Biodiversity Assessment – *Final report*

Land south of Heck and Pollington Lane, Great Heck

September 2023

Prepared by Ecologist Abbie Smith BSc (Hons) on behalf of:

Robert Doughty Consultancy

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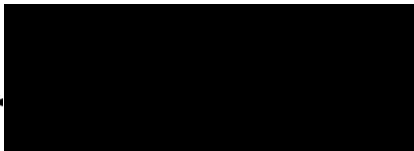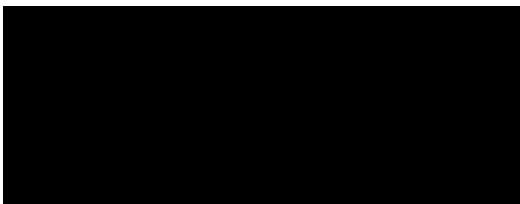
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Report Overview	
Scheme reference	Land south of Heck and Pollington Lane, Great Heck
Works overview	Proposed construction of an anaerobic digestion plant within the existing premises of Northern Straw Co Ltd.
Revision	Version 1 (Final)
Issued	19.09.2023
Prepared by	Abbie Smith BSc (Hons) – Ecologist
Reviewed by	Helen Archer BSc (Hons) MCIEEM – Principal Ecologist

EXECUTIVE SUMMARY

Archer Ecology Ltd was commissioned by Robert Doughty Consultancy, on behalf of Great Heck Green Energy Ltd, to complete a Biodiversity Assessment in support of plans to redevelop an existing commercial premises to facilitate the construction of a new anaerobic digestion plant at Northern Straw Co Ltd in Great Heck, Goole. The application site is located south of Heck and Pollington Lane and is situated along the western periphery of the semi-rural village of Great Heck near Selby, North Yorkshire. The proposals are expected to involve the removal of scattered trees, arable land, improved grassland and ephemeral/short perennial whilst providing semi-natural habitats, including woodland, grassland and scattered trees. This Biodiversity Assessment appraises the extent of habitat loss/modification required to facilitate the works and determines the potential for positive biodiversity credits to be achieved as a result of implementing the development proposals.

The Biodiversity Assessment involved a desk study and review of ecological data contained within a supporting Preliminary Ecological Appraisal issued by Archer Ecology Ltd in March 2023. This included an ecology walkover completed on 14th February 2023 by Principal Ecologist Helen Archer BSc (Hons) MCIEEM who has over thirteen years' experience of undertaking ecological walkover surveys. Helen was accompanied by Ecologist Elizabeth Fenn BSc (Hons) who is a qualifying member of CIEEM and has over three years' experience as a consultant ecologist. During the walkover, baseline data were recorded on the site's current habitat composition, condition, area and floral species, as well as the presence of any invasive non-native species, where observable.

The Biodiversity Metric 4.0 Calculation Tool was used to generate a pre-works and post-works comparison of biodiversity units. The biodiversity calculator indicates a **GAIN** in habitat (area) biodiversity units of **0.91 units (+10.05% change)** post-works and a **GAIN** in habitat (linear) biodiversity units of **0.30 units (+18.10% change)** post-works; this exceeds the standard National biodiversity net gain expectations (i.e., +10%) mandated as part of the Environment Act 2021.

This outcome assumes that areas of compensatory planting have successfully established and that a plan of adequate, long-term management and monitoring is implemented to ensure longevity for a minimum of 30 years.

CONTENTS

1.0   INTRODUCTION

NB: This biodiversity assessment has been prepared with reference to the Preliminary Ecological Appraisal report issued by Archer Ecology Ltd in March 2023[1] and should be read in conjunction with this supporting report.

1.1   Background

1.1.1   Archer Ecology Ltd was commissioned by Robert Doughty Consultancy, on behalf of Great Heck Green Energy Ltd, to complete a Biodiversity Assessment in support of plans to redevelop an existing commercial premises to facilitate the construction of a new anaerobic digestion plant at Northern Straw Co Ltd in Great Heck, Goole (hereafter referred to as 'the application site'). The application site is located south of Heck and Pollington Lane and is situated along the western periphery of the semi-rural village of Great Heck near Selby, North Yorkshire.

1.1.2   The location of the application site – centred at Ordnance Survey Grid Reference (OSGR) SE 59684 20872 - in context with the local landscape is shown in Figure 1, below.

Figure 1 – Location of the application site in context with local landscape

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[1] Archer Ecology Ltd (2023) *Land south of Heck and Pollington Lane, Great Heck - PEA_March 2023.* Archer Ecology Ltd (unpublished).

1.2 Objectives

1.2.1 The purpose of this biodiversity assessment is to determine a pre-works and post-works comparison of biodiversity units through applying the Biodiversity Metric 4.0 Calculation Tool. This is achieved using information pertaining to the onsite habitat condition, area and species composition, which are assessed against the predicted impacts arising from the works.

1.3 Proposed landscaping

1.3.1 In line with the proposed soft landscaping plan provided as part of this commission (Drawing No 1550-1_PL_PP01; See Appendix I), it is understood that the application site will be planted with native shrubs, trees and woodland together with the provision of off-site wildflower meadow grassland and native woodland. It is further proposed that existing boundary hedgerows would be subjected to enhancements, in the form of gap planting, and that expanses of amenity and wildflower meadow grassland are introduced.

2.0   METHODOLOGY

2.1   Overview

2.1.1   The biodiversity assessment was undertaken following guidance contained within CIRIA publication *Biodiversity Net Gain – Good Practice Principals for Development*[2] and involved the following components:

- A desk-based assessment using Multi Agency Geographic Information for the Countryside (MAGIC) website[3], to identify statutory protected nature conservation sites, such as Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Special Area of Conservation (SACs) occurring on or within significant proximity to the site.

- The assessment also included a review of pre-existing ecological data for the works area, including the Preliminary Ecological Appraisal (PEA) issued by Archer Ecology Ltd in March 2023. The PEA contains the results of an ecological walkover survey completed on 14th February 2023, together with data on statutory/non-statutory designated sites and Priority Habitats.

- Measuring habitat parcels on the ground, combined with the use of online measuring tools (including Google Maps Area Calculator Tool[4]) and a review of the proposed development works referred to within the general arrangement plans.

- Identifying habitat distinctiveness and undertaking a condition assessment based upon the Natural England Joint Publications *JP029 - Biodiversity Metric 4.0 Technical Supplement* issued in 2023[5] and other appropriate condition criteria.

- Application of the biodiversity mitigation hierarchy.

- Identification of any irreplaceable habitats (with reference to Technical Note 4.0 of CIRIA guidelines) and/or invasive, non-native species occurring within the works footprint.

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[2] Baker, J., Hoskin, R. and Butterworth, T. (2019). *Biodiversity net gain - Good practice principles for development*. CIRIA

[3] www.magic.gov.uk accessed September 2023

[4] Google (2021) *Daft Logic – Google Maps Area Calculator V6.20* [online]. Google. Available at: https://www.daftlogic.com/projects-google-maps-area-calculator-tool.htm [Accessed 15th September 2023].

[5] Panks, S, White, N., Newsome, A., Nash M., Potter, J., Heydon, M., Mayhew, E., Alvarez M., Russell, T., Cashon C., Goddard, F., Scott, S.J., Heaver, M., Scott, S.H., Treweek, J., Butcher, B., and Stone, D.(2022). *Biodiversity metric 4.0: Auditing and accounting for biodiversity – User Guide.* Natural England.

- An assessment of predicted direct and indirect impacts arising from the works, including habitat clearance, disturbance and retention. This would take into account any offset activities, where applicable.

- Inputting existing habitat data into the '*Biodiversity Metric 4.0 Auditing and accounting for biodiversity Calculation tool'*, issued March 2023, in addition to data pertaining to predicted post-works habitat types and condition as a result of completing the scheme. This would be used to determine a biodiversity unit scoring.

- A review of changes in biodiversity units as a result of carrying out the works.

2.1.2 This Biodiversity Assessment was undertaken by Ecologist Abbie Smith BSc (Hons) who is a qualifying member of CIEEM and has experience undertaking and assisting with numerous biodiversity assessments.

3.0   RESULTS

3.1   Desk based assessment

3.1.1   The PEA included a search of statutory and non-statutory designated sites through consultation with North and East Yorkshire Ecological Data Centre (NEYEDC).

<u>Statutory designated sites for nature conservation</u>

3.1.2   The application site does not fall within the boundary of any nationally or internationally statutory designated sites. The PEA identified that no internationally designated sites occur within a 10km radius of the application site and no nationally designated sites occur within a 2km radius of the application site. Such designated sites are, therefore, not considered to be potential receptors with respect to the proposed works.

3.1.3   Subsequently, the application site is considered as falling within an *'Area not identified in local strategy'* with respect to strategic significance.

<u>Non-statutory designated sites for nature conservation</u>

3.1.4   The application site does not fall within the boundary of any non-statutory designated nature conservation sites and no such sites fall within a 2km radius of the site. Locally designated sites are, therefore, not considered to be potential receptors with respect to the proposed works.

3.1.5   Subsequently, the application site is considered as falling within an *'Area not identified in local strategy'* with respect to strategic significance.

<u>Priority Habitats</u>

3.1.6   No Priority Habitats have been identified on or within significant proximity to the application site. Subsequently, the application site is considered as falling within an *'Area not identified in local strategy'* with respect to strategic significance.

3.2 Baseline survey

3.2.1 An overview of all on-site habitats and predicted impacts is given in Table 1, below, which encompasses a total, combined footprint of 4.221ha. For simplicity, proposed and existing linear habitats offering negligible ecological value, including fences and walls, have been omitted from this appraisal as these do not contribute significantly to the algorithm of the metrics calculator.

Table 1: Overview of On-site Habitats and Predicted Impacts

Existing JNCC Habitat (Archer Ecology Ltd, 2023)	Biodiversity Metrics Habitat equivalent (Crosher *et al.*, 2019)	Total area	Lost	Retained	Enhanced
A2.1 – Dense scrub	Heathland and shrub – Bramble scrub	0.0972ha	-	-	0.0972ha
A3.1 – Scattered trees - broadleaved	Individual tree – Rural tree	0.0527ha	0.0527ha	-	-
B2 – Improved Grassland	Grassland – Modified grassland	0.0792ha	0.0792ha	-	-
J1.1 – Cultivated/disturbed land – Arable	Cropland – winter stubble	3.9476ha	3.8678ha	0.0798ha	-
J1.3 – Cultivated/disturbed land – Ephemeral/short perennial	Sparsely vegetated land – Ruderal/Ephemeral	0.097ha	0.097ha	-	-
J2.2.2 – Hedgerow – defunct – Species-poor	Native hedgerow	0.403km	0.069km	-	0.334km
J2.1.2 – Hedgerow – Intact – Species poor	Native hedgerow	0.023km	0.023km	-	-

3.2.2 An overview of all off-site habitats and predicted impacts is given in Table 2 which encompasses a total, combined footprint of 0.54ha.

Table 2: Overview of Off-site Habitats and Predicted Impacts

Existing JNCC Habitat (Archer Ecology Ltd, 2022)	Biodiversity Metrics calculator – Habitat equivalent (Crosher *et al.*, 2019)	Total area	Lost	Retained
J1.1 – Cultivated land – Arable	Cropland – winter stubble	0.54ha	0.54ha	-

3.2.3 No irreplaceable habitats were recorded within the works footprint and no evidence of invasive non-native species was recorded.

3.3 Predicted Impacts and Compensation

3.3.1 The site preparatory activities are expected to result in the removal of the majority of existing on-site habitats, together with some off-site arable land, as reflected in Tables 1 and 2. An overview of created on-site habitats is given in Table 3, below, and an overview of created off-site habitats is given in Table 4, overleaf.

Table 3: Overview of On-site Habitat Creation

Created Habitat	Biodiversity Metrics calculator – Habitat equivalent (Crosher *et al.*, 2019)	Total area / length
Proposed Amenity Meadow Grassland	Grassland – Modified grassland	0.068ha
Proposed Wildflower Meadow Grassland	Grassland – Other neutral grassland	0.915ha
Proposed Native Shrub Planting	Heathland and shrub – Mixed scrub	0.16ha
Proposed Native Woodland Planting	Woodland and forest – Other woodland; broadleaved	0.181ha
Proposed built form	Urban – Developed land; sealed surface	1.73ha
Proposed pipe connection route in adjacent field	Urban – Built linear features	0.105ha
Proposed access route & visibility splays	Urban – Developed land; sealed surface	0.3ha

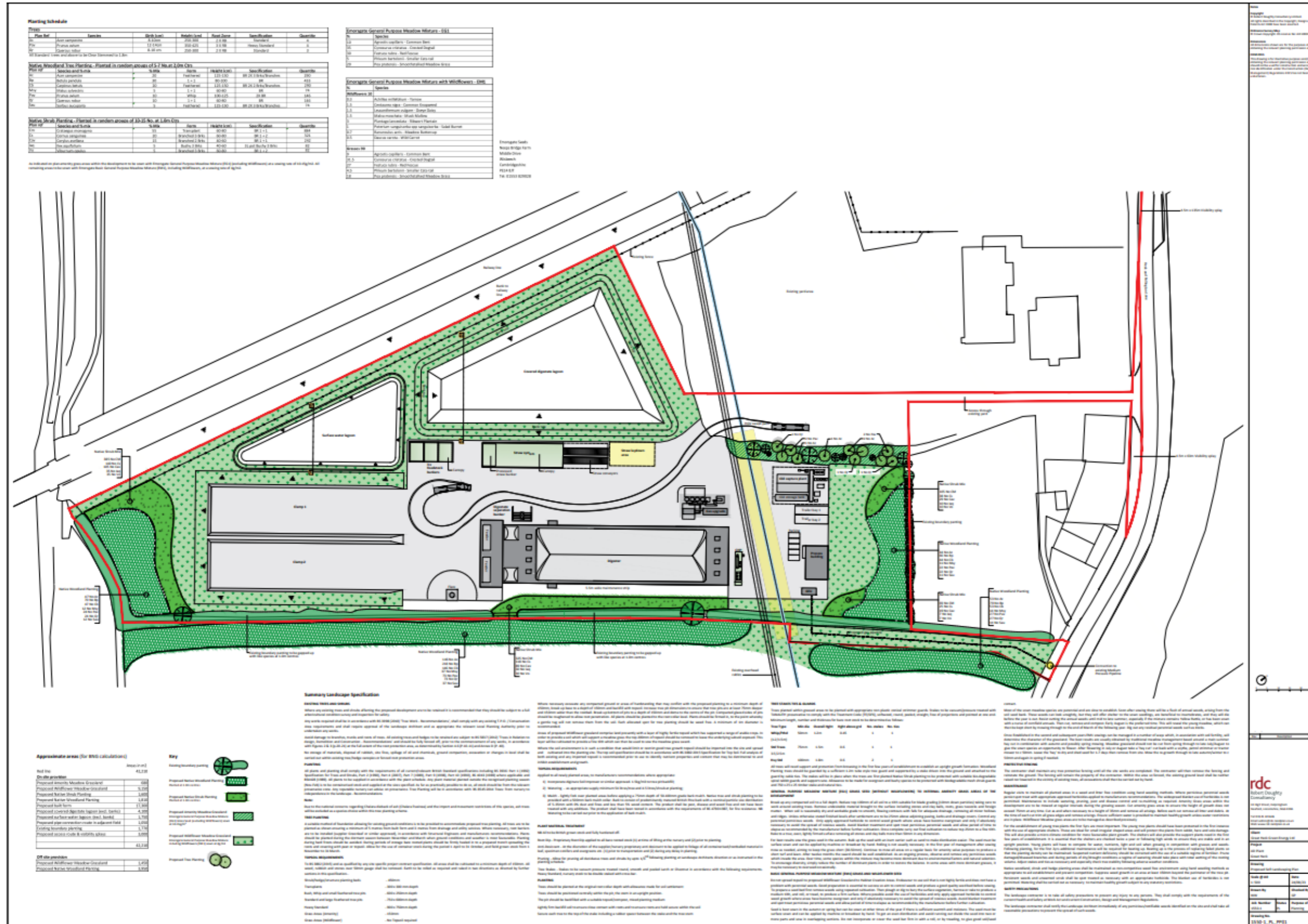| Created Habitat	Biodiversity Metrics calculator – Habitat equivalent (Crosher *et al.*, 2019)	Total area / length
Proposed surface water lagoon (excl. banks)	Lakes – Ponds (non-priority habitat)	0.175ha
Proposed covered digestate lagoon (excl. banks)	Urban – Developed land; sealed surface	0.41ha
Native trees	Individual trees - rural	0.0448ha

Table 4: Overview of Off-site Habitat Creation

Created Habitat	Biodiversity Metrics calculator – Habitat equivalent (Crosher *et al.*, 2019)	Total area / length
Proposed Wildflower Meadow Grassland	Grassland – Other neutral grassland	0.145ha
Proposed Native Woodland Planting	Woodland and forest – Other woodland; broadleaved	0.395ha

3.4 **Pre-works and Post-works Comparison of Biodiversity Units**

3.4.1 The information contained within Tables 1-4 was inputted into the Biodiversity Metric 4.0 Calculation Tool, in addition to information pertaining to the condition, distinctiveness and ecological connectivity of each habitat to the wider landscape (see Appendix II).

3.4.2 The Biodiversity Metric 4.0 Calculation Tool was used to generate a pre-works and post-works comparison of biodiversity units. The biodiversity calculator indicates a significant **GAIN** in habitat (area) biodiversity units of **0.91 units (+10.05% change)** post-works and a **GAIN** in habitat (linear) biodiversity units of **0.30 units (+18.10% change**) post-works; this exceeds the standard National biodiversity net gain expectations (i.e., +10%) mandated as part of the Environment Act 2021.

3.4.3 This outcome assumes that areas of compensatory planting have successfully established and that a plan of adequate, long-term management and monitoring is implemented to ensure longevity for a minimum of 30 years.

APPENDIX II – BIODIVERSITY CALCULATOR INPUT

Existing Habitats

On-site

Ref	Broad Habitat	Habitat Type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic Significance multiplier	Required Action to Meet Trading Rules	Total habitat units	Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area habitat lost	Units lost
1	Cropland	Winter stubble	3.9476	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	7.90	0.0798		0.16	0.00	3.87	7.74
2	Grassland	Modified grassland	0.0792	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.16			0.00	0.00	0.08	0.16
3	Sparsely vegetated land	Ruderal/Ephemeral	0.097	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.19			0.00	0.00	0.10	0.19
4	Heathland and shrub	Bramble scrub	0.0972	Medium	4	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.39	0.0972		0.00	0.39	0.00	0.00
5	Individual trees	Rural tree	0.0527	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.42			0.00	0.00	0.05	0.42

Baseline ref	Hedge number	Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Required Action to Meet Trading Rules	Total hedgerow units	Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost
1		Native hedgerow	0.403	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	1.61		0.334	0.00	1.34	0.07	0.28
2		Native hedgerow	0.023	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.05			0.00	0.00	0.02	0.05

Off-site

Baseline ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Required Action to Meet Trading Rules	Spatial risk category	Total habitat units	Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area lost	Units lost
1	Cropland	Winter stubble	0.54	Low	2	Condition Assessment N/A	1	compensation not in local strategy/ no local strategy	Strategic Signif	1	Same distinctiveness or better habitat required ≥			0.00	0.00			0.54	Check Data ⚠

Proposed Habitats

On-site

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition (years)	Habitat created in advance (years)	Delay in starting habitat creation (years)	Standard or adjusted time to target condition	Final time to target condition (years)	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied	Habitat units delivered
Grassland	Modified grassland	0.068	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	0.13
Grassland	Other neutral grassland	0.915	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	6.13
Heathland and shrub	Mixed scrub	0.16	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	0.62
Woodland and forest	Other woodland; broadleaved	0.181	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.61
Urban	Developed land; sealed surface	1.73	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00
Urban	Built linear features	0.105	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Low	1	0.00
Urban	Developed land; sealed surface	0.3	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00
Urban	Developed land; sealed surface	0.41	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00
Lakes	Ponds (non-priority habitat)	0.175	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3	0	0	Standard time to target condition applied	3	0.899	Low	Standard difficulty applied	Low	1	1.26
Individual trees	Rural tree	0.0448	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	27			Standard time to target condition applied	27	0.382	Low	Standard difficulty applied	Low	1	0.14

Off-site

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic position multiplier	Standard time to target condition (years)	Habitat created in advance (years)	Delay in starting habitat creation (years)	Standard or adjusted time to target condition	Final time to target condition (years)	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied
							Strategic significance											
Grassland	Other neutral grassland	0.145	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	1	5	0	0	Standard time to target condition applied	5	0.637	Low	Standard difficulty applied	Low	1
Woodland and forest	Other woodland; broadleaved	0.395	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	1	5	0	0	Standard time to target condition applied	5	0.637	Low	Standard difficulty applied	Low	1

Enhanced Habitats

Baseline ref	Baseline habitat	Total habitat area (hectares)	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category	Baseline strategic significance score	Baseline habitat units	Required Action to Meet Trading Rules
	Baseline habitats									
4	Heathland and shrub - Bramble scrub	0.0972	Medium	4	Condition Assessment N/A	1	Low Strategic Significance	1	0.39	Same broad habitat or a higher distinctiveness habitat required (≥)

Baseline ref	Baseline habitat	Length (km)	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category	Baseline strategic significance score	Baseline habitat units	Required Action to Meet Trading Rules
	Baseline Habitats									
1	Native hedgerow	0.403	Low	2	Moderate	2	Low Strategic Significance	1	1.612	Same distinctiveness band or better