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Proposed Grid Supply Point Substation off the A131

Environmental Appraisal

Appendix 4: Biodiversity Net Gain Report

April 2022

nationalgrid

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Appendix 4: Biodiversity Net Gain Report

1. Introduction

1.1 Purpose

1.1.1 The purpose of this appendix is to provide supporting evidence and interpretation of the results to accompany the Defra Metric 3.0 Calculation Tool (Annex 1 of this Appendix) in order to measure the net gain in biodiversity resulting from the proposed GSP substation. Furthermore, the report aims to deliver and validate the Biodiversity Net Gain (BNG) proposal in accordance with best practice guidance (British Standards Institute, 2021;Construction Industry Research and Information Association (CIRIA), 2019; and Defra 2022a).

1.1.2 This appendix is structured as follows:

- Section 1: Introduction
- Section 2: Methods
- Section 3: Baseline Conditions
- Section 4: BNG Good Practice Principles for Development
- Section 5: Proposed Design
- Section 6: BNG Metric
- Section 7: Project Implementation and Construction Plan
- Section 8: BNG Management and Monitoring Plan

1.2 Relevant Policy & Legislation

1.2.1 National Grid have a policy commitment to drive a net gain in environmental value (including biodiversity) in their construction projects and strive for more than 10% where possible (National Grid, 2022). Measurable net gain in biodiversity can be achieved by either creating new habitats and/or enhancing existing habitats. The Environment Act 2021 will also make it mandatory for developments to achieve at least a 10% net gain in value for biodiversity. This will apply to new planning applications submitted pursuant to the Town and Country Planning Act 1990 (TCPA) two years after royal assent of the Environment Act 2021, which will be from November 2023.

1.2.2 The National Planning Policy Framework (NPPF) and accompanying National Planning Policy Guidance (NPPG) (Ministry of Housing, Communities and Local Government, 2021 have identified that developments in England should deliver a Net Gain for biodiversity. The NPPF, published in July 2021, states (paragraph 174) that:

> *'Planning Policies and decisions should contribute to and enhance the natural and local environment by… minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.*'

1.2.3 The NPPG for the Natural Environment, updated in July 2019, states (paragraph 020) that:

> '*Net gain in planning describes an approach to development that leaves the natural environment in a measurably better state than it was beforehand*.'

1.2.4 The Braintree Local Plan (adopted 2021) (Braintree District Council, 2021) was reviewed for policies relevant to biodiversity. However, as these mostly related to sustainable residential development and the associated road infrastructure they were not considered pertinent to the proposed GSP substation and are subsequently not referenced within this report.

2. Methods

2.1 Important Ecological Features

2.1.1 A desk study was undertaken to gather information on ecological features within 2km of the survey area (defined in Table 2.1) from publicly available and third-party sources. Further information relating to the desk study is presented in Appendix 3 (Biodiversity Baseline) of the Environmental Appraisal.

2.2 Habitat Classification and Assessment

2.2.1 Field surveys were led by a Suitably Qualified Ecologist in June 2021. The surveys followed standard methodology published in the UK Habitat Classification User Manual (Butcher *et al*, 2020). Further information relating to the survey methodology is presented in Appendix 3 (Biodiversity Baseline) of the Environmental Appraisal. A summary of the survey meta-data is provided in Table 2.1 below.

Table 2.1: Field survey meta-data

Scope and purpose of the survey	Baseline habitat survey to inform Defra metric calculations
Survey area	The proposed GSP substation and relevant accompanying works (the 400kV temporary overhead line diversion, the 132kV underground cables, the 132kV cable sealing end platform pylon) and a 50m buffer.
Edition of UKHab used	UKHab-Professional
Minimum Mapping Unit (MMU)	$25m^2$ / 5m
Level of UKHab Primary Hierarchy used	Level 5
List of Secondary Code groups recorded	UKHab-P habitat mosaic, habitat complex, origin, management, and green infrastructure
Additional attributes recorded	Habitat condition
Map projection and units	EPSG:27700 / metres
Survey date	June 2021
Baseline date used to inform the metric	June 2021
Organisation undertaking the survey	Jacobs
Surveyor competency	Survey lead has five years' relevant survey experience (Phase 1 Habitat Surveys – five years; UKHab – two years; BNG – two years; and National Vegetation Classification – two years)
Survey constraints	None

