Appendix 7 - Assessment of net gain.

Defra Biodiversity Metric 3.0

In the absence of other tools specific to Wales, Defra Biodiversity Metric 3.0 has been applied to habitat areas and watercourses at this site to provide a quantitative assessment of biodiversity net gain. This has not been applied to hedgerow habitat.

Taking the following into account, a predicted net gain of 144 habitat units is likely, representing a 75% increase over site baseline:

- habitat losses associated with built infrastructure and associated access tracks,
- improvement of habitat quality associated with under panel grassland habitats,
- improved grassland habitat quality associated with reen and ditch buffers,
- improvement in areas where arable has been planted to grassland.

In addition, taking the following into account, a predicted net gain of 19.9 River units is likely, representing a 18% increase over site baseline

- improvement in ditch habitat quality due to changes in land management and active scrub removal to open up ditch habitat.

The detailed results page from the metric is provided below.

Rush Wall Solar farm

Detailed Results

Return to results menu

Summary Figures

Net project biodiversity units (including all on-site & off-site habitat retention/creation)	*Habitat units*	144.23
	Hedgerow units	0.00
	River units	19.89
Total project biodiversity % change (including all On-site & Off-site Habitat Creation + Retained Habitats)	*Habitat units*	75.19%
	Hedgerow units	0.00%
	River units	18.17%

Combined habitat retention and enhancement

	Habitats	Hedgerows	Rivers
Total area / length	83.22	0.00	18.07
Total units	191.83	0.00	109.49
Area / length retained	0.00	0.00	8.85
Units Retained	0.00	0.00	40.71
Area / length proposed for enhancement	0.00	0.00	9.22
Baseline units proposed for enhancement	0.00	0.00	68.78
Area / length lost	83.22	0.00	0.00
Units lost	191.83	0.00	0.00

Area Habitats

Area habitats

On site change by broad habitat type

Habitat group	Baseline: Existing area	Baseline: Existing value	Post development on site: Proposed area	Post development on site: Proposed value	Onsite Change: Area change	Onsite Change: Onsite Unit change
Cropland	83.85	160.56	0.00	0.00	-83.85	-160.56
Grassland	0.00	0.00	83.80	338.08	83.80	338.08
Heathland and shrub	0.00	0.00	0.00	0.00	0.00	0.00
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.37	1.08	0.00	0.00	-0.37	-1.08
Urban	0.00	0.00	0.82	0.00	0.82	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

Off site change by broad habitat type

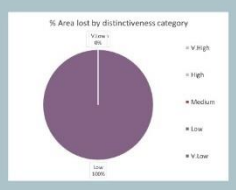
Habitat group	Baseline: Existing area	Baseline: Off-site Existing value	Post development Off-site: Off-site proposed area	Post development Off-site: Off site Proposed value	Off-site Change: Off-site area change	Off-site Change: Off-site unit change
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	0.00	0.00	0.00	0.00	0.00	0.00
Heathland and shrub	0.00	0.00	0.00	0.00	0.00	0.00
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

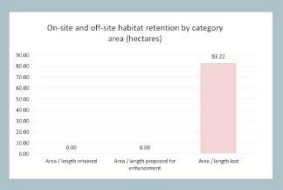
Combined on site and off site change by broad habitat type

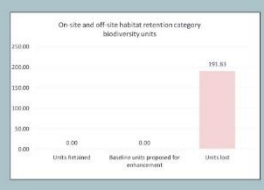
Habitat group	Baseline: Existing area	Baseline: Existing value	On-site and Off-site post development: Combined proposed area	On-site and Off-site post development: Combined proposed value	Combined change: Proposed area	Combined change: Proposed value
Cropland	83.85	160.56	0.00	0.00	-83.85	-160.56
Grassland	0.00	0.00	83.80	338.08	83.80	338.08
Heathland and shrub	0.00	0.00	0.00	0.00	0.00	0.00
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.37	1.08	0.00	0.00	-0.37	-1.08
Urban	0.00	0.00	0.82	0.00	0.82	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

