Biodiversity Net Gain Assessment and Planting Plan

Covered Slurry Store
Low Shaw Farm, The Green, Millom

5th June 2025

Report 0625/3

Report commissioned by;

Karl Fox
Fox Architectural Design Ltd

On behalf of:
Andrew Wearing

Report prepared by;

South Lakes Ecology
Survey and Habitat Management

Tamsin Douglas MSc MCIEEM
13 Rydal Road
Ulverston LA12 9BU
07751 566848

mail@southlakesecology.co.uk

EXECUTIVE SUMMARY

The local planning authority have requested a Biodiversity Net Gain (BNG) assessment for the proposed construction of an agricultural building (covered slurry store) on agricultural land at Low Shaw Farm, The Green, Millom. BNG principles require a 10% gain in wildlife habitats post construction.

This report describes the existing habitats on site (using UK Habitats classification criteria) and provides an assessment of their condition, as well as any habitat losses as a direct consequence of the proposed development. The habitat value of the site was calculated using DEFRA's Statutory Metric.

Enhancement measures are described in the report, and implementation (planting plans), management, and monitoring plans are included.

A desktop search for statutory protected sites and priority habitats was undertaken. There are no such sites within the red line boundary, but there are three statutory sites within 70m of the project. The proximity of the protected site to the proposed development, and the nature of the proposals, mean that the Planning Authority will need to consult with Natural England about the potential impacts the development.

The area in the red line boundary is classed as coastal floodplain & grazing marsh protected habitat. The location of the proposed development alongside existing farm buildings and the farmhouse means that the land is unlikely to be of value to waders and wildfowl (characteristic fauna of the coastal grazing marsh priority habitat).

There are four further areas of priority habitat between 160 and 500m of the project. There are no foreseen direct or indirect impacts on these habitats as a result of this project.

The planning boundary is on agricultural land, comprising g4 modified grassland. The agricultural grassland is a low distinctiveness habitat in ecological terms. The condition assessment classed this grassland as 'moderate' ecological condition due to low stored material on the grassland and amount of bare ground. About a third of the grassland in the red line area will be lost as a result of the construction of the building and access hardstanding.

The loss of the grassland can be compensated by planting 17 trees alongside the new building. The planting of these will result in a 11.05% uplift in biodiversity units on site.

An implementation/ planting plan is included which describes species of tree to be planted, and methods of protecting the new saplings from browsing damage – which will need to be in place to ensure the success of the planting.

The enhanced habitats need to be managed sympathetically for a minimum of 30 years to offset the biodiversity loss, and trees need to attain 'good ecological condition' within this timeframe.

Contents

1. INTRODUCTION

1.1 The aim of the report

The aim of the report is to make an assessment of the baseline ecological conditions present on land at Low Shaw Farm, The Green and to compare these conditions with the likely ecological status of the site after the development, both with and without enhancement measures. Ecological enhancement measures will be designed to ensure that the completed project results in a measurable gain to local habitats. Implementation, management and monitoring plans will be included for the lifetime of the project (30 years), including a planting plan.

This report follows technical guidelines provided by CIEEM (Chartered Institute of Ecology and Environmental Management) and the habitat was mapped following UK Habitat Classification guidance (see Appendices for full references).

1.2 Biodiversity Net Gain

Following the Environment Bill 2021, a demonstrable net gain in biodiversity is required for most new developments (with some specific exceptions). This is mandatory for most projects from 12th February 2024, and for small sites from 2nd April 2024. As part of the assessment the current biodiversity value of the landholding is calculated, and compared with the likely biodiversity value of the land after the development after taking account of enhancement measures prescribed by the ecologist. The aim is for a minimum of a 10% gain in biodiversity value of the land after completion of the development.

The standard means of calculating Biodiversity Net Gain (BNG) is using the Statutory DEFRA Matrix. The full details and calculations are included in the appendices.