Scope and purpose of the survey	Baseline habitat survey to inform Defra metric calculations
References for any existing datasets used:	Multi Agency Geographic Information for the Countryside (MAGIC) (Defra, 2022b) Suffolk Biodiversity Information Service (SBIS) Essex Wildlife Trust Biological Record Centre (EWTBRC) North East Essex Badger Group The Essex Field Club
Local plans and strategies considered to inform strategic significance	• Essex Biodiversity Action Plan (Essex BAP Steering Group, 2011) • Natural England's National Habitat Network (Defra, 2022b) • National Character Area profile: 86 South Suffolk and North Essex Clayland (Natural England, 2020)

2.3 Approach to BNG

2.3.1 BNG was assessed using Defra's Biodiversity Metric 3.0 Calculation Tool (Defra, 2021a). The objective of the assessment was to achieve at least 10% net gain in accordance with the policy guidance and legislation outlined in Section 1.2 of this Appendix. The assessment was carried out in accordance with BS 8683 Process for designing and implementing Biodiversity Net Gain — Specification (BSI, 2021).

2.3.2 It should be noted the Defra Metric was updated from version (v) 2.0 to v3.0 in July 2021 with revised guidance and criteria for habitat condition assessment. The original habitat condition assessments (undertaken in June 2021) were therefore updated accordingly in line with v3.0 criteria.

2.3.3 As National Grid have a policy commitment to drive a net gain in environmental value (including biodiversity) in their construction projects and strive for more than 10% where possible (National Grid, 2022), relevant accompanying works described in Section 4 of the Planning Statement are included in this BNG assessment. These are the 132kV underground cables, 132kV cable sealing end platform pylon and the temporary pylons required for the diversions of the 132kV and 400kV overhead lines shown in Figure 2 of the Environmental Appraisal.

3. Baseline Conditions

3.1 The site

3.1.1 The site of the proposed GSP substation, shown on Figure 1 and Figure 2 of the Environmental Appraisal, measures approximately 7ha. The survey area, including the relevant accompanying works, as shown in Figure A4.1, is approximately 15ha. Both are predominantly under arable use with grassland and ditches along the field margins. The site also features hedgerows either side of the A131. Further details of the habitats present on site can be found in Appendix 3 (Biodiversity Baseline) of the Environmental Appraisal which includes habitat mapping. Ancient woodland is location to the immediate north and south of the site and these woodlands are also designated as a Local Wildlife Sites (LoWS), namely Butler's Wood LoWS to the north and Waldegrave Wood LoWS to the south. Arable cropland is located to the east and west.

3.2 Important Ecological Features

3.2.1 In accordance with published guidance (Chartered Institute of Ecology and Environmental Management (CIEEM), 2021), a summary of the important ecological features identified and why certain receptors do not influence the feasibility of BNG, are provided in Table 3.1 below. No other factors are expected to influence the feasibility of the BNG proposal.

