Biodiversity Net Gain Assessment

Land west of Ashwell Road, Bygrave

January 2024

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24/01/2024

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1. Introduction

Project Background

1.1 Phlorum Limited was commissioned by Pathfinder Clean Energy (PACE) to compile a Biodiversity Net Gain Assessment in relation to the proposed development of Land west of Ashwell Road, Bygrave (hereafter referred to as "the site"). The site address is Ashwell Road, Bygrave, Baldock, Letchworth, Hertfordshire SG7 5RH.

Site Description and Context

1.2 The site primarily consisted of a large arable field ploughed for crops. The northern boundary of the site had a track running along the edge along with a dry drainage ditch. The eastern, western, and southern boundaries of the site had lines of hedgerow, scrub, and trees along with modified grassland, and ruderal vegetation.

1.3 The site is surrounded by farmland with the town of Bygrave sitting to the southeast.

1.4 The National Grid Reference for the centre of the site is TL 26244 37046. The survey area extended over approximately 54 hectares (ha).

Description of Development

1.5 It is understood that the development proposals are for the construction of a solar energy farm.

Documentation Provided

1.6 This document has been developed with reference to the findings contained within the previous ecological report:

- Preliminary Ecological Appraisal (PEA) (Phlorum,2023).

2. Methodology

Establishing the Baseline Habitat

2.1 The desktop study involved conducting database searches for statutory and non-statutory designated sites, legally protected species and features of interest within a 2km radius of the site.

2.2 Phlorum carried out a Preliminary Ecological Appraisal (Phlorum, 2023) of the site, following the guidance set by the Joint Nature Conservation Committee, handbook for Phase 1 surveys (CIEEM 2017; JNCC 2010) for survey methodology.

2.3 However, the description of the site habitats has used the code/referencing from The UK Habitat Classification User Manual Version 4.0 (UKHab 2023). UKHab uses primary habitat codes, either on their own or followed by one or more secondary codes. Each individual code is separated by a space. Habitats were described and mapped (Figure 1: Appendix A).

Calculating Biodiversity Net Gain/Loss

2.4 A Biodiversity Net Gain (BNG) assessment involves making a comparison between the biodiversity value of the present habitat, prior to development (i.e. the baseline) and the predicted biodiversity value of the habitats following 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.

2.5 If the baseline habitat has recently been disturbed/cleared then the baseline is taken as 30th January 2020.

2.6 The calculation of Biodiversity Net Gain (BNG) was undertaken using 'The Biodiversity Metric 4.0 published by Natural England (2023). The metric uses site habitats, as areas and linear lengths, to calculate a score for the site. Each habitat is scored according to its relative biodiversity value. This value is then adjusted depending on various factors, to calculate the 'biodiversity units' for each habitat.

Baseline Calculation

2.7 Site baseline habitats are assessed based on the following:

- Terrestrial areas;
- Terrestrial linear lengths; and
- Aquatic linear lengths.

2.8 The baseline habitat map from the Preliminary Ecological Appraisal is used to calculate the individual parcels of habitats on the site, such as terrestrial areas (e.g. woodland, grassland), terrestrial lengths (e.g. hedgerows) and aquatic lengths (e.g. streams, rivers). Each area is measured in *hectares* and each linear feature in *kilometres*.

2.9 The Biodiversity Metric 4.0 calculator requires habitats present on site to be described using the UKHabs Classification System. As a result, the calculator in the technical data section includes a tool to translate Phase 1 habitats into UKHabs habitats.

2.10 Once the UKHabs habitat names, and areas/lengths have been measured the parcels need to be assessed against the following criteria:

- Habitat Distinctiveness – The calculator creates an automated score based on the type of habitat present. Highly diverse habitats, particularly those habitats of Principal Importance under the NERC Act (2006) or Annex 1 habitats in the Habitats Directive (1992) score 'high', whilst sites with low diversity such as arable crops have 'low' scores.
- Habitat Condition – An assessment of the quality of the habitat parcel assessed during the baseline surveys.
- Strategic Significance – An assessment based on the information set out in local plans or policies.

2.11 The calculator realises the importance of individual trees but there is no UKHabs habitat for these in the area calculation. As a result, the 'Street tree helper', which allows numbers of trees to be converted to an area in hectares is used, regardless of if the tree is a street tree or isolated tree in another habitat. Trees are categorised as 'small', 'medium' or 'large'.

2.12 For the purpose of this assessment the size of the trees has been assessed during the site walkover.

Post Development Calculation

2.13 The post development areas are calculated by initially assessing the areas/length of habitats retained, enhanced, and created plus any offsite areas created or enhanced.

2.14 A 'Habitat Condition' and 'Strategic Significance' assessment are carried out on the post-development habitats. Where habitats have been created or enhanced, additional factors are considered, such as time taken for each of these habitats to reach target condition (temporal multiplier) and the difficulty of recreating these habitats (difficulty multiplier).

2.15 The baseline biodiversity score and post-development score are then calculated and compared the biodiversity impact loss or gain is calculated for each habitat (e.g. terrestrial habitat, terrestrial linear and /or linear aquatic habitat).