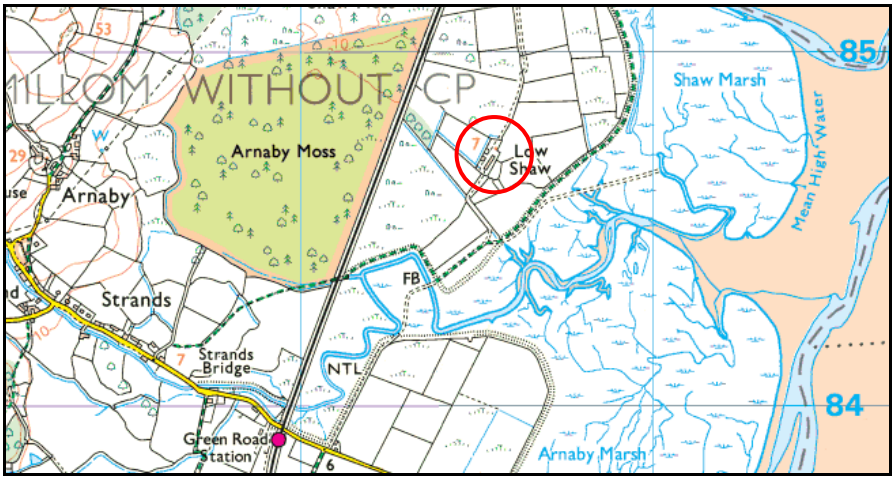
1.3 Proposed works

The proposed works involve construction of a new Covered Slurry Store on existing agricultural land, opposite an existing agricultural building. There will also be a small area of hardstanding between the two buildings.

1.4 Location

The property is located north of Green Road Station on the Duddon Estuary (grid reference of proposed building SD1960 8476).

Figure 1: Location of proposed development



OS Map copied under licence (No. 100055725)

2. SURVEY METHOD

2.1 Desktop study

The DEFRA Magic website (www.magic.gov.uk) was used to ascertain whether any priority habitats has been identified on, or adjacent to, the site. Natural England and JNCC websites were used to obtain boundaries of any statutorily designated sites in the area.

2.2 Walkover survey

The walkover survey was carried out by Tamsin Douglas MCIEEM (South Lakes Ecology) on April 29th 2025. Weather was sunny, dry and mild with light winds.

Habitats within the survey area were classed into standard UK Habitats Classification categories (UKHab 2023). The Professional edition of the UKHab guidance was followed, and habitats classed to level 5 of the hierarchy were applicable. An assessment was also made of the condition of the habitats on site, following guidance described in the BNG Metric methodology.

2.3 Survey constraints

There were no constraints on access.

The time of year was not ideal for assessing botanical quality of the more diverse type grasslands, as many plants (especially herbs) are still senescent. The location and management of the site, and presence of agricultural grass species (dominated by ryegrass), as well as herbs typical of richer soil conditions meant that the vegetation on site could confidently be classed as a more agricultural habitat.

3. BASELINE ECOLOGICAL CONDITIONS

3.1 Desktop survey results

3.1.1 Protected and statutory sites search

There are no statutory protected sites on the site of the development. Duddon Estaury SSSI, Morecambe Bay and Duddon Estuary SPA and Morecambe Bay SAC are all in close proximity – the closest point being 70m to the south of the proposed development.

The proximity of the protected site to the proposed development, and the nature of the proposals, mean that the Planning Authority will need to consult with Natural England about the potential impacts the development could have on the afore-mentioned sites.

3.1.2 Notable habitats search

The Magic website indicated that habitat on site is listed as coastal & floodplain grazing marsh. There are four further areas of priority habitat within 500m. Salt marsh is located 160m to the east, lowland fen 130m to the south-west, lowland raised bog 300m to the north-west, and deciduous woodland 230m to the north. The proposed development is highly unlikely to have any impacts on these nearby priority habitats.

Coastal and floodplain grazing marsh is a characteristic habitat of the western Cumbrian coast, identified through land management and water regime rather than botanical characteristics. It is notable for the bird life that it can support (breeding and wintering waders, wintering and migratory wildfowl), as well as locally important species such as natterjack toad. The grassland in and around the red line boundary has no ponds to support natterjack toads, and is considered to be too close to the farm buildings to support breeding waders or significant numbers of feeding and resting waders/ wildfowl.

3.2 Habitat survey results

The habitats were mapped, following UKHab methodology (see methods section and appendices), as shown in Figure 2 below. Descriptions of the major habitats are given in section 3.2.2 below.

Photographs of the area of the proposed works are provided at the end of the report.

