WESTHIDE SOLAR

Biodiversity Net Gain

for

Ersun (Westhide SPV) Ltd

October 2022



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^{*}D denotes a Draft version

The information which we have prepared and provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

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1.0 INTRODUCTION

- 1.1 The Landmark Practice (TLP) is an award winning multi-disciplinary consultancy offering bespoke and integrated services in ecology, environmental planning, landscape architecture and architectural graphics. We are an independent and respected consultancy, working on a large range of development projects for our clients throughout the UK. Full details of the Practice can be found at www.thelandmarkpractice.com
- 1.2 In April 2021 The Landmark Practice (TLP) was commissioned by Ersun (Westhide SPV) Ltd to assess the biodiversity impacts resulting from the development of a solar park at Land at Westhide, Herefordshire, hereafter referred to as the 'application site.'

Site Location and Description

- 1.3 The application site, which measures approximately 62 hectares, is located 9 km northeast from Hereford (approximate central grid reference SO 577 443, **Figure 1** refers). The Local Planning Authority (LPA) is Herefordshire County Council (HCC).
- 1.4 The habitats which comprise the site were for the most part typical of Herefordshire, comprising arable farmland. The site itself comprises a network of eight fields, which are all arable with an extensive network of mature hedgerows with trees, with drainage ditches at their bases.
- 1.5 The hedgerows which bound and bisect the site are a mixture between species-poor and species-rich in terms of species composition. Hedgerows are also for the most part intact, with few gaps and are of good quality in terms of size, structure and connectivity, with some containing a scattering of mature trees.

Development Proposals

- 1.6 The proposed development will comprise a ground-mounted solar PV (photovoltaic) development within some of the fields.
- 1.7 The solar park will be set out as solar arrays, with sufficient space between the arrays to avoid one array of PV modules overshadowing the next.
- 1.8 It is expected that the PV modules will be mounted on metal frames on posts piled at up to a depth of circa 3 m (depending on ground conditions) using percussion piling into the ground causing minimal impact on the ground surface and will be fully removable on decommissioning. The highest point of the modules will be circa 3 m above ground.
- 1.9 The solar park will also encompass central inverters and a Distribution Network Operator (DNO) substation.
- 1.10 The application site will be protected with a security fence of circa 2.5 m. The security fencing will not be dug into the ground but will be flush to the ground. The fencing will have small mammal gates installed. The application site will not be artificially lit.
- 1.11 A new access route is proposed for construction traffic only, to reduce the use of the road between Withington and Westhide during that period. The track leads from an existing agricultural facility to the north-west and runs across three fields to join an existing access point on the north of the site.

- 1.12 All existing boundary hedgerows and associated features will be retained. The external security fence will be offset internally from the perimeter hedgerows by at least 5 m. Once the solar park is established, the system will require minimal on-going maintenance. Experience has shown that PV modules are cleaned to a considerable degree by rainfall but will also be manually cleaned several times a year. Activity at the solar park will be limited to periodic repair and/or maintenance. Grassland will be managed over the likely 30-year life of the installation by a sensitive ecological management plan.
- 1.13 The proposed Landscape Masterplan is provided at **Appendix A**.

Scope of Report

1.14 This report details the Biodiversity Net Gain (BNG) Assessment process undertaken for the proposed development. While this report does summarise some data, it should be read in conjunction with the full Metric 3.0 spreadsheet, which will be submitted with the planning application.

2.0 METHODS

Site Survey

2.1 A Phase 1 habitat survey was undertaken of the application site in October 2020. Further Biodiversity Net Gain surveys were undertaken in September and November 2021 to establish the condition of features such as ponds, woodland, grassland and hedgerows within the site for the BNG assessment. The data from these various surveys was used to calculate the existing baseline habitat units for the application site. Full ecological assessment of the site is detailed within the Ecological Appraisal (TLP, 2021).