Table 3.1: Important ecological features

Important Ecological Feature	Influence on the feasibility of BNG
Designated sites	There are no designated sites for nature conservation present within the site. Butler's Wood LoWS (Bra201) and Waldegrave Wood (Bra200) feature to the immediate north and south of the site respectively. No other designated sites are present within the immediate environs. The proposed GSP substation does not lie within a Site of Special Scientific Interest (SSSI) Impact Risk Zone (IRZ) for this type of development. The presence of the nearby LoWS (shown in Figure 3 of the Environmental Appraisal) has no impact on the BNG as direct effects of construction and operation of the proposed GSP substation are avoided and indirect effects are reduced through the measures in Appendix 1 (CEMP) as outlined in section 3.3 of the Environmental Appraisal.
Irreplaceable, vulnerable and priority habitats	The presence of the nearby LoWS has no impact on the BNG as direct effects are avoided and indirect effects are reduced through the measures in Appendix 1 (CEMP) as outlined in section 3.3 of the Environmental Appraisal.
Protected, priority and rare species	The following species were confirmed as present or considered likely to present within, or near the site: Badger (*Meles meles*) Bats Breeding birds Dormouse (*Muscardinus avellanarius*) Great crested newt (GCN) (*Triturus cristatus*) Reptiles A District Level Licence will be sought from Natural England for GCN in accordance with protective legislation. Precautionary measures for breeding birds, reptiles, badger, bats and dormouse are also detailed within Appendix 1 (CEMP) of the Environmental Appraisal. Further information on the extent of impacts and steps taken to avoid or reduce them are detailed within section 3 of the Environmental Appraisal.