3.2.1 Habitats recorded within survey area

- g4 Modified grassland

3.2.2 Habitat descriptions

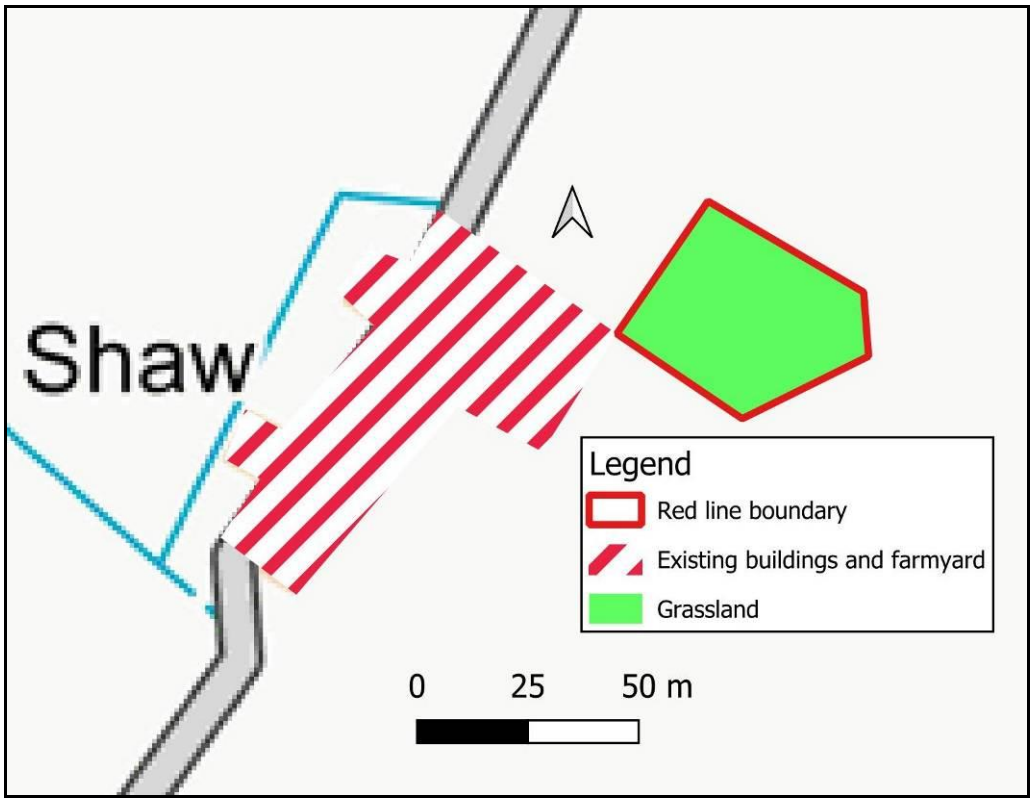
g4 – Modified grassland

This is grassland that is regularly and intensively managed for amenity use or agricultural purposes. This grassland is grazed/ cut for silage and comprises many species typical of more agricultural and nutrient enriched settings.

The land parcel is currently not grazed or cut, and is being used as a storage area for equipment and materials. Approximately a third of this grassland will be lost to the development.

There are no boundary hedgerows or trees within the red line area.

Figure 2. Habitat map of land inside the red line boundary of the project



3.2.3 Habitat condition assessments

To use the standard statutory metric, a condition assessment was carried out on the modified grassland (see appendices for detail).

The grassland is currently ungrazed so has a varied structure. It is dominated by rye grass, with other agricultural grass species present. There are several herbs present- creeping buttercup, white clover, daisy and cuckoo flower, as well as occasional dock. The grassland is subject to some damage from machinery and storage of equipment and materials, and has significant areas of bare ground – making it moderate ecological quality agricultural grassland. Approximately a third of this grassland within the red line boundary will be lost to the development.

4. Biodiversity Net Gain assessment

4.1 Rationale

The principles of Biodiversity Net Gain (BNG) are enshrined in local planning policy, and an assessment is required for most new developments (with some specific exceptions). The local planning authority (Cumberland Council) has requested a BNG assessment for this development, with a target increase of 10%. Habitats enhanced or retained as part of the BNG calculation need to be managed appropriately for a minimum of 30 years to satisfy the requirements of the metric.

Using the habitat condition assessments above, the impact of the proposals on the conservation value of the habitats has been calculated using DEFRA's Statutory Metric. Detailed results are in the appendices and the calculation tool Excel file attached separately, but summary results are shown in 4.3 below.

4.2 Proposed measures

There will be a small loss of grassland (559m²) resulting from the construction of the agricultural building and small area of hardstanding. The grassland on site is agricultural quality pasture ("g4 modified grassland") which has a low distinctiveness score in the BNG calculations. The remaining grassland in the red line boundary will be retained.

The loss of the grassland can be compensated by planting 17 trees. Hawthorn, willow, crab apple, rowan or birch are recommended for the habitats present.

