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BNG Implementation and Management Plan

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1.0 Introduction

1.1 Report Justification

This BNG implementation and management report was commissioned by Mr Norbury of Gorstead Mill Farm, Bradnop, in response to comment from the Senior Planning Officer (Chris Johnston) requesting further information on the BNG proposals pertaining to the planning application SMD 2025 0084. The revised BNG scheme was discussed and approved with the SWT Planning Surgery Teams. The following report provides further information on the methods of implementing the BNG proposal and the maintenance of the action and clarification of livestock management on the BNG area.

This report supports the Statutory Biodiversity Metric calculation for Biodiversity Net Gain (BNG) for the project.

1.2 Site Location and Description

Full site description can be found in the BNG report previously submitted. The development site is centred on approximate OS Grid Reference SK 02462 53579, at Gorstead Mill Farm, Bradnop situated off Gorstead Mill Lane (figures 1 and 2).

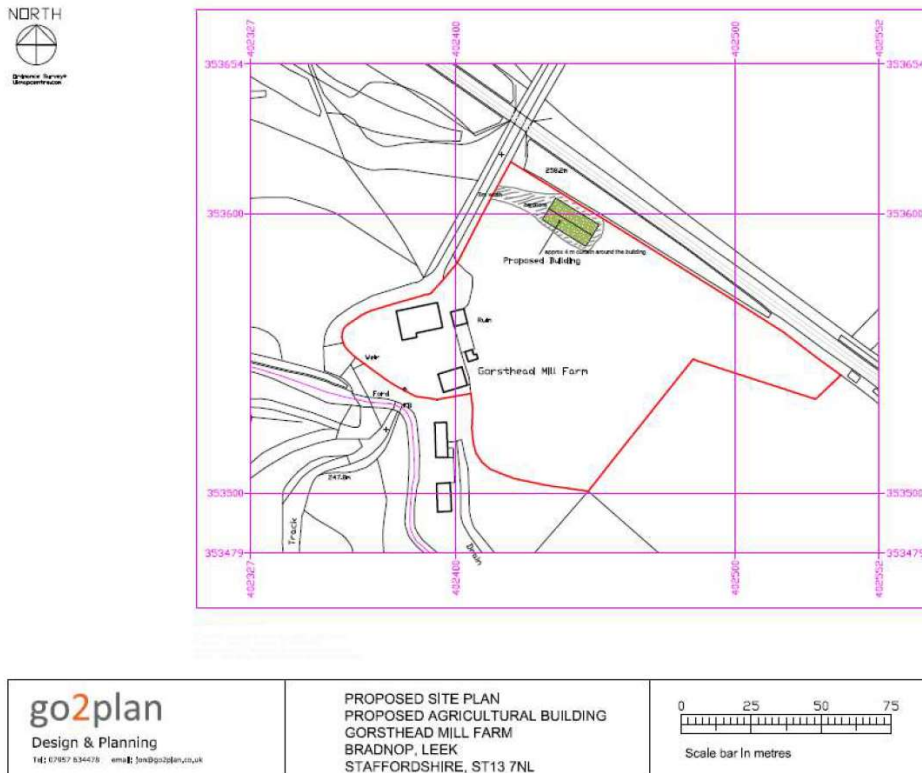


Figure 1. Proposed agricultural shed location at Gorsthead Mill, SK 02462 53579– ‘Area 1’ total area is 604m² including the proposed building (167m² in green) and hardcore access and surrounding the new shed (437m² in grey stripes).



Figure 2. Red edge development area – 0.1804ha

2.0 BNG

1.2 BNG Summary

The area proposed for the development and BNG area is currently modified, improved grassland, part of a field adjacent to the north of the current farmyard and agricultural buildings, adjacent to the access road, area totalling 0.1804ha (0.41 baseline habitat units). The planning proposal is for the construction of a new shed (167m²) and hardcore surround (437m²) with a total development footprint of 0.0604ha / 604m² (a loss of 0.14 habitat units). Given the small area of the development project – it is proposed that 0.12ha of modified grassland is enhanced from poor to moderate condition. This will deliver 0.47 habitat units and a **13.1% net increase** to habitat units – enough to meet the 10% BNG requirement under planning conditions.