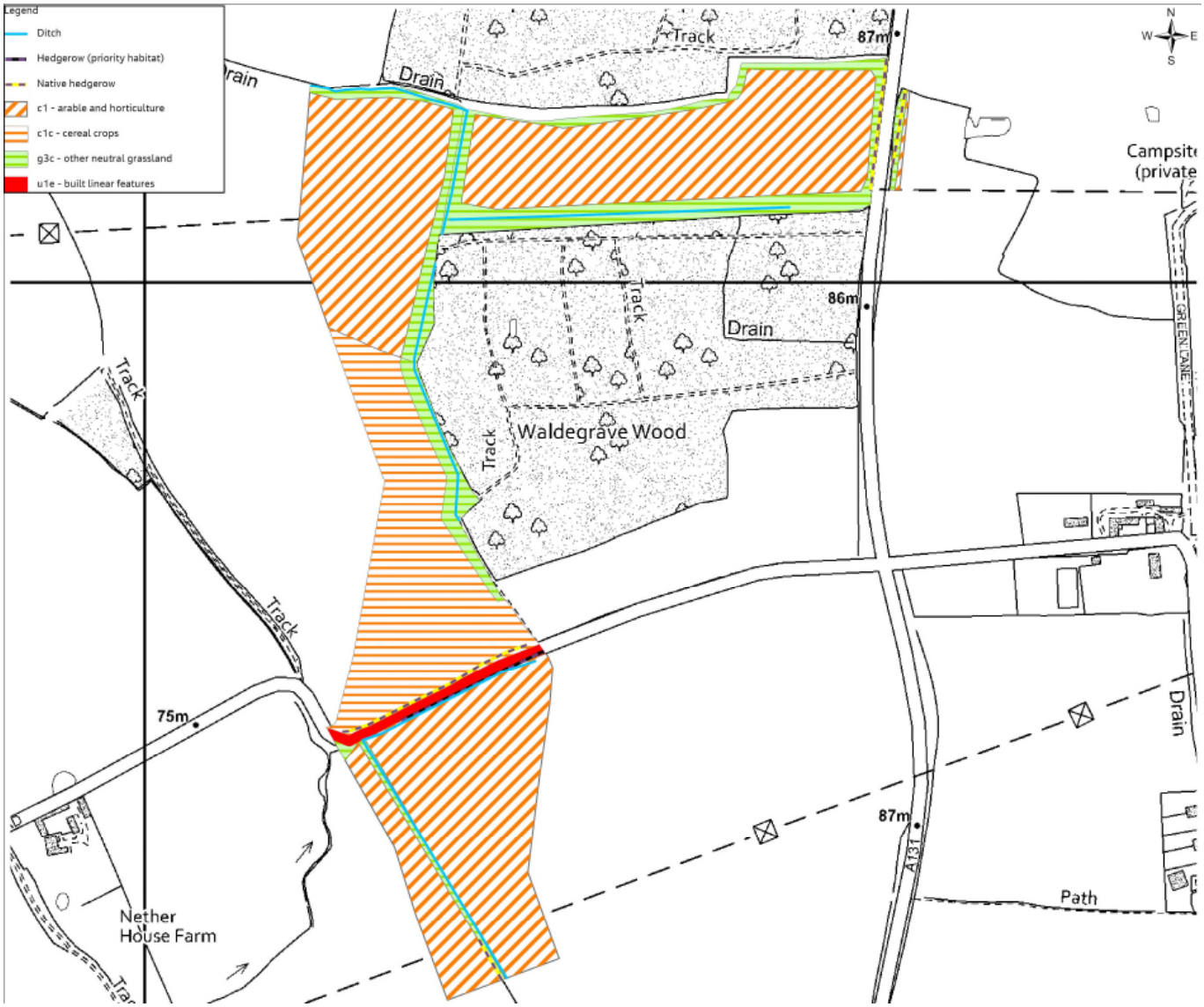
3.3 Baseline Summary

3.3.1 A summary of the habitat baseline is provided in Table 3.2 below. The baseline date reflects the survey date (June 2021). Full details of the baseline conditions including habitat condition can be found in Appendix 3 (Biodiversity Baseline) of the Environmental Appraisal and Figure A4.1 below.

Table 3.2: Habitat Baseline

Biodiversity unit type	Habitat	Area	Biodiversity units
Area habitat	Cropland	11.41ha	22.82
	Grassland	1.89ha	12.9
	Developed land, sealed surface	0.19ha	0
Linear	Hedgerows	0.54km	10.16
	Ditches	1.08km	4.31

Figure A4.1: Survey area and habitat baseline



4. BNG Good Practice Principles for Development

4.1.1 The BNG assessment has been undertaken with due regard for the good practice key principles (Defra, 2021b) as outlined in Table 4.1 below.

Table 4.1: BNG good practice principles

Principle		Application to the proposed GSP substation
1	The metric does not change the protection afforded to biodiversity.	Potential impacts on sensitive ecological receptors highlighted Appendix 3 (Biodiversity Baseline) of the Environmental Appraisal have been identified, quantified and evaluated in section 3.3 of the Environment Appraisal in accordance with relevant legislation and policy relating to biodiversity.
2	Biodiversity metric calculations can inform decision-making where application of the mitigation hierarchy and good practice principles conclude that compensation for habitat losses is justified.	The design has been amended to maximise the distance between the proposed GSP substation and adjacent ancient woodland, and to exclude the ditch habitat along the northern edge. Further details on the measures taken to avoid and/or minimise adverse biodiversity impacts in adherence with the mitigation hierarchy are

Principle		Application to the proposed GSP substation
		outlined within section 3.1 of the Environmental Appraisal. Compliance with the good practice principles are provided within this appendix.
3	The metric's biodiversity units are only a proxy for biodiversity and should be treated as relative values.	The numerical values generated by the metric are considered as relative rather than absolute values in the BNG assessment. This is underpinned by the evidence provided for Principles 5-7 below which expands upon the wider biodiversity context behind the predicted BNG values.
4	The metric focuses on typical habitats and widespread species; important or protected habitats and features should be given broader consideration.	There are no direct or indirect effects on important or protected habitats as outlined in section 3.3 of the Environmental Appraisal.
5	The metric design aims to encourage enhancement, not transformation, of the natural environment.	The site is predominantly under arable use with grassland and ditches along the field margins. In order to enhance the natural environment, the proposals provide improved habitat connectivity and wooded screening around the proposed GSP substation and this is sensitive to the ancient woodland adjacent to the site. The remainder of the site will be sown with a species-rich grass sward which is appropriate to local soil conditions while woodland, hedgerow and scrub will use native species present in the local area.
6	The metric is designed to inform decisions, not to override expert opinion.	The relief, drainage and geology have been considered in the planting plan shown on Figure 4 of the Environmental Proposals. The proposed planting is mostly formed of habitats of medium distinctiveness (as defined by Defra, 2021b) which are relatively easy to establish and managed in perpetuity and are also considered sensitive to the local habitat character.
7	Compensation habitats should seek, where practical, to be local to the impact.	The planting plan has been designed to connect the ancient woodland to the immediate north and south of the proposed GSP substation (historical maps show the woodland was previously joined together). All of the habitats created are also on-site.
8	The metric does not enforce a mandatory minimum 1:1 habitat size ratio for losses and compensation but consideration should be given to maintaining habitat extent and habitat parcels of sufficient size for ecological function.	As outlined in Principle 7 above, the planting plan has been purposefully designed with habitat connectivity and ecological function in mind.

