#) so as to substitute for the period for the time being specified there a different period of at least 30 years.

Registered offsite biodiversity gains

10 (1) “Registered offsite biodiversity gain” means any habitat enhancement, where—



(a) the enhancement is required to be carried out under a conservation covenant or planning obligation, and

(b) the enhancement is recorded in the biodiversity gain site register (as to which, see section 100 of the Environment Act 2021).

(2) References to the allocation of registered offsite biodiversity gain are to its allocation in accordance with the terms of the conservation covenant or planning obligation referred to in sub-paragraph (1)(a).

(3) The biodiversity value of registered offsite biodiversity gain is measured, under the biodiversity metric, in relation to development to which it is allocated.

Biodiversity credits

11 “Biodiversity credits” means credits under section 101 of the Environment Act 2021.

General

12 (1) In relation to development for which planning permission is granted—

- “onsite habitat” means habitat on the land to which the planning permission relates;
- “planning authority” means the local planning authority, except that—

(a)

in a case where the planning permission is granted by Mayoral development order under section 61DB, “planning authority” means such of the Mayor of London or the local planning authority as may be specified in the order;

(b)

in a case where the planning permission is granted by the Secretary of State under section 62A, 76A or 77, “planning authority” means such of the Secretary of State or the local planning authority as the Secretary of State may determine;

(c)

in a case where the planning permission is granted on an appeal under section 78, “planning authority” means such of the person determining the appeal or the local planning authority as that person may direct.

(2) “Habitat enhancement” means enhancement of the biodiversity of habitat.

(3) References to the grant of planning permission include the deemed grant of planning permission.



APPENDIX C: DETAILED BIODIVERSITY METRIC METHODOLOGY

A biodiversity net-gain assessment (BNG) assessment involves making a comparison between the biodiversity value of habitats present within the site prior to development (the 'baseline') and the predicted biodiversity value of habitats following the completion of the development (i.e., 'post-development'). The comparison is made in terms of 'biodiversity units', with a 'biodiversity metric' providing the mechanism to allow biodiversity values to be calculated and compared.

The metric calculates the overall loss or gain of biodiversity for development projects by assessing the distinctiveness (type of habitat and its value), condition, extent, and strategic significance of habitats on site pre- and post-development. To achieve biodiversity net gain, the biodiversity unit score must have a post-development score higher than the baseline score. When calculating the post-development biodiversity units, the metric includes a series of standard 'risk multipliers' to account for the inherent risk of creating and restoring habitats, the time taken to establish habitats and the location of the mitigation in relation to the habitats lost on site. The risk multipliers have the effect of reducing the value of the proposed habitats, which means larger areas, habitats of higher distinctiveness, and/or condition are required to achieve net gain.

The metric assesses and generates separate outputs for area-based habitats (measured in habitat units) and linear based habitats, including hedgerows (measured in hedgerow units) and rivers (measured in river units). For the purpose of the BNG assessment, the output with the lowest value is used to determine whether following development there has been a net gain in biodiversity.

Distinctiveness

Each habitat is assigned a score for distinctiveness. Distinctiveness includes parameters such as species richness, diversity, rarity (at local, regional, national, and international scales) and the degree to which a habitat supports species rarely found in other habitats (Treweek et al., 2010). The categories for distinctiveness within the metric are shown within the Natural England.

Condition

The condition of each habitat is assessed using the methods set out in the Auditing and accounting for biodiversity value: technical supplement. This approach determines how many of the condition criteria descriptions for each habitat type are met or are not met. This is used as a guide but may be superseded where appropriate by other evidence and best ecological judgement. Where this is the case, additional information is provided in the tables used to the condition assessment. Conditions and associated scores in the Natural England. Certain habitats are allocated a fixed condition score and do not need their condition to be assessed. Some Low distinctiveness habitats are assigned 'No assessment required – condition fixed at 'Poor'' and all Very Low distinctiveness habitats are assigned 'No assessment required – condition N/A'.

Strategic Significance

The metric requires that the strategic significance of all baseline and post-development habitats be defined. Strategic significance refers to areas of local priority for biodiversity and nature improvement, identified within local planning policies. As part of this assessment, the relevant local planning policy documents were reviewed to determine the strategic significance of the habitats on site. None of the habitats on site met the criteria associated with the Kent HAPs. Hedgerows and wet woodland are present on site, which are listed within the Biodiversity Action Plan (BAP) for Kent.