Biodiversity Unit Calculations

- 2.2 This assessment uses the latest Defra Biodiversity Metric 3.0 (July 2021). The calculation of baseline biodiversity units takes account of all the habitats, or combined habitats, on site larger than 0.01 ha (refer to the Notes and Limitations section, **Paragraph 2.8**) prior to development.
- 2.3 Where necessary, Phase 1 classifications were translated to UKHab habitat classifications using the toolkit contained within the Biodiversity Metric Calculation Tool or using professional judgement and UKHab classification descriptions where appropriate. Condition assessments were undertaken using the Metric 3.0 Habitat condition assessment sheets.
- 2.4 Calculations of biodiversity units from the proposed development using the Metric takes account of the following:
 - Habitat that is lost due to development;
 - Habitat retained post development;
 - Any enhanced retained habitats; and
 - Any habitats created by the development.
- 2.5 The assessment is based upon the target state (size and condition) for the habitats that are being enhanced or created.

- 2.6 Habitat calculations for habitat areas and linear features were calculated based upon topographical survey measurements and the proposed Landscape Masterplan (**Appendix A**).
- 2.7 All calculations were made using Autodesk AutoCAD software.

Notes and Limitations

- 2.8 In accordance with recommended guidance on the Metric 3.0, all areas/lengths are input in hectares (ha) / kilometres (km), rounded to two decimal places. This means that any distinct habitat parcels below 0.01 ha in area cannot be included. Where multiple areas of the same smaller habitat type and condition exist (for example transformer stations and solar panel mountings, or small patches of bramble scrub) the areas of each were combined in metres squared, converted to hectares and rounded to two decimal places.
- 2.9 There will be some temporary habitat loss where underground cabling is installed. However, standard methodology for this process involves careful excavation and reinstatement of habitat following installation of the cabling, complete with topsoil habitat. Given that the impacts are only for a very limited time this is considered to qualify as temporary loss as per Para 5.56 of the Metric 3.0 User Guide, and has therefore not been incorporated into calculations.
- 2.10 Some areas will be seeded with a wild bird seed mix. There is no fully appropriate classification within UKHab for this. It is considered that the most appropriate is *Cropland Arable field margins game bird mix*, and this has therefore been selected, although the UKHab definition for field margins require arable fields in crop rotation, which will not be the case here.
- 2.11 Similarly, the Metric 3.0 does not include a wholly suitable category for artificial turf, which is being grown in Field D. It has been classified in this assessment as *cropland-non cereal crops*. This is considered appropriate and is a habitat valued the same as modified grassland which is the ultimate product grown.
- 2.12 The scattered trees within arable fields have been classified under urban urban tree, as per *Paragraph 7.7* of the Metric 3.0 User Guide (Natural England, 2021). The RPA values from the arboricultural assessment were used to categorise their size in the urban tree helper, as per *Table 7-2* of the User Guide. While two of these scattered trees are proposed to be removed, the total RPA area lost is too small to be incorporated into two decimal places (0.001992). Proposed scattered trees have been classified as small using the street tree helper.
- 2.13 The value of the (largely dry) ditches have been incorporated in the metric through recording within the hedgerow assessment, as per guidance (User Guide, p.22).
- 2.14 All habitats have been assigned a strategic significance of *Area/compensation not in local strategy/no local strategy*, as there are no designated sites within or adjacent to the site, and the site lies within a large area of similar quality and variety of habitats.
- 2.15 Hedgerows 20-22 (in proximity to the northern access track) are included within the Ecological Appraisal but are outside the red line boundary and unimpacted by the development. They have therefore not been included within the BNG calculations.
- 2.16 Following comments from the LPA, rewilding is proposed within some areas in Fields F, G and H. The Metric requires precise prescriptions are input, which does not tie in particularly well with the nature of rewilding allowing semi-natural habitats to develop

and create a mosaic of different habitats. These areas have been categorised within the Metric as other neutral grassland with urban trees, in accordance with the Landscape Masterplan, as this will be the initial planting. However, over time, it is likely that bramble and mixed scrub will also form. While this is contrary to the Metric, and some habitats e.g., bramble scrub is of lower value in Biodiversity Units, it is recommended that this variance be allowed in these designated areas in order to achieve the desired outcome.