5. Proposed Design

5.1.1 As the site is predominantly under arable use, there is a suitable platform for enhancement with habitats of greater ecological value. As shown on Figure 4 of the Environmental Appraisal, the central area of the site will be seeded with a species-rich grass mix, which represents a transition from a lower to medium distinctiveness habitat (i.e. cropland to other neutral grassland). Species mixes are also provided in Figure 4 of the Environmental Appraisal.

5.1.2 The location of the site also provides opportunity to restore habitat connectivity between the ancient woodland stands to the immediate north and south. This will be achieved with new woodland planting (other woodland) to the east and west of the proposed GSP substation, and a new hedgerow delineating the western extent of the site.

5.1.3 The Planting Plan has been influenced by the presence of the existing and proposed 400kV overhead line and the proposed underground cables. As such, planting proposals include scrub under the proposed overhead lines to avoid potential issues with taller vegetation while proposed species rich grassland over the underground cable are appropriate as it avoids rooting systems of larger vegetation that could interact with the cables. A new section of ditch which will increase the overall quality of ditch habitat on-site (also replacing the loss of habitat underneath the new access road).

5.1.4 The planting plan is considered compliant with national planning policies (NPPF and NPPG for the Natural Environment) as it contributes to and enhances the natural and local environment, leaving it in a measurably better state than it was beforehand.

6. BNG Metric

6.1.1 In accordance with the Metric 3.0 User Guide, if the original baseline habitat is recreated in the same or better condition within two years, then these short term losses can be considered temporary. Accordingly, the proposal would see permanent loss of approximately 5.42ha of arable land and temporary loss (i.e. removal and post-construction reinstatement) of approximately 5.98ha of arable land. Approximately 34m of hedgerow would be permanently lost to create the access to the GSP substation off of the A131 and a further 45m of hedgerow would be reinstated where gaps were necessary to install the underground cable. Approximately 360m of hedgerow would be enhanced to the east of the A131. Areas of woodland, scrub and species-rich grassland would be created. Figure A4.2 below shows the post construction habitats with additional detail in Figure 4 of the Environmental Appraisal.

6.1.2 A summary of the BNG metric is provided in Table 6.1 below. There were no unresolved error messages or deviation from metric guidance. The target condition for all new area based habitats (i.e. mixed scrub, other neutral grassland, and woodland) and the new hedgerow delimiting the western site perimeter is ‘moderate’, whereas the new ditch is ‘low’ in keeping with the surrounding [dry] ditch network.

6.1.3 The completed metric spreadsheet, including the full calculations that lead to the final biodiversity unit scores is presented in Annex 1 of this Appendix. The spreadsheet of the completed metric has been submitted to Braintree District Council with the planning application.

Figure A4.2: Proposed habitat

6.1.4 As explained in Section 1, National Grid have a policy commitment to drive a net gain in environmental value (including biodiversity) in their construction projects. Table 6.1 shows that National Grid will meet the aim of 10% net gain in environmental value for the proposed GSP substation and accompanying works. It is recognised that there may be minor refinements as part of the detailed design development by National Grid's appointed contractor. The BNG assessment will be updated to reflect any refinements to check that the commitment for 10% net gain in environmental value will be maintained.

Table 6.1: Biodiversity net gain summary

Biodiversity unit type		Baseline units	Post development units	Net gain %
Area habitat		35.72	52.70	**47.54%**
Linear habitat	Hedgerows & trees	10.16	13.79	**35.71%**
	Rivers & streams	4.31	4.77	**10.72%**

7. Project Implementation and Construction Plan

7.1.1 Appendix 1 (Construction and Environmental Management Plan (CEMP)) of the Environmental Appraisal outlines the planting, reinstatement and maintenance specifications. Proposed species mixes are presented on Figure 4. The height of whips and growth rates are presented Appendix 2 (Landscape and Visual Appraisal).