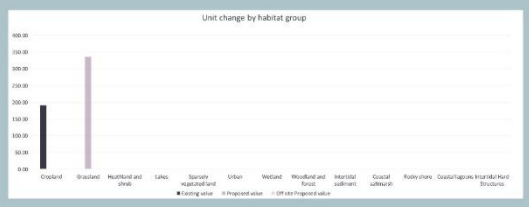
Combined area lost by distinctiveness band

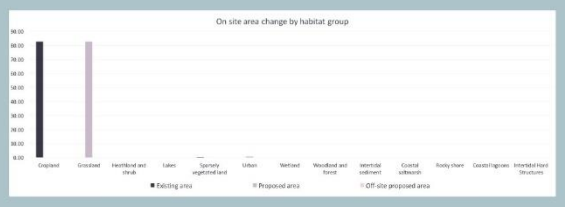
Category	Area lost (hectares)	Area lost (%)
V.High	0	
High	0	
Medium	0	
Low	83.22	100
V.Low	0	

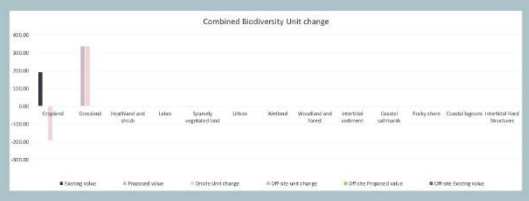












Hedgerows and Lines of Trees

Hedgerows and lines of trees

On site change by hedgerow type

Hedgerow type	Baseline: Existing length on-site	Baseline: Existing value	Post development on site: Proposed length on-site	Post development on site: Proposed value on-site	Onsite Change: On-site length change	Onsite Change: On-site Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

Off site change by hedgerow type

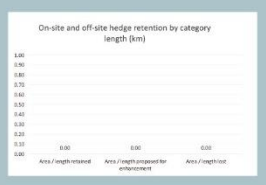
Hedgerow type	Off site baseline: Existing length off-site	Off site baseline: Existing value off-site	Post development off site: Proposed length off-site	Post development off site: Proposed value off-site	Off site Change: Off-site length change	Off site Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

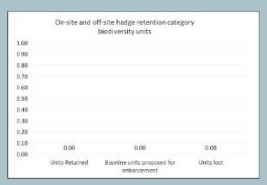
Combined on and off site change by hedgerow type

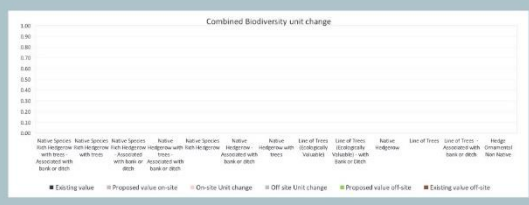
Hedgerow type	Baseline: Existing length	Baseline: Existing value	Post development on site: Proposed length	Post development on site: Proposed value	Onsite Change: length change	Onsite Change: Onsite Unit changes
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

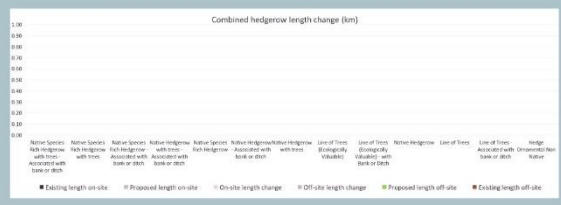
Combined length lost by distinctiveness band

Category	Length lost (KM)	Length lost (%)
V.High	0	
High	0	
Medium	0	
Low	0	
V.Low	0	









Rivers and Streams

Rivers and Streams

On site change by river type

River type	Baseline: Existing length	Baseline: Existing value	Post development on site: Proposed length	Post development on site: Proposed value	Onsite Change: length change	Onsite Change: Onsite Unit changes
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	18.1	109.5	18.1	129.4	0.0	19.9
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

Off site change by river type

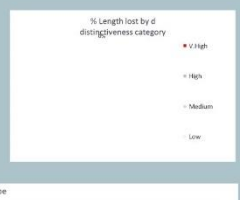
River type	Baseline: Existing length off-site	Baseline: Existing value off-site	Post development off-site: Proposed length off-site	Post development off-site: Proposed value off-site	Off-site Change: Off-site length change	Off-site Change: Off-site unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	18.1	109.5	18.1	129.4	0.0	19.9
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