4.3 Metric calculations and conclusions

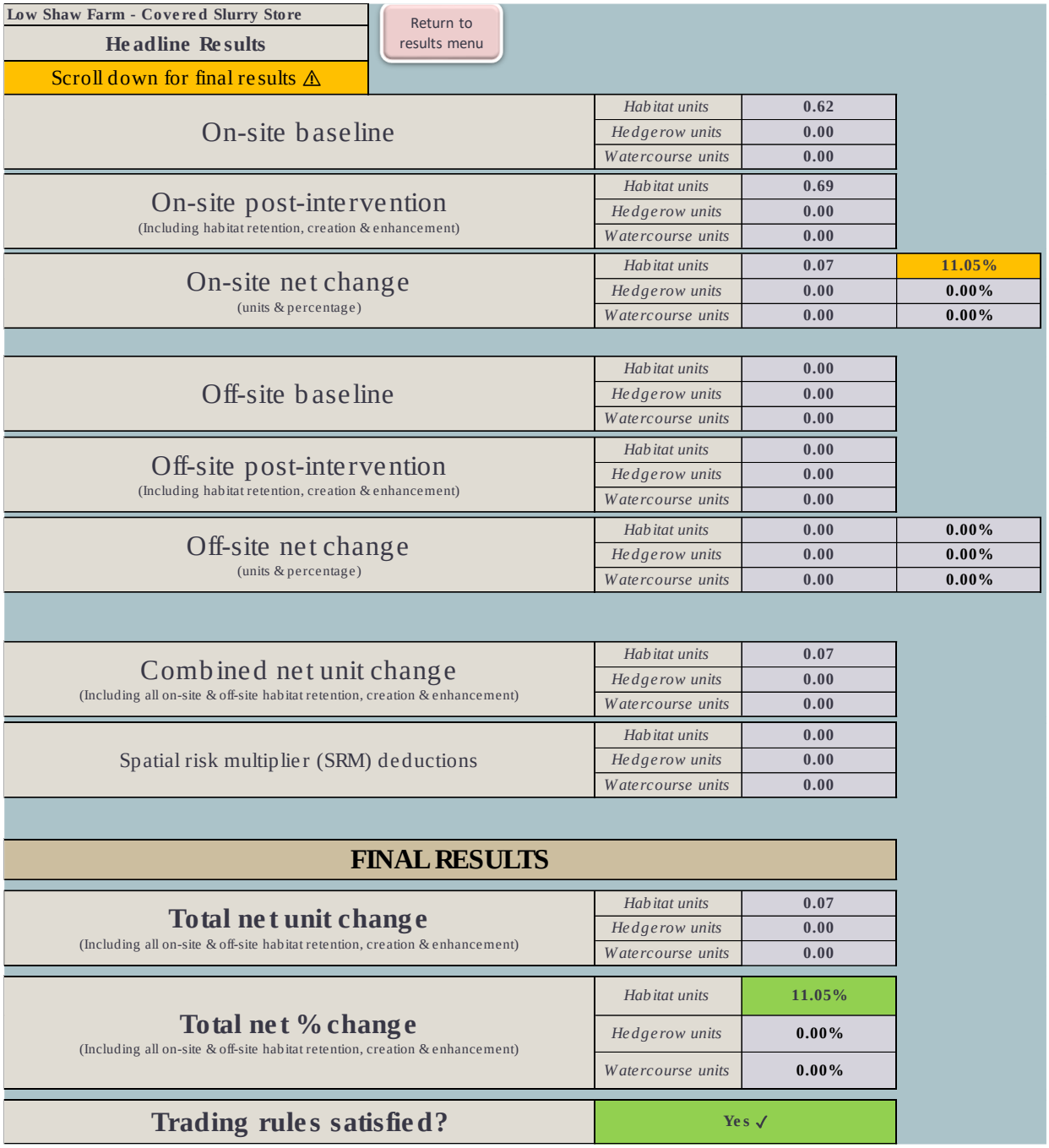
The proposed development will result in the net loss of 559m² of moderate condition g4 modified grassland. This equates to a loss of 0.22 habitat units from the 0.62 units present in the planning boundary.

The planting of 17 trees provides 0.29 units, this equates to an uplift of 11.05% in biodiversity units on the site.

All trading rules have been followed.

A copy of the headline results page of the BNG calculation is shown in Figure 3 below.

Figure 3. Headline results, showing required gain is achievable.



Low Shaw Farm - Covered Slurry Store			
Headline Results			
Scroll down for final results ⚠			
On-site baseline	*Habitat units*	0.62	
	Hedgerow units	0.00	
	Watercourse units	0.00	
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.69	
	Hedgerow units	0.00	
	Watercourse units	0.00	
On-site net change (units & percentage)	*Habitat units*	0.07	11.05%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%
Off-site baseline	*Habitat units*	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change (units & percentage)	*Habitat units*	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.07	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Spatial risk multiplier (SRM) deductions	*Habitat units*	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
FINAL RESULTS			
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.07	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	11.05%	
	Hedgerow units	0.00%	
	Watercourse units	0.00%	
Trading rules satisfied?	Yes ✓		

5. Implementation and monitoring

5.1 Planting plan

Seventeen trees will be planted to compensate for the loss of the grassland. Suitable species would be hawthorn (*Crataegus monogyna*), elder (*Sambucus nigra*), goat/grey willow (*Salix capra/ cinerea*), crab apple (*Malus sylvestris*), rowan (*Sorbus aucuparia)* or birch *(Betula pendula*) for the habitats present on site.

Given the agricultural setting, it is recommended that trees are cluster planted in cages, rather than planted individually in tree guards – this minimises the risk of damage to the young trees from stock or agricultural machinery. At least 3 different species should be planted across the four planter cages – a suggestion would be one rowan and three hawthorn in two cages, a birch and three elder in one cage, and two crab apple and three willow in the third cage (making a total of 2 rowan, 6 hawthorn, 1 birch, 3 elder, 2 crab apple and 3 willow). Trees should be native, sourced from a reputable supplier, and certified disease free.

The trees are best planted bare-rooted (1.25-1.5m height) over the winter months (November to March- ideally in March), with a minimum gap of 2m between trees to allow them to develop full crowns. They should not be planted in extremely wet or cold conditions.

Given the location within agricultural pasture they will need to be protected from stock and deer browsing, and from damage from agricultural machinery. A temporary post and rail guard with mesh fencing is recommended (see photo below) rather than using tall plastic guards as sheep can just knock these over. They may need to be higher than the image shown to prevent damage from deer. Vole guards should be in place initially to prevent damage from small mammals.

Four mesh cages will be required - the trees can be planted as a cluster in each one of the mesh cages. The cage would need to be at least 2.5m by 2.5m to ensure adequate space for the trees to spread.

Image 1. Recommended style of tree protection for in-field trees

5.2 Management plan

The trees need to attain good ecological condition status within the 30 year timeframe of the project. To achieve this they should be permitted to grow tall and develop full crowns (minimal pruning), and have vegetation beneath them (as opposed to concrete/ hardstanding).

Vole guards should be removed once the trees are well established. Fencing/ cage guards should only be removed once the trees are beyond the risk of damage from sheep – probably after 10 years of growth.

5.3 Monitoring

The trees should be checked annually to ensure that they are establishing well. If any saplings fail to establish they should be replaced with another suitable native species.

6. REFERENCES

Butcher B., Carey P., Edmonds R., Norton L. and Treweek J. (2023) The UK Habitat Classification User Manual version 2.01 www.ukhab.org

Cumbria Biodiversity Data Centre https://www.cbdc.org.uk/data-services/cumbria-biodiversity-evidence-base/cbeb-interactive-map/

DEFRA (2007) *Hedgerow Survey Handbook*

DEFRA Metric Details and calculation tools for BNG and condition assessment https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides

Halliday G. (1997) *A Flora of Cumbria* University of Lancaster

Institute of Ecology and Environmental Management, Professional Guidance Series (CIEEM www.cieem.net) [Members only]

NCC (1990) *Handbook for Phase 1 Habitat Survey* JNCC Peterborough

Preston C.D., Pearman D.A. & Dines T.D. (2002) *New Atlas of the British and Irish Flora* Oxford University Press

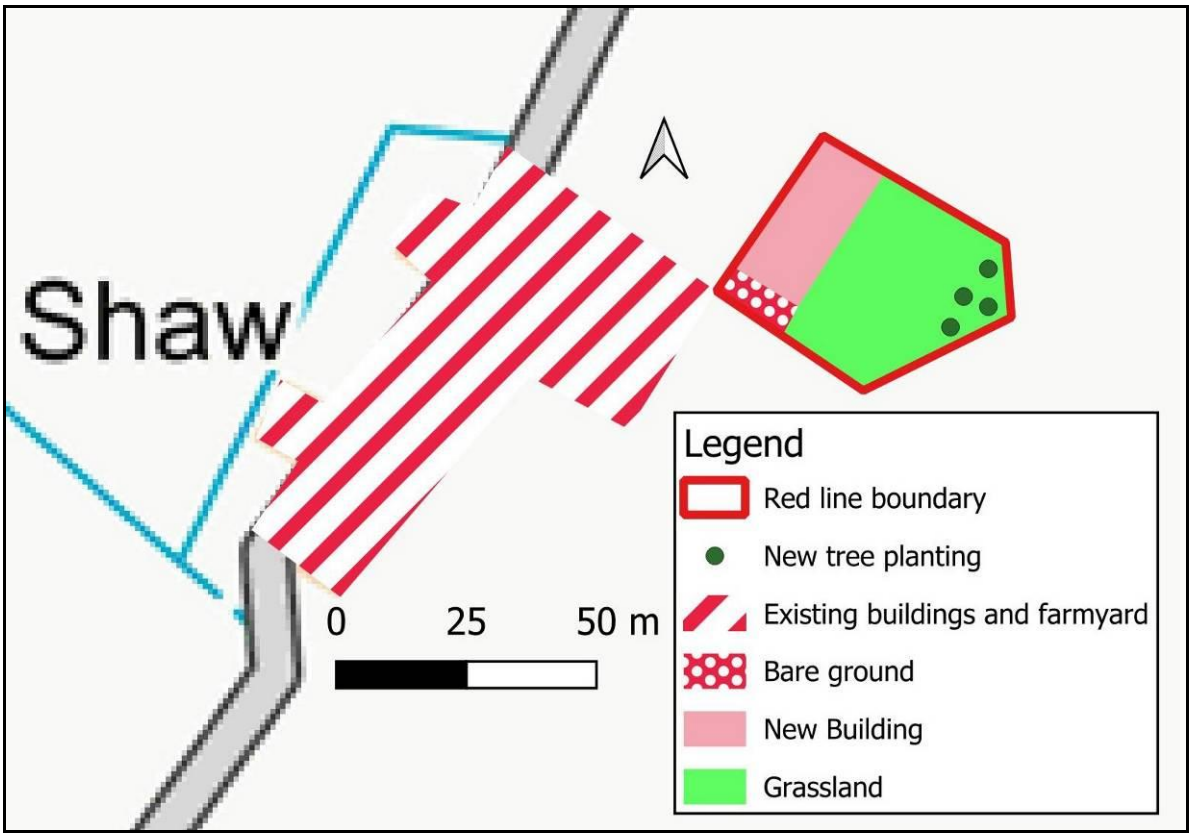
Stace C.(2010) *New Flora of the British Isles* 3rd edition Cambridge University Press

www.magic.gov.uk (Information on priority habitats, species and protected sites)

www.jncc.defra.gov.uk (Information on legal framework, BAP species and habitats)

APPENDICES

Appendix 1.
Figure 4: Habitat Map - post development



This map gives an indication of where the trees should be planted, but this can be flexible within the limits of the planning boundary and other constraints (such as gate access), as long they are a minimum of 5m from the new building.

Appendix 2. Condition assessment – modified grassland

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)			
UK Habitat Classification (UKHab) Habitat Type			
Grassland - Modified grassland			
On-site or off-site, site name and location	Low Shaw Farm	**Survey date and Surveyor name**	29th April 2025 Tamsin Douglas MCIEEM
Limitations (if applicable)	Damaged grassland in 1st phase, so classificaiton of remaining grassland in the land parcel used retrospectively on all land parcel	**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	
Habitat Description			
Agricultural grassland. Some structure as no currently managed. Extensive damage from works and storage of machinery and materials. Lolium dominated, with daisy creeping buttercup clover and cuckooflower. Docks pesent but rare.			
ukhab – UK Habitat Classification			

	Condition Assessment Criteria	Criterion passed (Yes or No)	Notes (such as justification)
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs (these may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.** Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m^2 (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	Y	
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	Y	As unmanaged - normally it would fail this criteria when sheep grazed or silaged
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y	
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	N	Extensive damage, bare ground and storage of soil, material and equipment
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens)[2].	N	
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Y	
G	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]).	Y	
	Essential criterion achieved (Yes or No)		Y
	Number of criteria passed		4

Condition Assessment Result (out of 7 criteria)	Condition Assessment Score	Score Achieved ×/✓
Passes 6 or 7 criteria including passing essential criterion A	Good (3)	
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)	Y
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)	

Appendix 3. Photographs

Photo 1.
Looking north over the red line boundary area. There is a lot of damage from machinery and storage of equipment and materials.

Photo 2.
Looking south-west over the red line area towards existing buildings.