2.17 Further notes identifying metric inputs with corresponding features on site are provided in the Metric 3.0 spreadsheet *Assessor* column.

3.0 RESULTS – BIODIVERSITY NET GAIN CALCULATIONS

On-site Baseline Units - Pre-development

Ponds (Priority Habitat)

3.1 Two ponds within the site were assessed at *Moderate* condition. One pond (Pond 4) was assessed at *Good* condition. Pond 3 was dry.

Other Woodland; Broadleaved

3.2 Four parcels of this habitat type lie within the site, south of Field A (*Moderate* condition), east of Field D (*Poor condition*), around Pond 4 (*Moderate* condition) and dividing Fields G and H (*Moderate* condition).

Lowland Mixed Deciduous Woodland

3.3 The woodland surrounding Ponds 2 and 3 was assessed at *Good* and *Moderate* condition respectively. The woodland along the north of the site was assessed at *Moderate* condition.

Urban Tree

3.4 The mature trees scattered around the site in the interior of fields were assessed at *Moderate* condition.

Vacant/Derelict Land/Bare ground

3.5 The southern access paths were considered to fall into this habitat type, at *Poor* condition.

Cereal Crops

3.6 The majority of the fields fall into this category. N/A condition.

Modified Grassland

3.7 Margins around the edge of the fields were species poor and categorised as modified grassland, at a mixture of *Moderate* and *Poor* condition. The access track also passes through modified grassland, at *Poor* condition.

Bramble Scrub

3.8 Small patches of bramble scrub (*poor* condition) are present at places in the margins of the field.

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Non-Cereal Crops

3.9 Field D, where amenity turf is grown has been categorised as non-cereal crops. This habitat type is also present in the northern part of the access track to the north. N/A condition.

Developed Land, Sealed Surface

- 3.10 The adjoining access route through the north-west farm falls into this category. N/A condition.
- **Table 1** below details the existing pre-development area habitats and their unit value onsite.

Table 1: Site Baseline Habitats

Habitat Type	Area (Ha)	Condition	Units	Units Enhanced	Units Lost
Ponds (Priority Habitat) (Pond 1)	0.03	Moderate	0.36	0.36	0.00
Ponds (Priority Habitat) (Pond 2)	0.04	Moderate	0.48	0.48	0.00
Other woodland; broadleaved	0.38	Moderate	3.04	0.00	0.00
Other woodland; broadleaved	1.42	Poor	5.68	0.00	0.00
Lowland mixed deciduous woodland	0.24	Good	4.32	0.00	0.00
Urban Tree	0.02	Moderate	0.16	0.00	0.00
Vacant/derelict land/ bare ground	0.51	Poor	1.02	0.00	0.66
Cereal crops	41.65	N/A - Agricultural	83.30	0.00	52.22
Modified grassland	3.08	Poor	6.16	0.00	0.00
Modified grassland	1.25	Moderate	5.00	0.00	0.00
Lowland mixed deciduous woodland	0.07	Moderate	0.84	0.00	0.00
Bramble scrub	0.05	Poor	0.20	0.00	0.00
Non-cereal crops	8.64	N/A - Agricultural	17.28	0.00	1.26
Non-cereal crops	0.12	N/A - Agricultural	0.24	0.00	0.24
Modified grassland	0.12	Poor	0.24	0.00	0.24
Cereal crops	0.27	N/A - Agricultural	0.54	0.00	0.54
Other woodland; broadleaved	1.19	Moderate	9.52	0.00	0.00
Other woodland; broadleaved	0.54	Moderate	4.32	0.00	0.00

Lowland mixed deciduous woodland	1.71	Moderate	20.52	0.00	0.00
Ponds (Priority Habitat) (Pond 4)	0.1	Good	1.80	0.00	0.00
Developed land; sealed surface	0.3	N/A - Other	0.00	0.00	0.00
Totals			165.02	0.84	55.16

3.12 Table 2 below details the existing pre-development linear habitats and their unit value onsite. Hedgerows of similar type and condition have not been combined within the Metric 3.0 spreadsheet for clarity.

