



Fairy Hill Proposed Solar Farm: Biodiversity Net Gain Assessment

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ABBREVIATIONS

BAP	Biodiversity Action Plan
BNG	Biodiversity Net Gain
BNGA	Biodiversity Net Gain Assessment
BU	Biodiversity Units
CIEEM	Chartered Institute of Ecology and Environmental Management
EclA	Ecological Impact Assessment
IEF	Important Ecological Feature
LEMP	Landscape and Ecological Management Plan
MMP	Management and Monitoring Plan
MMU	Minimum Mapping Unit
MW	Megawatt
NERC Act	Natural Environment and Rural Communities Act 2006
QGIS	Quantum Geographical Information System
S41	listed on Section 41 of the NERC Act
UK Habs	UK Habitat Classification
Zol	Zone of Influence

1 INTRODUCTION

Purpose of this Document

- 1.1 This Biodiversity Net Gain Assessment has been prepared in support of a planning application for a new solar farm on agricultural land on the outskirts of Compton Dando, Bristol, on behalf of Bath and West Community Energy (BWCE). BWCE is a not-for-profit Community Benefit Society, owned by its members and run for the benefit of the community.
- 1.2 The location and extent of the site are shown overleaf in **Figure 1** and **Figure 2**. The proposed solar farm is located on 2ha of land currently in agricultural use as an arable field to the north of Compton Dando and adjacent to the River Chew.

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Figure 1. Fairy Hill Solar Farm proposed site of development, with the site boundary illustrated in orange.



Figure 2. Fairy Hill Solar Farm proposed site of development, with the site boundary illustrated in orange.

Development Proposal

- 1.3 The proposed solar farm would generate approximately 2.1MW of renewable energy. As a community led project, the applicant is working with the sole purpose of benefiting the local community and surrounding area by reducing the reliance on fossil fuels, and therefore reducing carbon emissions, as well as generating income for local community benefit. In addition to the solar arrays, the project would provide wildlife and community benefits, and a net gain for biodiversity.
- 1.1 The proposed development is for the construction, operation and management of a solar farm comprising:
- Solar photovoltaic panels;
 - Transformer substation;
 - Switchroom;
 - Perimeter security fencing;
 - Access track;
 - On site cabling
 - Offsite cabling connecting the switchroom to the grid via the road running south towards Compton Dando;
 - DNO cabin;
 - Satellite mast;
 - CCTV cameras; and
 - A community orchard and nature reserve that will be developed in the field surrounding the solar array.
- 1.4 This document sets out the environmental context to the site of the proposed the solar farm and describes how the proposal has been designed to be appropriate to the site and its setting.
- 1.5 The purpose of this report is to:
1. Support the full planning application for the Development to demonstrate agreed compensation and enhancement measures in relation to habitats on the site;

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2. Demonstrate how the project is able to fulfil the obligations required by national and local planning policy as well as the newly enacted Environment Act 2021;
3. Present the methodologies used in producing this BNGA;
4. Summarise the results of the Biodiversity Metric 3.0 Calculation Tool for habitats' (in biodiversity units, BU) prior to development;
5. Summarise the results of the Biodiversity Metric 3.0 Calculation Tool for the habitats' value (in relation to BU) post-development; and
6. Provide the total net gains or losses based on the results of the Biodiversity Metric 3.0 Calculation Tool.

2 METHODOLOGY

Baseline survey

- 2.1 A habitat survey was conducted on the 8th of May 2021. This captures the baseline conditions prior to development, and subsequent site visits by a suitably qualified ecologist in 2022 and 2023 have verified that the sites habitats have not changed substantially. The field survey method was based on the UK Habitats Classification Survey (UK Habs) as per the UK Habs User Manual (2020).

Condition assessment

Existing Habitats

- 2.2 A condition assessment has been undertaken on the habitats present on the site via the completion of a habitat condition assessment sheet and the Biodiversity Metric 4.0 – Technical Supplement. This process evaluates criteria and characteristics for each habitat and provides guidance on an assessment of habitat condition (which can be ‘good’, ‘fairly good’, ‘moderate’, ‘fairly poor’ and ‘poor’). The assessment criteria are different for each habitat type but include criteria such as the presence of undesirable species, habitat extent, habitat health and vegetation structure.

Proposed Habitat Conditions

- 2.3 Proposed habitat conditions have been assigned to newly created and enhanced habitats. Precautionary levels have been set – even where the management is designed to achieve ‘other neutral grassland’ in ‘good’ condition, for example, the calculator has been set to ‘modified grassland’ in ‘poor’ or ‘fairly poor’ condition. This gives the minimum level of net gain that can be achieved, with the expectation that this will be exceed. The achievement will be monitored during auditing of the habitat conditions post-construction.

BNG calculations

- 2.4 The baseline BU value of the site has been determined using the Biodiversity Metric 4.0 Calculation Tool (Update – 13/08/21).

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- 2.5 This calculation tool was developed to provide a standardised methodology for completing a BNGA.
- 2.6 Baseline biodiversity units have been established using the findings of:
- The UK Habs Survey including a condition assessment;
 - The measuring of both on-site baseline and post development intervention habitats using QGIS; and
 - Professional judgement.

Limitations

- 2.7 For this assessment, habitat areas and lengths have been rounded up or down, where applicable to two decimal places.

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3 BASELINE CONDITIONS

- 3.1 The site consists of an arable field with grassland margins, surrounded by hedgerows.
- 3.2 Full details of the site’s wildlife are provided in the Ecological Impact Assessment.
- 3.3 A map of the site’s habitats is provided in **Figure 3**.



Figure 3. Fairy Hill Solar Farm baseline habitats onsite

4 BIODIVERSITY NET GAIN GOOD PRACTICE PRINCIPLES FOR DEVELOPMENT

Principle 1 – Apply the Mitigation Hierarchy

- 4.1 Construction-stage impacts on protected species and other wildlife will be avoided through the implementation of a Construction Ecological Management Plan.

Principle 2 – Avoid losing biodiversity that cannot be off-set by gains elsewhere

- 4.2 No irreplaceable habitats, such as ancient woodland, are being lost as part of this development.

Principle 3 – Be inclusive and equitable

- 4.3 As a community energy project, engagement is a key part of the design development and delivery of the solar farm. The project has benefitted from public consultation exercises and paid-for pre-application advice from Bath and North East Somerset Council (BANES). An Environmental Impact Assessment (EIA) screening opinion was provided by BANES on 30th August 2022, which confirmed that the project is not EIA development. The screening opinion provides feedback on the proposed development and planning application.
- 4.4 An on-site community engagement exercise was completed on 11th August 2022. Members of the local community were invited to view the site, with the proposed layout pegged out, and to make suggestions of what they would like to see in the scheme. These suggestions have been collated and fed into the proposed landscaping and design of the scheme.
- 4.5 Feedback on the proposal will continue to be gathered throughout the planning application process.

Principle 4 – Address risks

- 4.6 The Landscape and Ecological Management Plan includes management objectives, monitoring measures and remedial measures to ensure that the proposed enhanced and created habitats are secured and the management

objectives are achieved. This annual monitoring and review against agreed objectives help to control the risk of future non-conformities.

Principle 5 - Make a measurable Net Gain contribution

- 4.7 The proposed habitat creation and enhancement will deliver a substantial net gain above the 10% minimum requirement.

Principle 6 – Achieve the best outcomes for biodiversity

- 4.8 The proposed habitat creation and enhancement has been designed specifically with local wildlife in mind, as well as the resources and constraints on long-term management of the site.

Principle 7 – Be additional

- 4.9 The proposed management of the site will go beyond what is required for the maintenance of the solar farm to provide management targeted specifically at wildlife enhancement.

Principle 8 - Create a Net Gain legacy

- 4.10 The management of the site during the lifetime of the solar farm secures the future of wildlife on the site for the 30-year period of operation. Once the solar farm is decommissioned, the benefits of management for biodiversity will leave a lasting legacy that can be inherited for the next evolution of the site's use.

Principle 9 – Optimise sustainability

- 4.11 The proposed habitat enhancements are compatible with sheep grazing as a sustainable form of habitat management. In addition to the benefits to biodiversity, the landscape proposals also contribute to ecosystem services. This includes regulating services in the form of carbon storage, provisioning services in the form of providing plants for pollinators, which supports provisioning services and also the landscaping providing cultural services.

Principle 10 – Be transparent

- 4.12 The commitment to the proposed BNG and the subsequent auditing report will be submitted to Bath and North East Somerset Council and published on their website. It will include stating any deviations from the original design

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specifications and any relevant knowledge on implementation and lessons learnt.

5 BIODIVERSITY NET GAIN STRATEGY

- 5.1 Taking account of the good practice principles and the constraints and opportunities of the site and the development proposal, the basis of the net gain strategy is to replace the existing arable crop with seeded grassland to create a wildflower meadow. Around the edges the seed mix will favour pollinators by including a range of flowering plants specifically targeted at this group. Over the remaining areas the seed mix will be a locally appropriate mix of grasses and wildflowers. The net gain is also helped by the decision to provide a community orchard on site, which can be formed of traditional apple tree varieties over a wildflower sward.
- 5.2 Details of how the site will be managed and monitored are provided in a Landscape and Ecological Management Plan submitted with the application.
- 5.3 The proposed habitats are shown in **Figure 4**. Whilst this plan does not show the panels (as there is no option within the net gain mapping software) 5% of the total area has been assigned within the calculator as 'developed land, sealed surface'.