2.16 If needed offsite enhancement and/or creation of habitats can be carried out and assessed.

2.17 The site, and if needed the offsite enhancement, are then managed for at least 30 years via legal agreements, such as planning obligations or conservation covenants.

Caveats

2.18 The BNG calculates habitats and only provide a score to represent the biodiversity on site. As a result, compensation and mitigation should be designed using appropriate expertise and common sense.

2.19 As only habitats are calculated an increase in biodiversity due to increase in fauna (e.g. birds, bats, insects, reptiles, amphibians, or other mammals) is not included. The creation of bird/bat/insect boxes, log piles, and/or hibernacula's can significantly enhance the ecosystems on a site, but these enhancement are not calculated by the BNG calculator. The BNG calculator is a good guide to help increase biodiversity but habitats need both flora (plants) and fauna (animals) enhanced to ensure healthy and sustainable ecosystems.

2.20 The existing levels of protection provided to certain habitats or protected species are not changed by this calculator. The impact on protected species are not considered by the calculator, and must be assessed separately.

2.21 In nature the boundaries between ecological habitats are not usually an easily defined line, unless human impact such a hard surface (e.g. buildings/roads), fences, ploughing, and/or felling has occurred. As a result, the habitat areas used are based on best judgement and therefore are subjective.

2.22 The calculator requires area measurements in *hectares* and linear measurements in *kilometres*, which for small sites can result in smaller areas/lengths not being recorded when only 2 decimals places area used.

2.23 As isolated trees are measured separately the overall area of all the habitat parcels can be greater than the actual site area.

2.24 The calculator cannot take account of all site-specific features and circumstances that may affect the true value of certain habitats or dictate the nature of habitat creation and enhancement. Such features and circumstances may make it impossible to satisfy trading rules for medium and high distinctiveness habitats, even where a clear net gain for biodiversity is being delivered. Under the Metrix 4.0 meeting the Trading Rules is a requirement and irreplaceable habitats cannot be lost on site.

2.25 Whilst the calculator provides a valuable guide as to how a development will affect biodiversity, it should be considered as a guide to be used in combination with pragmatic and knowledge-based judgement when reaching conclusions as to how effective biodiversity enhancement will be delivered.

3. Biodiversity Net Gain Assessment

Existing Habitats

3.1 The existing habitats identified on site during the Preliminary Ecological Appraisal were cropland, hedgerows, scrub, ruderal vegetation, modified grassland, bare ground, line of trees, trees. The habitat map can be seen in Appendix A.

3.2 The post development plan can be seen in Appendix B.

3.3 Where relevant, the following habitats will be referred to using the UK Habitat Classification[1] to help inform the Biodiversity Net Gain (BNG) for the site.

3.4 The following habitats will be lost:

- **Cropland:** the field of arable cropland will be converted into modified grassland, where the solar panels will be.
- **Ruderal/Ephemeral:** The extent of ruderal vegetation at the southeast of the site will be lost.
- **Bare ground:** Area of bare ground will be lost.
- **Modified grassland:** The areas of modified grassland will be lost.
- **Native hedge:** 11m of the eastern hedge.

3.5 The following habitats will be retained:

- **Scrub:** The scrub patches will be retained.
- **Individual tree:** All individual trees will be retained.
- **Native hedgerow:** All lengths of hedgerow will be retained with the exception of 11m which will be removed to make way for the new access route.
- **Line of trees:** All tree lines will be retained.

3.6 The following habitats will be created:

- **Developed Land; Sealed surface:** An access road will be created.
- **Other woodland; mixed:** Here there will be areas of woodland planted which will be a mixture of native trees including species such as, field maple (*Acer campestre*) which will make up 15%, silver birtch (*Betula pendula*) 20%, hornebeam (*Carpinus betulus*) 15%, hazel (*Corylus avellana*) 10%, blackthorne (*Prunus spinosa*) 10%, common oak (*Quercus robur*) 10% and elder (*Sambucus nigra*) 10%.
- **Modified grassland:** An area of 52.48ha of modified grassland will be created. This area will take the majority of the site.

[1] The UK Habitat Classification (2018) *Habitat Definitions Version 1.0.* The UK Habitat Classification Working Group.

- **Native hedgerow:** Areas of native hedgerow will be created along the eastern, western and east to west boundaries.

Headline Results

3.7 The headline results, including total unit and % change are shown in Table 1 below.

Table 1: Results

	Habitat Area Units (Terrestrial area)	Habitat Length Units (Terrestrial linear length)	Aquatic Length Units (Aquatic linear length)
On-site Baseline	110.69	4.36	0
On-site post-intervention	184.79	8.82	0
Total net unit change	+74.03	+4.46	0
Total net % change	+66.84%	+102.26%	0 %

Results Summary

3.8 The existing area habitats on the site are considered by the Biodiversity Net Gain assessment to have a value of **110.69 units**. The post-development area habitats are considered by the Biodiversity Net Gain Assessment to have a value of **184.79 units**. This is a **+74.03 net change** in habitat units which equates to a **66.84% net gain**.

3.9 The existing linear habitats on the site are considered by the Biodiversity Net Gain assessment to have a value of **4.36units**. The post-development area habitats are considered by the Biodiversity Net Gain Assessment to have a value of **8.82 units**. This is a **+4.46 net change** in habitat units which equates to a **102.26% net gain**.

3.10 This reflects the replacement of arable field, ruderal vegetation, modified grassland, and bare ground with modified grassland, developed land sealed surface, and other woodland mixed.

3.11 There are no linear aquatic habitat features on the site pre- or post-development.

4. Discussion

4.1 A Biodiversity Net Gain Assessment has been carried out for the proposed development of Land west of Ashwell Road, Bygrave. The site comprised of cropland, hedgerows, scrub, ruderal vegetation, modified grassland, bare ground, line of trees, several individual trees.

4.2 It is understood that development proposals are for the construction of a solar energy farm.

4.3 An overall net gain of 66.84% in habitat units from the existing baseline has been calculated. The net gain reflects the replacement of cropland with modified grassland and woodland. The net gain of 102.26% in linear habitats is reflected in the retention of a large proportion of hedgerows on site and the addition of new native hedgerows along the east, west and south to west.

4.4 The BNG Assessment assigns bare ground on any site as having some ecological value. On this site the bare ground was previously hardstanding when the site was operational. However, as the previous operators vacated the site, and this has remained disused, a layer of bare ground has developed over the hardstanding area. The ecological value of this habitat on-site is thought to be very low. It is therefore thought that the actual biodiversity gain may be higher than given by the BNG Assessment, which has likely overestimated the biodiversity loss associated with the replacement of the bare ground habitat.

4.5 There may also be significant gains for ecology on the site that are not captured by the BNG Assessment, such as species-specific enhancements including bird and bat boxes.

5. Conclusions and Recommendations

Conclusions

5.1 A Biodiversity Net Gain Assessment has been carried out for the proposed development of the Land west of Ashwell Road, Bygrave. An overall net gain of 66.84% in habitat units from the existing baseline has been calculated.

5.2 It should be noted that the BNG assessment does not capture other methods of ecological enhancement such as the inclusion of bat and bird boxes.

6. References

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- Joint Nature Conservation Committee (2010). *Handbook for Phase 1 habitat survey - A technique for Environmental Audit.* JNCC, Peterborough.
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Figures and Appendices

Appendix A

Habitat Map

Figure 1: Ashwell Road, BNG baseline Map

Drawn by: LD
On the: 22/01/2024
Not to Scale
Ref: 10476

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Appendix B

Post Development Landscape Plan

UKF092_10 Mitigation and Enhancements Plan Key

- New native trees
- Solar Panel
- Existing trees
- Gapped up existing hedges
- New native hedges
- Wildflower Meadow
- Site Fence
- Public Right of Way
- Southern area designated for biodiversity enhancements
- Bat Boxes

Date: 22/01/2024
Revision: V9

PACE
PATHFINDER CLEAN ENERGY

New copse of native trees in the northwest planted adjacent to the bridleway.

New copse of native trees in the northeast- planted adjacent to the bridleway.

Log Piles around woodland edges and areas of open space to support sapro-phytic insects providing source of food for foraging bats

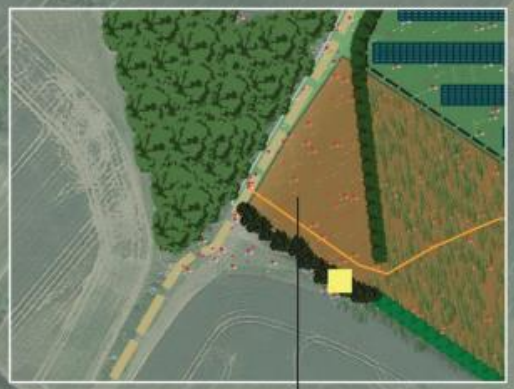
Fencing along the bridleway **as being suitable for horses .**

Planting of new hedge along approxi-mate **historic hedge line .**

Log Piles around woodland edges and areas of open space to support sapro-phytic insects providing source of food for foraging bats

All existing trees around the development will be protected.

At a minimum height of 3m, new and gapped up **natural hedging** will screen the site from Ashwell road and the local bridleway.



The development is set **100m away** from the nearest home with ground levels **5-9m lower,** helping to protect resident views.

Secondary access route for construction and fire brigade

New **permissive path.**

Skylark Plots 80-100m away from each other and atleast 50m away from the fence

Panels will be set back along the southern edge to **negate the visual effect from Arbury Bank Scheduled monument.** Large area left without development and managed to **encourage ground nesting birds, reptiles and pollinating insects.**

Wide coridors and a new picnic area along the bridleway will encourage walkers while maintaining views to the north.

8m tall copse of trees planted (exact size to be agreed by condition) along the south-eastern edge to help screen the site from local resident in Bygrave.

0 400 800 m

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