2.2 Site Baseline

The proposed development site is currently species-poor modified grassland photo 1 – 3) dominated by perennial rye grass (*Lolium perenne*), willowherb sp. (*Epilobium*) and Yorkshire fog (*Holcus lanatus*), with frequent patches of *Bryophytes*, common nettle (*Urtica dioica*), bracken (*Pteridium* sp.) and cock's foot (*Dactylis glomerata*) and occasional bramble (*Rubus fruticosus*), common doc (*Rumex obtusifolius*) and dandelion (*Taraxacum* sp). A conditioning assessment was completed for the grass- which was deemed as species-poor modified grassland (low distinctiveness) under the BNG metric criteria, see table 1 below. Following the conditioning criteria – the grassland is assessed by the passing or failing a list of criteria, with passing criteria 'A' being essential to achieve Moderate or Good condition.

Table 1. Condition assessment for modified grassland habitat (BNG metric conditioning sheets).

Criteria	Pass/Fail	Comment
A – There are 6-8 vascular plant species per m ² , including at least 2 forbs. This criterion is essential for achieving Moderate or Good Condition	Fail	There are on average of 4-5 plant species per m ²
B – Sward height is varied	Pass	There is some variation in height but mainly due to the partial burning of some of the grass
C – Some scattered scrub is present, but scrub accounts for less than 20% of total grassland area	Pass	Small patch of nettles and tall ruderals but no scrub present
D – Physical damage is evident in less than 5% of total grassland area	Fail	Damage evident in around 30% of the whole area.
E – Cover of bare ground is between 1 and 10%	Fail/Pass	There are areas of bare ground, but pre-burning this would have been less than 10%
F – Cover of bracken is less than 20%	Pass	Small area of bracken but less than 20%
G – There is an absence of invasive non-native plant species (INNS)	Pass	No INNS recorded
Overall score	Passes 5 out of 7 criteria and fails essential criteria A so is assessed as Poor overall.	



Photos 1 – 3. Proposed BNG area – baseline modified grass POOR condition.

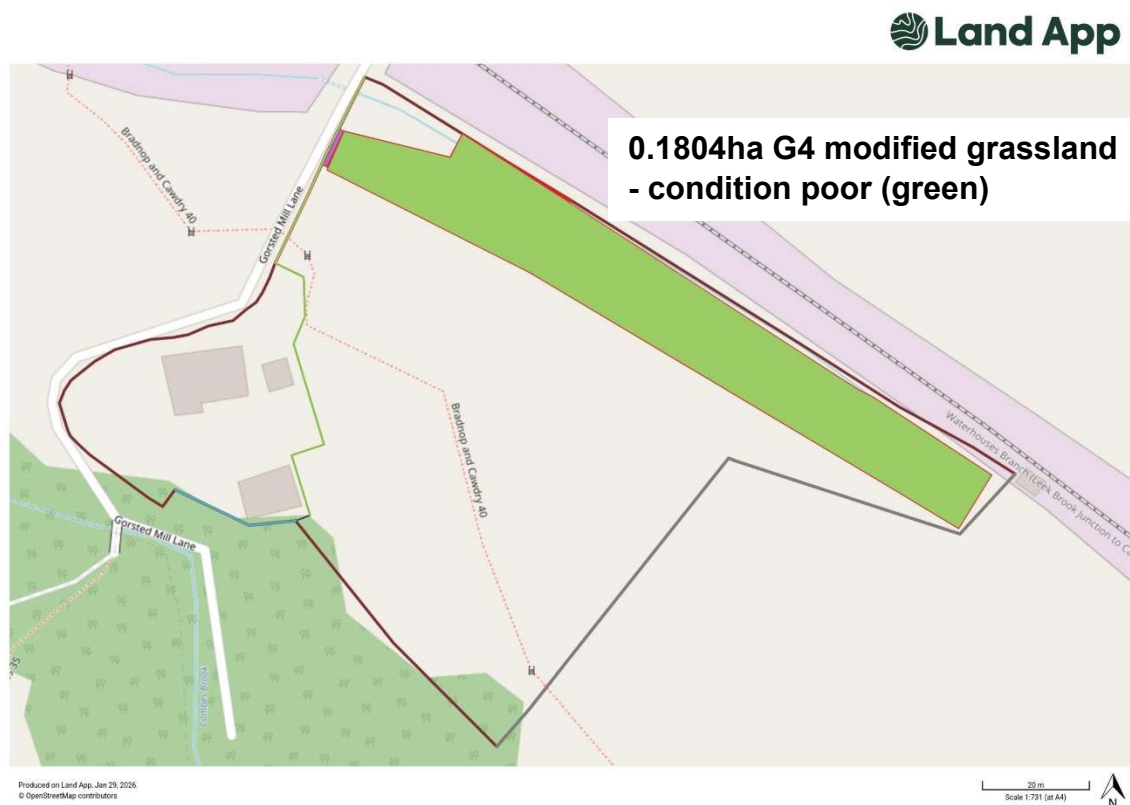


Figure 3. Baseline (pre-development) habitat maps 0.1804ha modified grassland (G4 in poor condition).

2.3 Biodiversity Net Gain Proposal

To meet the requirements of BNG the mitigation for the development will be achieved using onsite habitat creation to create 0.47 habitat biodiversity units as per the completed Statutory Biodiversity Metric. This will be achieved by enhancing 0.12ha of baseline poor condition modified grassland to post-development moderate condition modified grassland – through careful management and additional species introduction to the sward.

To meet the target condition of ‘moderate’ see the condition assessment criteria below and justification of moderate target for the modified grassland within the development area (table 2).

Table 2. Condition Criteria for mixed scrub habitat – applicable for Area 2.

Criteria	Pass/Fail	Comment
A – There are 6-8 vascular plant species per m ² , including at least 2 forbs. This criterion is essential for achieving Moderate or Good Condition	Pass	Through management and introduction of additional species to the sward the aim will be for over 6 vascular species per m ² including at least 2 forb species – such as introduction of clover.
B – Sward height is varied	AIM TO Pass	Variety of plant species to encourage a variety of heights within the sward and grazing management within the field. Aiming to pass these criteria through sward management.
C – Some scattered scrub is present, but scrub accounts for less than 20% of total grassland area	Pass	Small patch of nettles and tall ruderals but no scrub present – peripheral scrub along the

		railway line may encroach but will be managed.
D – Physical damage is evident in less than 5% of total grassland area	Pass	The current damage evident in across approximately 30% of the development area is located at the western boundary which will become developed land sealed surface. The post-development enhanced grass area is on the eastern side of the parcel and physical damage should be minimal due to the proposed shed and concrete surround allowing vehicular and stock access.
E – Cover of bare ground is between 1 and 10%	Pass	Areas of bare ground on the remaining area of enhanced modified grassland will be less than 10%.
F – Cover of bracken is less than 20%	Aim to pass	There are small patches of bracken, but these will continue to be managed to aim to keep the cover less than 20%.
G – There is an absence of invasive non-native plant species (INNS)	Pass	No invasives anticipated as none present on site at minute.
Overall score - MODERATE	Passes at least 5 of 7	

The target condition has been set at an achievable 'moderate' condition (aiming to pass at least 5 out of 7 criteria above). However, if the enhanced modified grassland is carefully managed it is deemed possible that the resulting condition of the BNG area may achieve 'good condition' – passing 6 or 7 of the criteria above.

FINAL RESULTS				
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.05		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	13.10%		
	Hedgerow units	0.00%		
	Watercourse units	0.00%		
Trading rules satisfied?		Yes ✓		
Unit Type	Target	Baseline Units	Units Required	Unit Deficit
Habitat units	10.00%	0.41	0.46	0.00
Hedgerow units	10.00%	0.00	0.00	0.00
Watercourse units	10.00%	0.00	0.00	0.00

Figure 4. BNG metric results.

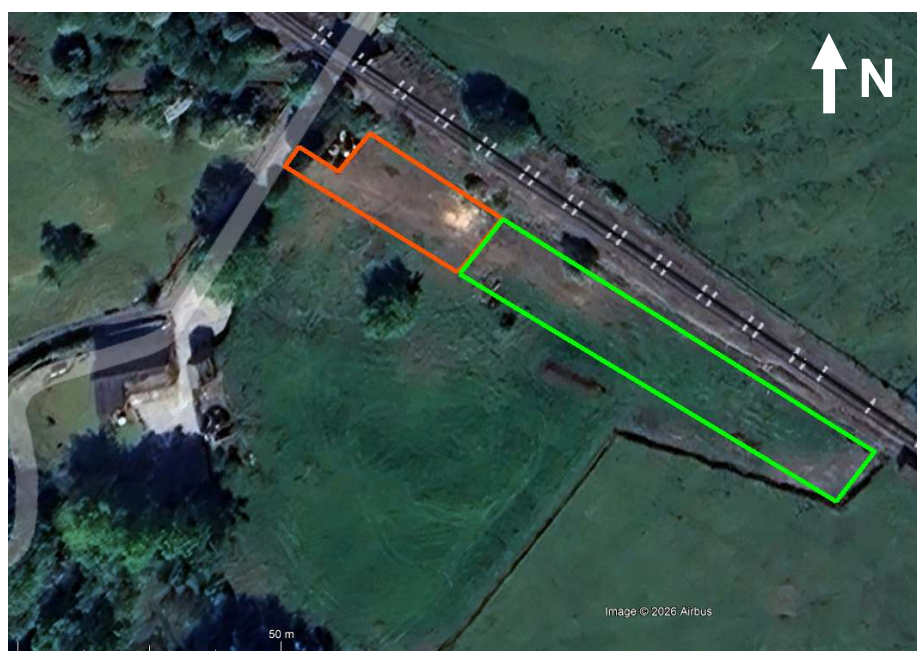


Figure 5. Post development layout (total area 0.1804ha)– developed sealed surface area (0.0604ha) of new shed and hardcore surround (red) and enhanced modified grassland area (0.1200ha) for BNG (green).