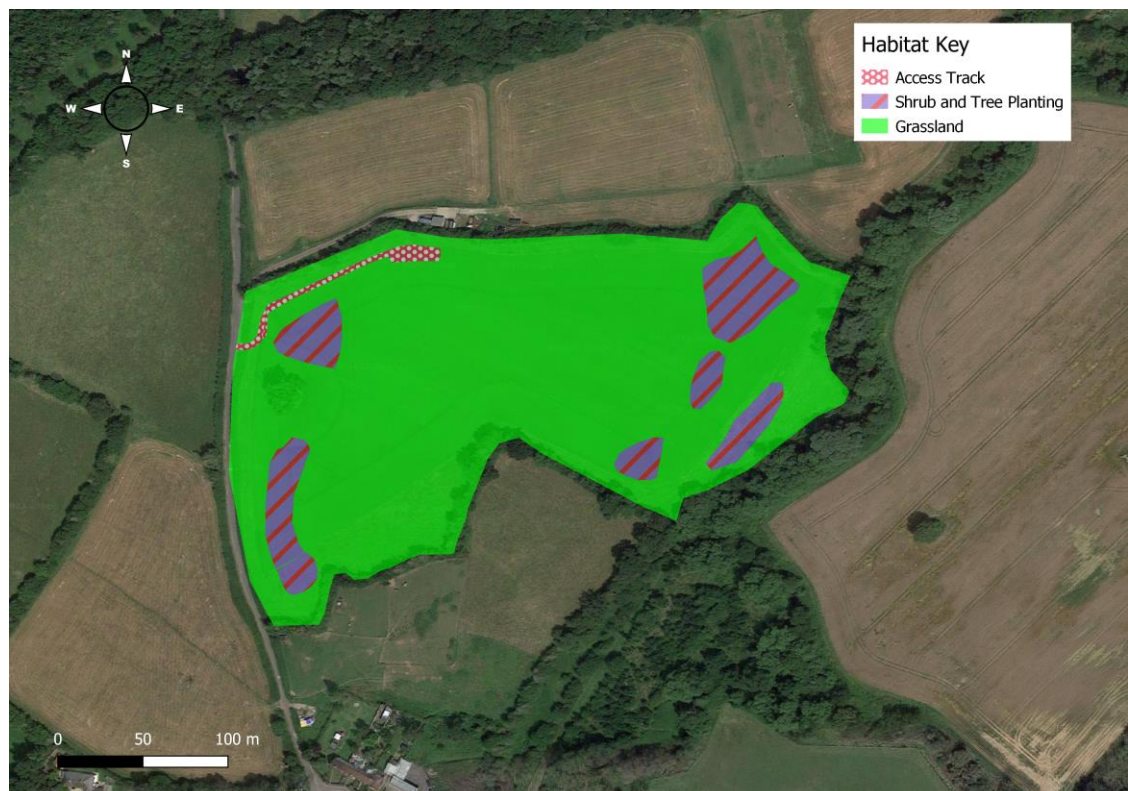


Figure 4. Fairy Hill Solar Farm proposed habitats

6 BIODIVERSITY NET GAIN OUTCOMES

6.1 Headline results from the Defra metric are provided in the table below.

Table 6-1 Summary of the BNG Calculations

FINAL RESULTS		
Total net unit change <small>(Including all on-site & off-site habitat retention, creation & enhancement)</small>	<i>Habitat units</i>	3.78
	<i>Hedgerow units</i>	0.00
	<i>Watercourse units</i>	0.00
Total net % change <small>(Including all on-site & off-site habitat retention, creation & enhancement)</small>	<i>Habitat units</i>	26.58%
	<i>Hedgerow units</i>	0.00%
	<i>Watercourse units</i>	0.00%
Trading rules satisfied?	Yes ✓	

7 MANAGEMENT AND MONITORING PLAN

7.1 A Landscape and Ecological Management Plan accompanies the planning application. The management plan is based upon best practice guidance by BRE (2016), CIEEM (2016) and British Standard BS 42020:2013 Biodiversity – Code of Practice for Planning and Development. The plan includes the following:

- The proposals for monitoring, including methods, frequency and timing.
- The reporting procedures and strategy for remedial works, as required.
- The roles, responsibilities and competency requirements of those involved in implementing the MMP.
- Details of the legal, financial and other resource requirements for delivery of the MMP.

8 CONCLUSION

- 8.1 The proposed solar farm will secure funding and resources for the management of the site to promote biodiversity, and in so doing will deliver a measurable net gain in excess of the 10% mandated in *The Environment Act 2021*.

REFERENCES

Best Practice and Guidance

BS 42020:2013 Biodiversity – Code of Practice for Planning and Development.

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