8. BNG Management and Monitoring Plan

8.1.1 National Grid will own and therefore maintain the habitats on-site in for a period of 30 years. Based on the planting proposals shown in Figure 4 of the Environmental Appraisal, post development monitoring of the site will be as follows:

- Year 1-3: annual monitoring (further details of which are provided in sections 8.2 and 8.3 below) through the establishment period (three years). This is considered necessary as fertile bare ground, even with a cover crop, might easily get invaded by expansive nitrophiles or invasives.
- Year 3-5: the monitoring will decrease to bi-annual checks as the habitat will be relatively closed.
- Post Year 5: the monitoring will either reduce to the standard every-four-years practice (which is considered typical for established and not overly dynamic habitats).

8.1.2 A BNG Monitoring Report will be produced after the first monitoring visit and updated accordingly after each subsequent visit. The BNG Monitoring Report will be shared with local repositories for environmental data in accordance with the British Standard for BNG – BS8683 (BSI, 2021 and CIRIA, 2019).

8.2 Maintenance of Shrub and Tree Planting

8.2.1 The native woodland and shrub planting will be monitored in accordance with the timeframes set out above. During each visit the appointed person shall ensure the following:

- The planting shall be maintained 95% clear of weeds growth;
- All planting is windfirm;

- The security and fitting or all shrub guards and where necessary adjust or replace; and
- All planted areas are free from litter.

8.2.2 The appointed persons shall review the following and carry out any required works as appropriate:

- Any damaged transplants should be reported to the planting contractor and shrubs shall be pruned back once annually for the five year monitoring period.
- The planting contractor shall make good any transplant or shrub that has died or is not developing full foliage throughout its branches within the five year aftercare period. The contractor shall replace plants as soon as possible during the planting season immediately following the loss.

8.3 Maintenance of Grassland Seeded Areas

8.3.1 The seeded grassland areas will be cut three times per year in the first two years after seeding. The sward in the seeded area will be cut to 150mm. This cutting regime will favour the establishment of a relatively diverse sward, which would also be suitable for invertebrates. There will be no cuts between mid-June and mid-August to allow most plant species to produce flowers and seeds.

8.3.2 Once the sward is established, it will be mown to 150mm twice a year, avoiding cuts between June and August to prevent the sward from becoming too long and increase plant diversity. This would occur throughout the 30 year management timeframe unless a long-term management plan is developed, defining an alternative approach.

References

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Natural England (2020) NCA Profile: 86 South Suffolk and North Essex Clayland (NE515). Available at: NCA Profile: 86 South Suffolk and North Essex Clayland - NE515 (naturalengland.org.uk) [accessed January 2022]

Woodland Trust (2022) Ancient Tree Inventory. Available at https://ati.woodlandtrust.org.uk [Accessed January 2022]

Desk Study Data specifically by request from:

- Suffolk Biodiversity Information Service (SBIS)
- Essex Wildlife Trust Biological Record Centre (EWTBRC)
- North East Essex Badger Group
- The Essex Field Club

ANNEX 1 – COMPLETED METRIC SPREADSHEET SUMMARY

Please refer to full metric calculation spreadsheet submitted to Braintree District Council with the planning application.

GSP Substation

Headline Results

Return to results menu

On-site baseline	*Habitat units*	35.72
	Hedgerow units	10.16
	River units	4.31
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	52.70
	Hedgerow units	13.79
	River units	4.77
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	47.54%
	Hedgerow units	35.71%
	River units	10.72%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	16.98
	Hedgerow units	3.63
	River units	0.46
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	47.54%
	Hedgerow units	35.71%
	River units	10.72%
Trading rules Satisfied?		Yes

National Grid plc
National Grid House
Warwick Technology Park
Gallows Hill, Warwick
CV34 6DA United Kingdom

Registered in England and Wales
No. 4031152

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