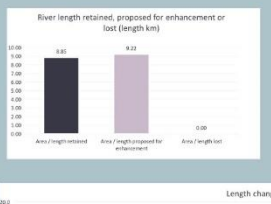
Combined on and off site change by river type

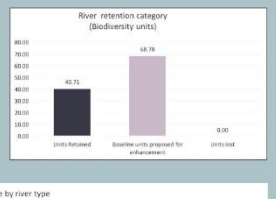
River type	Baseline: Existing length	Baseline: Existing value	Post development on site: Proposed length	Post development on site: Proposed value	Onsite Change: length change	Onsite Change: Onsite Unit changes
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	18.1	109.5	18.1	129.4	0.0	19.9
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

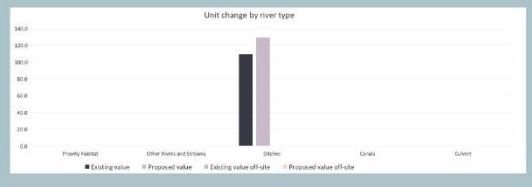
Combined length lost by distinctiveness band

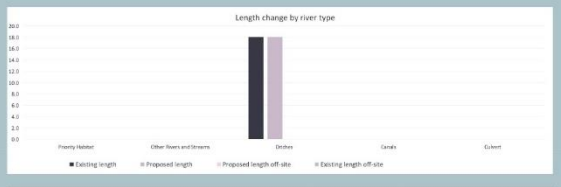
Category	Length lost (KM)	Length lost (%)
V.High	0	
High	0	
Medium	0	
Low	0	

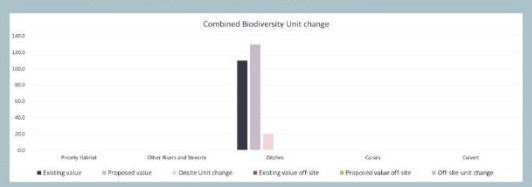












SPIES tool

The SPIES tool[1] assesses proposed management interventions against peer reviewed scientific papers and provides an evidence-based summary of likely impacts. For this project, interventions proposed within the LEMP will result in changes significantly weighted towards enhancement for the following:

- Maintaining habitats and biodiversity
- Pollination regulation
- Water quality regulation
- Climate regulation
- Flood regulation
- Water cycle support

The assessment was as follows;

[1] https://www.lancaster.ac.uk/spies/

Solar Park Impacts on Ecosystem Services (SPIES)

SUMMARY REPORT - MANAGEMENT ACTIONS

https://www.lancaster.ac.uk/spies/

Introduction

The solar park impacts on ecosystem services (SPIES) decision support tool provides an accessible, evidence-based assessment of the impacts of solar park management on biodiversity, natural capital and ecosystem services for the UK solar industry. The SPIES tool was co-developed by Lancaster University, the University of York and a broad cross-sectoral stakeholder group, including the National Solar Centre, the Solar Trade Association, the National Farmers Union, and those involved in solar park development, operation and maintenance, nature conservation bodies, land owners, and the farming community.

The SPIES tool was converted into a web-based app by Simomics and the project funded by the Natural Environment Research Council.

This document provides an overview of the evidence from peer-reviewed scientific literature on the effect of current and proposed management action strategies on ecosystem services. It provides a:

1. List of the current and proposed management actions.
2. Visual summary of the evidence, providing an overview of the quantity of evidence, the magnitude and direction of the effect.

1 List of the Current and Proposed Management Actions

The user-selected current and proposed management actions are:

Category	Current	Proposed
Grazing		Reduce grazing intensity if previously grazed Replace mowing with grazing if previously mowed
Drainage		Install/maintain subsurface drains
Habitats		Create/maintain buffer zones/field margins/set-aside Install/maintain bat boxes Install/maintain bird boxes
Pollution & Chemical Inputs		Reduce pollution and green waste inputs into ditches Reduce/cease pesticide and fertiliser use if previously used
Vegetation		Transfer hay/diaspores to soil
Trees & Hedges		Cut hedges in winter
Mowing		Mow later in the year Reduce mowing regime to once a year

2 Evidence Summary

Impact from current actions:

Impact from proposed actions: