



The Grange, Endon, Staffordshire, ST9 9DD

Biodiversity Net Gain Assessment

Prepared on behalf of

Mr A Clowes

Final Report v1.2

04 December 2024

The Grange, Endon, Staffordshire, ST9 9DD

Biodiversity Net Gain Assessment

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Provided no significant changes are made to the proposals or on the site subsequent to the report's issue; this report can be considered valid for 18 months from the date of issue, in line with CIEEM's Advice Note on The Lifespan of Ecological Reports and Surveys (2019).

As part of membership to our professional body (CIEEM) we are required to provide our biological results to applicable biological record centres. As such, it is our intention to supply biological data collected as part of this assessment to the relevant centre unless directly instructed in writing not to do so by the client.

The Grange, Endon, Staffordshire, ST9 9DD

Biodiversity Net Gain Assessment

NON-TECHNICAL SUMMARY

- Liz Ecology was commissioned by Mr A Clowes to conduct a Biodiversity Net Gain Assessment of The Grange, Endon, Staffordshire, ST9 9DD. The survey was conducted to support a planning application for the construction of six residential dwellings, with associated access and gardens.
- The purpose of this report is to identify the net percentage change in biodiversity on-site post-development and to aim for a minimum of a 10% Biodiversity Net Gain (BNG).
- The current National Planning Policy Framework (NPPF) sets out that planning should provide biodiversity net gains where possible. The mandatory biodiversity net gain for all sites set out in the Environment Act came into force on 12th February 2024. The local plan for Staffordshire Moorlands District Council includes biodiversity net gain obligations.
- The development site is approximately 4995m² and consists of hardstanding, colonised bare ground, ephemeral vegetation, modified grassland, other neutral grassland, scattered trees, and a hedgerow.
- The baseline habitat units are 2.08 and hedgerow units are 500.
- Based on the current proposals, it is predicted that the scheme will have a net change of +10.23% in habitat units and 14.01% in hedgerow units. The net change in habitat units is 0.21, and in hedgerow units is 70.03. The trading rules are not satisfied, primarily due to the area of other neutral grassland habitat lost being greater than the area of habitat being created. The 10% net gain has been achieved by enhancing smaller areas of higher distinctiveness habitats.
- The measures to create and maintain the proposed habitats will be detailed in a Habitat Maintenance and Monitoring Plan (HMMP), which will cover a minimum of 30 years.
- Mitigation measures for protected species and habitats have been provided in a separate report produced by Apex Ecology in 2023. These must be followed alongside the BNG report.

The Grange, Endon, Staffordshire, ST9 9DD

Biodiversity Net Gain Assessment

Contents

NON-TECHNICAL SUMMARY.....	1
1. INTRODUCTION.....	1
Site description	1
Brief	1
Relevant Planning Policy and Legislation.....	1
2. METHODOLOGY	3
Assessing Strategic Significance.....	3
Baseline Assessment	3
Biodiversity Net Gain.....	3
Strategic Significance	5
Hedgerow.....	10
Summary.....	11
4. BIODIVERSITY NET GAIN METRIC.....	12
On site biodiversity gains	12
5. REFERENCES	14

APPENDICES

Appendix 1	Proposed site layout
Appendix 2	Current on-site habitat map
Appendix 3	Proposed on site habitat map

1. INTRODUCTION

- 1.1 Liz Ecology was commissioned by Mr A Clowes to conduct Biodiversity Net Gain assessment of the land at The Grange, Endon, Staffordshire, ST9 9DD (Grid reference SJ 92217 53280).
- 1.2 The survey was conducted to support a planning application for the construction of six residential dwellings, with associated access and gardens.
- 1.3 Under the Environment Act 2021, all small sites which submit an application for planning permission from the 12th February 2024 will have to deliver at least 10% biodiversity net gain to be maintained for a period of at least 30 years. The concept seeks measurable improvements for biodiversity by creating or enhancing habitats in association with development.
- 1.4 The aim of this report is to identify the net percentage change in biodiversity on site post development and where possible to seek a minimum of 10% Biodiversity Net Gain (BNG) in accordance with the Environment act 2021 and Biodiversity Net Gain policy from Staffordshire Moorlands District Council, using Defra's Biodiversity Metric calculations.

Site description

- 1.5 The development site is approximately 4995m² and consists of hardstanding, ephemeral vegetation, modified grassland, other neutral grassland, and a hedgerow.
- 1.6 The site is located within the village of Endon, and is in the grounds of a property which was used as a residential garden for a number of years. The site is located on ground which slopes in a south-westerly direction from the northeast boundary to a brook which runs along the southern site boundary. There is an unmanaged field of semi-improved grassland in the east of the site, with recently cleared ground between the house and brook. Mature trees are present along the western boundary and form part of the adjacent Stonehay Wood.

Brief

- 1.7 To conduct a Biodiversity Net Gain (BNG) assessment using DEFRA metric version 4.0 to demonstrate, where possible, a minimum of 10% net gain.

Relevant Planning Policy and Legislation

- 1.8 In accordance with the Natural Planning Policy Framework (NPPF, 2021), paragraph 180, development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around the developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.
- 1.9 The planning authority for the site is Staffordshire Moorlands District Council. The council have an adopted local plan and supplementary planning documentation which is for Biodiversity Net Gain + 10%. It states that all development will provide a minimum net gain of 10% of the current ecological value of the site.
- 1.10 The site will be assessed to aim to provide a minimum of 10% biodiversity net gain, in accordance with the Government's intention to introduce a 10% biodiversity net gain as a mandatory

requirement in England through the Environment Bill from 12th February 2024, and local planning policy.

2. METHODOLOGY

Assessing Strategic Significance

- 2.1 A desk study was conducted to collate baseline data about ecological sites within the zone of influence of the proposed development site, following guidelines set out by the Chartered Institute of Environmental and Ecological Management (CIEEM, 2017). This data-gathering exercise was undertaken to obtain any available information relating to statutory nature conservation sites, ecological networks, local plans and priority habitats to help establish the strategic significance of the site. Sources of information used are shown in Table 1. A desk study from the local records centre was undertaken in the Ecological Appraisal conducted by Apex Ecology, and reference to the results in the report are made too.

Table 1: Summary of information sources used for the desk study

Organisation/source	Information sought
MAGIC	Locations of and citations for all national statutory wildlife sites, including SSSI, and all international sites including SAC, SPA or Ramsar sites within 5 kilometres of the site. Priority Habitats within 300m.
Staffordshire Moorlands District Council	Adopted Local Plan, evidence base, and policies map

- 2.2 This evidence was reviewed and used to assess the strategic significance of the site, and/or individual habitats and whether it lies within an ecological network for the area.

Baseline Assessment

- 2.3 A baseline botanical assessment was undertaken by Elizabeth Davies, qualified ecologist, on 28th November 2024 before works commenced on site in mostly clear, still and dry weather conditions. The survey employed techniques based on the UK Habitat Classification System. Botanical information was collected, focussing on the dominant and/or key indicator species for each habitat, to enable allocation of habitats to hierarchy levels 3 and/or 4. Where relevant priority habitats were also identified. The conditions of the habitats on the site were assessed in line with the technical sheets supplied alongside DEFRA Metric 4.0.
- 2.4 The UK habitats map was digitised using QGIS. The mapped habitats were measured using the derived areas, and habitat areas are provided in hectares. Linear features were measured using the derived length and the measurements provided in kilometres.

Biodiversity Net Gain

- 2.5 Biodiversity Net Gain complements and works with the biodiversity mitigation hierarchy set out in the National Planning Policy Framework paragraph 180a. To achieve a net gain in a way that is consistent with the mitigation hierarchy and reflects the 'spatial-hierarchy' preference for local enhancements, the following steps should be followed:

- (1) Aim to avoid or reduce biodiversity impacts through site selection and layout;
- (2) Enhance and restore biodiversity on-site;

- (3) Create or enhance off-site habitats, either on their own land or by purchasing biodiversity units on the market; and
- (4) As a last resort, to prevent undue delays, purchase statutory biodiversity credits from the UK Government where they can demonstrate that they are unable to achieve biodiversity net gain through the available on-site and off-site options.
- 2.6 On completion of the fieldwork the habitat information was mapped and areas were imported into the DEFRA Biometric version 4.0 calculation tool. The metric calculates the baseline biodiversity units for the site based on the following factors:
- Area
 - Habitat distinctiveness
 - Habitat condition
 - Strategic significance
- 2.7 Once inputted the metric provides biodiversity units for the proposed habitats based on the following factors:
- Area
 - Habitat distinctiveness
 - Habitat target condition
 - Strategic significance
 - Time habitat is created
 - Time to target condition
 - Difficulty of creation
- 2.8 The difference between the baseline units and proposed units is then used as a measure of change and is used to assess the number of biodiversity units achieved. Habitats, hedgerows and rivers are inputted as separate factors, with each requiring net gains.
- 2.9 **Limitations**
- 2.10 Whilst every effort has been made to accurately map the habitats on site there may be discrepancies associated with the projected coordinate reference system. The National Grid transformation, however, is considered to be the most accurate with an accuracy level of less than one metre.
- 2.11 The habitat survey was carried out in the autumn, outside of the optimal survey season, however it is felt that the habitats present could be accurately classified from vegetative plant identification through use of the previous ecological report and vegetative ID of species on site.

- 3.1 The results of the Baseline Assessment are presented below. A UK Habitat survey map is shown in Appendix II. The map illustrates the location and extent of the sites surveyed, along with additional notable features.

Strategic Significance

- 3.2 There are Priority habitats within 20 metres of the southern site boundary. The wider site is functionally linked to the wider area, with the hedgerows on the boundaries of the site linked to patches of woodland. The habitat on site offers limited foraging and commuting habitat, with the native hedge on the eastern boundary and the patches of ruderal habitat offering foraging and commuting habitat which could act as a stepping stone between other areas with better connectivity for aerial species e.g. bats and birds.
- 3.3 The site is not part of any designated site or listed on any local plan, neighbourhood plan or other policy document for ecology. It is considered to have low strategic significance (Area/compensation not in local strategy/ no local strategy).
- 3.4 There are no internationally or nationally important sites within a 5 kilometre radius of the site. there are ten local wildlife sites within a 2kilometre radius of the site, and four biological alert sites.
- 3.5 A brook runs within 20 metres of the south-western edge of the site. For much of the length of the brook it is bounded by Stonehay wood to the west. The brook is approximately 0.5 metres wide, and has a shallow flow of water. Species recorded in the vicinity of the brook include elder, hawthorn, bramble, and a herbaceous layer including common valerian and bramble.
- 3.6 Stonehay Woods adjoins the western side of the brook and runs along the northern edge of the site. It is a mature, deciduous woodland with an intact canopy of pedunculate oak trees, with occasional ash, sycamore and alder. The canopies of mature trees from Stonehay Woods overhands the brook and areas of the site. Below the trees there is a dense shrub layer of goat willow, hawthorn and rhododendron.
- 3.7 The site is not part of any designated site, or listed on any local plan, neighbourhood plan or other policy document. It is considered to have low strategic significance.
- 3.8 hardstanding, ephemeral vegetation, modified grassland, other neutral grassland, and a hedgerow.

3.9 On-Site Habitats

- 3.10 The following were recorded on site, and are described below:

- Hardstanding
- Colonised bare ground
- Ephemeral/ruderal vegetation
- Modified grassland
- Other neutral grassland
- Hedgerow
- Scattered trees

Hardstanding

- 3.11 There is an area of hardstanding in the centre of the site where a previous building was located. The footings of the building are present now.
- 3.12 The hardstanding has a distinctiveness of 'very low' and condition assessment is not required.



Colonised bare ground

- 3.13 The access road into The Grange property is bare ground. Species recorded on the bare ground – mostly between the type locations, included occasional Yorkshire fog, creeping buttercup and ribwort plantain.



- 3.14 This area has a distinctiveness of very low and condition assessment is not required.

Ephemeral/Ruderal vegetation

- 3.15 Ruderal habitat is present on the edges of some of the grassland habitat. Species present include Angelica, dogwood, hogweed, rosebay willowherb and common nettle.
- 3.16 There were areas of vegetation clearance which was completed as part of general management of the grounds. There were some areas where there were piles of woodchip across the site. these areas have been re-colonised with regrowth from ruderal species including frequent creeping buttercup, occasional wood forget-me-not, rough meadowgrass, marsh thistle, trefoil species, holly, hogweed, hedge woundwort, cherry laurel, cat's-ear, bracken, bramble, rosebay willowherb, nipplewort and rare Yorkshire fog, snowberry, ribwort plantain, raspberry, meadow buttercup and false oat grass.



- 3.17 Vegetation structure within the parcels of ruderal habitat on site is uniform, the plant species flower at similar times of year, providing limited nectar sources, invasive non-native plants and others which are to the detriment of wildlife cover more than 5% of the total area. The condition of the ruderal/ephemeral habitat is therefore considered to be poor.

The ephemeral/ruderal habitat is considered to be of low distinctiveness and is in poor condition.

Modified grassland

- 3.18 There is an area of modified grassland to the north-west of the site which appears to have previously been maintained as garden. Species recorded include frequent perennial rye grass, occasional Yorkshire fog, ribwort plantain, creeping buttercup, and rare cat's-ear and willowherb.



- 3.19 The modified grassland has approximately 4 species per m² present, the sward height is uniform and maintained at less than 7cm, there is less than 20% scrub, physical damage is less than 10%, cover of bare ground is between 1 and 10% and cover of bracken is less than 20%. There is an absence of non-native invasive plant species. Therefore condition was poor.
- 3.20 The modified grassland is considered to be of low distinctiveness and condition is poor.

Other Neutral Grassland

- 3.21 The field in the east of the site supports other neutral grassland. The site has been regularly mown over the summer of 2024, but was previously unmanaged when apex ecology conducted surveys in 2023. Species recorded include frequent Yorkshire fog, common bent, sweet vernal grass, hogweed, occasional black knapweed, bush vetch, bramble, broad-leaved dock, nettle, common sorrel, creeping soft-grass, creeping thistle, crested dog's-tail, dandelion, soft rush, marsh thistle, meadow buttercup, meadow vetchling, rare cat's-ear, compact rush, perennial rye-grass, raspberry, ribwort plantain,
- 3.22 The other neutral grassland had a short sward length of 5-10cm in height, and was mostly uniform across the area. The species density was 3-4species per m², there was physical damage evident and more than 10% bare ground in a number of places. There were no non-native invasive plants and less than 20% scrub. Therefore, condition was poor.



- 3.23 This habitat is considered to be of “medium distinctiveness” and is in poor condition.

Hedgerow

- 3.24 H1 is present on the eastern edge of the site. The majority is managed to a height of 1.5-2m, although the southern end is unmanaged, and much taller. A mixture of species was recorded including frequent hawthorn, occasional ash, dog rose, elder, holly, ivy and rare hop, horse chestnut, Lombardy poplar, copper beech, domestic apple and pedunculate oak.
- 3.25 The photograph of the hedgerow is shown above with the other neutral grassland.
- 3.26 The hedgerow would not qualify as important under hedgerow regulations due to its location within gardens, but is a habitat of principle importance due to the number of woody species within the length of hedgerow.
- 3.27 The hedgerow is between 1.5 and 2m in height along its length, with a width of less than 1m. There are gaps between the hedge base and the ground of approximately 0.5 metres, there are minimal gaps in the hedgerow, with vegetation disturbed at the base of the hedgerow and nettles present, 90% of the hedgerow is free of invasive non-native species, and the majority of the hedgerow is of a similar age class. Trees within the hedgerow are unmanaged and are in poor condition.
- 3.28 The hedgerow is considered to be of low distinctiveness and is in poor condition.

3.29 Urban trees

3.30 There are three trees within the north of the site, comprising horse chestnut, yew and holly. These trees are not all native, there are gaps in the canopy, the trees are mature, there is no current regular pruning regime, there are minimal ecological niches, the vegetation beneath the trees is modified grassland.

3.31 The urban trees are of medium distinctiveness and in poor condition.

Summary

3.32 Below in table 2 is a summary of the baseline habitats, areas, condition assessment and distinctiveness. The hedgerow is approximately 125m in length, and comprises 500 hedgerow units.

Table 2: Summary of baseline habitats

Habitat	Biodiversity Units	Area (ha)	Strategic significance
Hardstanding	0.00	0.0004	Area not in local strategy
Colonised bare ground	0.00	0.014	Area not in local strategy
Ruderal/ephemeral	0.18	0.089	Area not in local strategy
Modified grassland	0.15	0.073	Area not in local strategy
Other neutral grassland	1.20	0.300	Area not in local strategy
Urban trees	0.55	0.0692	Area not in local strategy

4. BIODIVERSITY NET GAIN METRIC

On site biodiversity gains

4.1 The calculation has been run on the following proposals:

- The hedgerow will be retained as part of the proposed development. The 25m length from the southern boundary of the site will be enhanced, with any sub optimal specimens removed and replanted, and the hedgerow will be subject to management to generate an 'A' shape with standard trees. The hedgerow is currently within a vegetated garden setting on the property to the east, so the area of hedgerow is not counted as a loss to biodiversity as the hedgerow is an existing boundary feature within gardens. The area which is to be enhanced is outside of the garden location on the proposed areas.
- 0.18 hectares of vegetated garden will be created as part of the proposed development. These areas are listed as 'vegetated garden' in the biodiversity metric due to location within private residences, which cannot guarantee continuity of the habitat for a minimum of 30 years (As per the Small Sites Metric user guide (2024) page 27 and page 51 of Statutory Biodiversity Metric user guide (2024)).
- The large horse chestnut and the yew will be retained as part of the proposed development, as will the modified grassland area beneath them. The modified grassland will be enhanced (0.073ha) by oversowing to generate other neutral grassland habitat beneath the trees. The trees will also be subject to regular management, ensuring an increase in the condition of the trees and enhance the habitat.
- 0.08 ha of other neutral grassland will be enhanced to lowland meadows in good condition, by over sowing and management prescriptions. This will provide a buffer between the proposed residential units and Stonehay Woods.

4.2 The biodiversity metric calculated a net change in habitat units of +0.28 for the site, which is a gain of 12.29%. The net change in hedgerow units is +70.03, which is a gain of 14.01%. Table 3 below summarises the biodiversity metric results.

Table 3: DEFRA Biodiversity metric results scenario 1

On-site baseline	Habitat units	2.08
	Hedgerow units	500
On-site post intervention	Habitat units	2.29
	Hedgerow units	570.03
Total net change %	Habitat units	+10.23
	Hedgerow units	+14.01
Trading rules satisfied	Yes/No	No

4.3 The 10% target is met, however, the trading rules are satisfied. This is primarily due to the loss of habitat within the site boundary, however, the net gain has been generated with higher distinctiveness, better quality habitats within the vicinity of the site.

- 4.4 The measures to create and maintain the proposed habitats within the client's ownership will be registered and detailed within a Habitat Management and Monitoring Plan (HMMP) which will cover a minimum period of 30 years.

Protected Species and Other enhancements

- 4.5 All prescriptions for protected species and habitats made in the Apex Ecology report (2023) must be followed as part of the proposed development.

5. REFERENCES

CIEEM, CIRIA, IEMA (2016) Biodiversity Net Gain. Good practice principles for development.

CIEEM, CIRIA, IEMA (2019) Biodiversity Net Gain. Good practice principles for development. A practical guide. CIRIA C776a. London, 2019.

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

Department for Communities and Local Government (2005), *Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*.

DEFRA (2023) Biodiversity Metric Calculation tool (spreadsheet) (Biodiversity Metric 4.0)

DEFRA (2023) Biodiversity Metric 4.0 User guide

DEFRA (2023) Biodiversity Metric 4.0 and SSM: Technical Annex1 (habitat condition assessments)

Ministry of Housing, Communities and Local Government (2021), *National Planning Policy Framework*.

Multi-Agency Geographical Information for the Countryside (MAGIC) Website

Appendix I

Site boundary



Key	
Site boundary	
Project: The Grange, Clay Lake, Endon	
Figure 1: Site boundary	
Date: 28/11/2024	Version: Final
Author: ED	
	

Appendix II

Current on-site habitat map (survey date 28th November 2024)



Appendix III

Post development on-site habitat map