Table 2: Site Baseline Hedgerows

Habitat Type	Length (km)	Condition	Units	Units Enhanced	Units Lost
Native Species Rich Hedgerow	0.11	Moderate	0.88	0.88	0.00
Native Hedgerow	0.23	Moderate	0.92	0.92	0.00
Native Species Rich Hedgerow	0.11	Good	1.32	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.21	Moderate	1.68	1.68	0.00
Native Hedgerow	0.07	Good	0.42	0.00	0.00
Native Hedgerow with trees	0.06	Good	0.72	0.00	0.00
Native Species Rich Hedgerow	0.16	Good	1.92	1.92	0.00
Native Hedgerow	0.16	Good	0.96	0.96	0.00
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.17	Moderate	2.72	2.72	0.00
Native Hedgerow	0.32	Good	1.92	0.00	0.00
Native Species Rich Hedgerow	0.12	Good	1.44	0.00	0.00
Native Species Rich Hedgerow	0.11	Moderate	0.88	0.88	0.00
Native Species Rich Hedgerow	0.27	Good	3.24	3.24	0.00
Native Species Rich Hedgerow	0.22	Good	2.64	0.72	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.21	Good	3.78	2.70	0.00
Native Hedgerow	0.3	Good	1.80	0.00	0.00

Native Hedgerow - Associated with bank or ditch	0.36	Good	4.32	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.18	Good	2.16	0.72	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.07	Moderate	0.84	0.84	0.00
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.1	Moderate	1.60	1.60	0.00
Totals			36.16	19.78	0

On-Site Units - Post Development

- 3.13 The proposed development will comprise the installation of ground mounted solar PV arrays and associated infrastructure, as illustrated in the Landscape Masterplan in **Appendix A**.
- 3.14 A variety of new and enhanced habitats are proposed, as detailed in the accompanying Ecological Appraisal (TLP, 2021) and subsequent Addendums (TLP 2022), and illustrated in **Appendix A**. Prescriptions to achieve these enhancements in the time to condition specified within the Metric 3.0 sheet should be incorporated into a Landscape and Ecological Management Plan (LEMP), submitted with the application or secured by planning condition.

Habitat Units

- 3.15 The value of existing arable fields will be improved through the creation of species rich grassland, specified at *Moderate* condition. This will provide a variety of diverse plant communities in the future. Areas of wild bird seed mix will also be incorporated in sections of the margins of Field C and F.
- 3.16 The ponds will be indirectly enhanced through cessation of arable practices and restoration of more semi-natural habitats which will improve their condition to *Good* through the condition assessment criteria.

Hedgerow Units

- 3.17 Hedgerows are proposed to be retained, and many will be bolstered, with gaps filled and new species rich planting incorporated in many locations, improving the species diversity of some existing hedgerows.
- 3.18 An improved management regime will also ensure existing hedgerows are enhanced to *Good* condition, largely through improvements to their height and width. Numerous species-rich hedgerows are proposed as illustrated on the Landscape Masterplan (**Appendix A** refers). These measures will also help screen the site from the surroundings.
- **3.19** Tables 3 and 4 below detail the proposed habitat creation and enhancement on site and associated areas and units as specified in the Metric 3.0.

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Table 3: Habitat Units - Site Habitat Creation

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Habitat Type	Area (ha)	Condition	Units Delivered
Arable field margins game bird mix	0.5	N/A - Agricultural	1.93
Other neutral grassland	25.05	Moderate	167.7
Developed land; sealed surface	0.33	N/A - Other	0.00
Developed land; sealed surface	0.24	N/A - Other	0.00
Modified grassland	0.27	Poor	0.52
Developed land; sealed surface	1.19	N/A - Other	0.00
Urban Tree	0.02	Moderate	0.06
Total Units Delivered	170.21		

Table 4: Habitat Units - Site Habitat Enhancement

Habitat Type	Area (ha)	Condition	Units Delivered
Ponds (Priority Habitat)	0.46	Good	0.46
Ponds (Priority Habitat)	0.62	Good	0.62
	1.08		
Unit	0.24		

3.20 **Tables 5** and **6** detail the proposed hedgerow habitat creation and enhancement on-site and associated areas and units as specified in the Metric 3.0.

Table 5: Hedgerow Habitats – Site Hedgerow Creation

Habitat Type	Length (km)	Condition	Units Delivered
Native Species Rich Hedgerow with trees	0.1	Good	0.88
Native Species Rich Hedgerow with trees	0.18	Good	1.59
Native Species Rich Hedgerow with trees	0.06	Good	0.53
Native Species Rich Hedgerow	0.12	Good	0.94
Native Species Rich Hedgerow	0.26	Good	2.03
Native Species Rich Hedgerow with trees	0.24	Good	2.12
Native Species Rich Hedgerow with trees	0.22	Good	1.94
Total Units Delivered			

Table 6: Hedgerow Habitats – Site Hedgerow Enhancements

Habitat Type	Length (km)	Condition	Units Delivered	
Native Species Rich Hedgerow with trees	0.11	Good	1.65	
Native Hedgerow	0.23	Good	1.35	
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.21	Good	4.03	
Native Species Rich Hedgerow with trees	0.16	Good	2.59	
Native Species Rich Hedgerow with trees	0.16	Good	2.30	
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.17	Good	3.90	
Native Species Rich Hedgerow with trees	0.11	Good	1.65	
Native Species Rich Hedgerow with trees	0.27	Good	4.37	
Native Species Rich Hedgerow with trees	0.06	Good	0.97	
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.15	Good	3.33	
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.06	Good	1.22	
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.07	Good	1.43	
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.1	Good	2.29	
Sub-Total				
Unit increase in hedgerow value				

Table 7 summarises the headline results of the assessment.

Table 7: Summary of Headline Results

Habitat Type	Units Gained	Percentage Gained
Habitat Units	115.3	69.87%
Hedgerow Units	21.36	59.06%

4.0 DISCUSSION

4.1 It is important to note that delivering Biodiversity Net Gain is dependent on the ongoing management of the site, to ensure habitats meet their required condition within the timescales set out above. It is recommended that management prescriptions to establish habitats at (or above) their required condition, alongside future monitoring to assess progress/compliance, is detailed within a Landscape and Ecological Management Plan (LEMP), submitted with the application or secured by an appropriately worded planning condition.

- 4.2 The current level of net gain on-site stands at a gain of 115.3 habitat (area) units, which equates to 69.87% net gain, and a gain of 21.36 hedgerow (linear) units, representing a 59.06% net gain.
- 4.3 In addition, species specific enhancement measures targeting bats, birds, reptiles, will also be delivered in conjunction with the scheme (as detailed in the Ecological Appraisal, TLP 2021).

5.0 CONCLUSION

5.1 The proposed development has demonstrably achieved a level of net gain that far exceeds the 10% gain target, achieving this on-site in both its habitat and hedgerow units. This is achieved through a combination of iterative and sensitive design, mitigation and enhancement planting measures, as illustrated in **Appendix A**.

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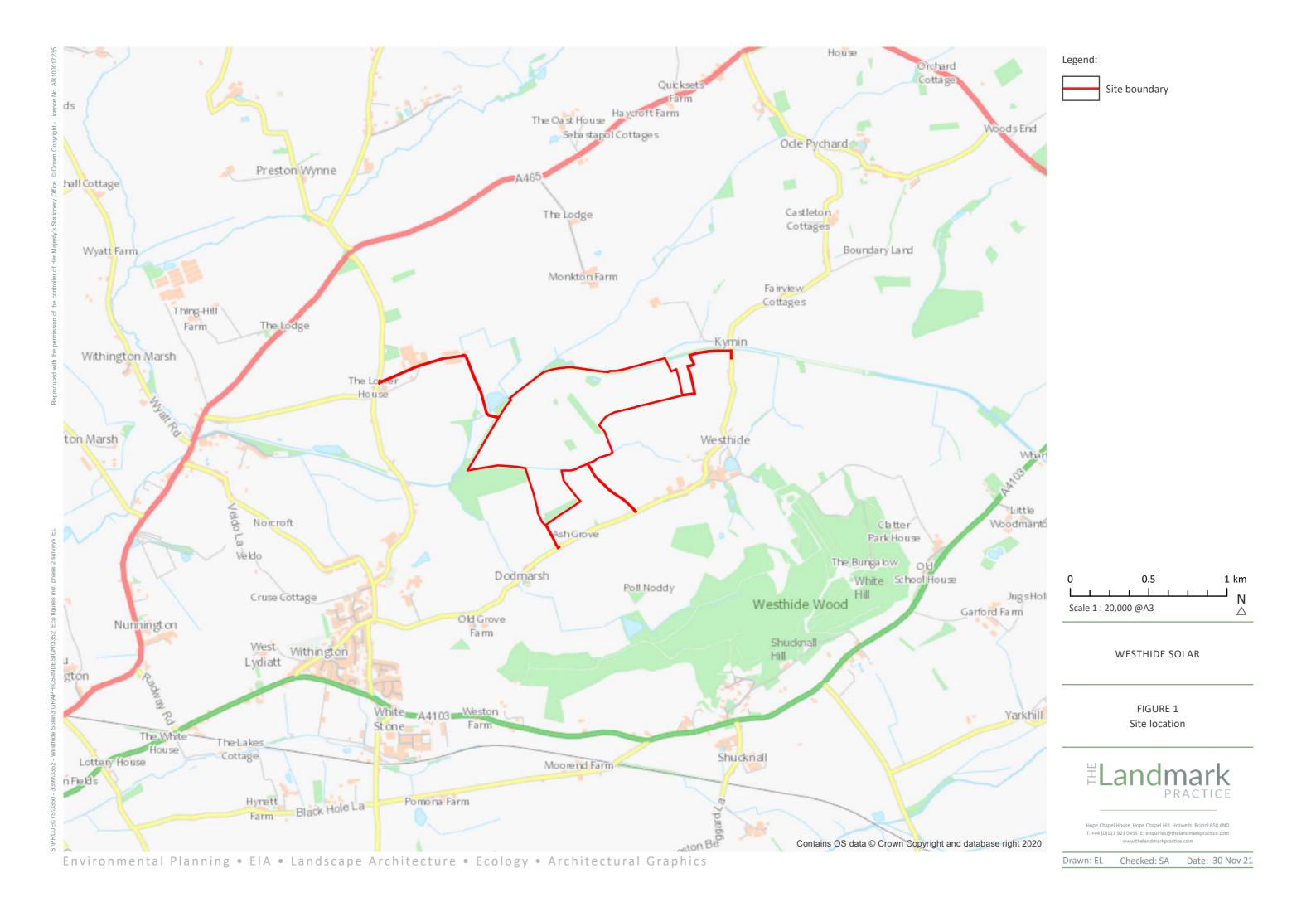
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FIGURES

FIGURE 1 – SITE LOCATION PLAN



APPENDICES

APPENDIX A: LANDSCAPE MASTERPLAN

APPENDIX A: LANDSCAPE MASTERPLAN