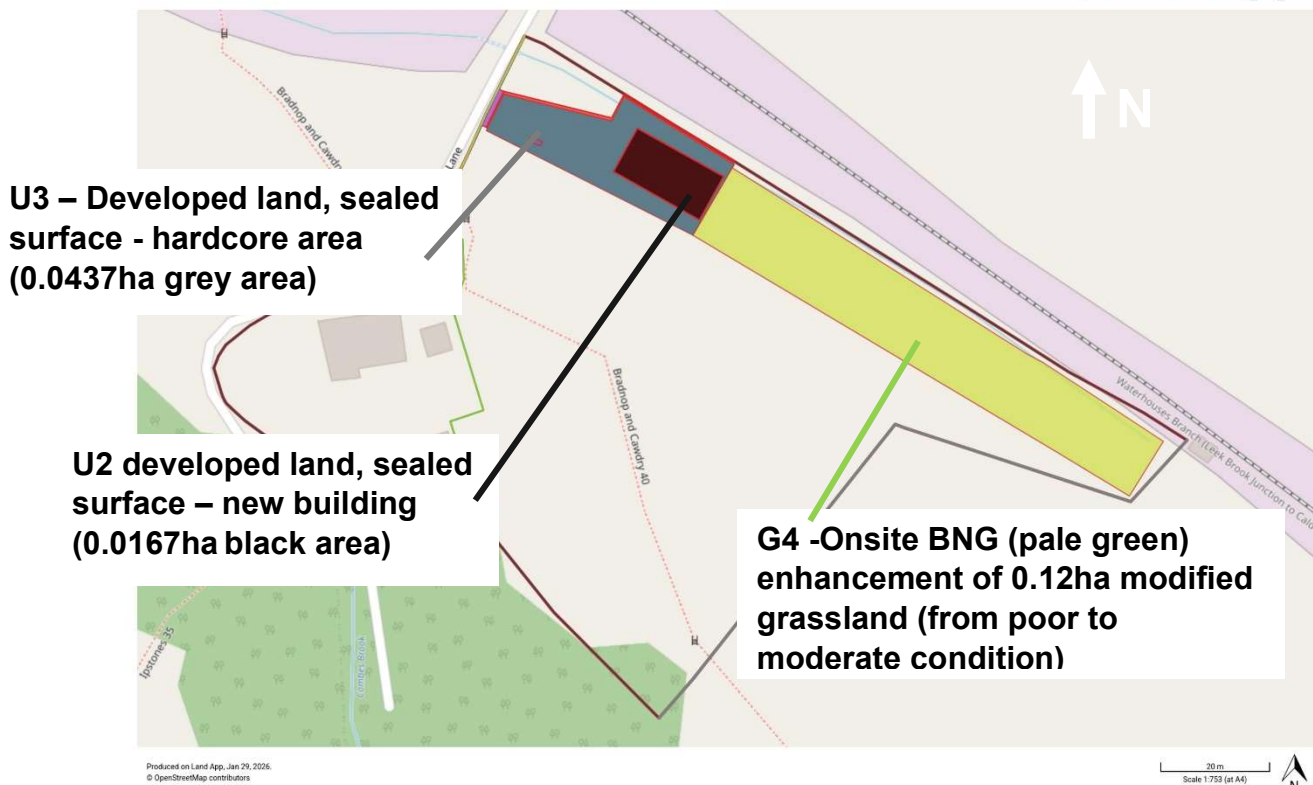


Figure 6. Post-development habitats. 0.0604ha of urban, sealed surface developed land / new shed U2/U3; and 0.12ha of enhanced modified grassland.

3.0 BNG Implementation

3.1 Overview of Proposed Habitat Aim and Objectives

The BNG habitat enhancement will be delivered to improve the overall condition of the modified grassland from poor condition to moderate/good condition. Enhancement measures will commence (site preparation / introduction of species) during the 1st year of development and will be maintained to meet the BNG requirements.

Enhancement of the species poor modified grassland will achieve greater species diversity by addition of species including legumes, address soil compaction issues, reduce fertiliser inputs and reduce weed burden.

3.2 Enhancement and Management Target / Prescription

Key points:

- Reduction of nutrient inputs by ceasing fertiliser and muck application
- Hay cutting of sward with removal of cutting to reduce soil fertility further
- Preparation of sward – regularly mowed or grazed throughout summer until sward is short
- Adding species into the sward by slot seeding selected species into the sward
- Once established – manage with light grazing to establish a variety of sward height and open gaps for herbaceous species.
- Rotational cutting or grazing to avoid the uniform structure thereafter.
- Regular monitoring for weeds/bracken control

The following detailed steps should be taken to establish the BNG area as agreed.

1. Site Preparation

- Immediately (year 1) cease to apply fertilisers / manure etc to the BNG area to reduce soil fertility across the BNG area – to favour species diversity. Reduce the dominant grass species and weeds by **mowing regularly (removing cuttings) or grazing short**. Areas of bare soil can be left and encouraged to aid seed to soil contact and aid germination. It is advised that soil sampling should be conducted and analysed so that any deficiencies can be addressed. Clover is particularly sensitive to low pH levels – lime should be used to correct for pH to a target range of around pH 6.3-6.5.
- Just prior to sowing, the area should be raked over to expose these areas of soil and create little openings for the new seed to settle by scratching through the topsoil. This process also loosens the top layer slightly which aids seed establishment. Raking should be done gently to avoid destroying too much grass. Aim for a fine, firm and level seed bed prior to additional sowing.

2. Sowing

- A suitable seed mix should be chosen to enhance the existing modified grassland diversity across the BNG area. Modified grassland in moderate

condition requires 6 to 8 species (including 2 forbs) on average every m². Currently the sward contains only 4 to 5 species, predominantly grass species. At the very least the introduced seed mix should include white clover (*Trifolium repens*) plus 3 to 4 of the following suggested species (which would suit moderate to high fertility soils) such as Yellow rattle (*Rhinanthus minor*), Red clover (*Trifolium pratense*), Common vetch (*Vicia sativa*), Common bird's foot trefoil (*Lotus corniculatus*), Ribwort plantain (*Plantago lanceolata*), Meadow buttercup (*Ranunculus acris*), or Yarrow (*Achillea millefolium*). Seed must be British, native and sourced locally where possible – a bespoke seed mix purchased to achieve the increased species diversity required. Advice to be taken from local seed supplier regarding availability of suitable local seed stock (similar species may be substituted).

- Sow at the end of year 1 during early Autumn during a warm damp weather spell into a short tight sward. Moist soil is essential.
- Seeds to be stitched into existing sward by a calibrated slot drill or broadcast directly at an even rate of around 3 to 5kg/ha into very shallow soil – at a depth no more than 5mm. It may be that broadcasting is the more sensible option of sowing given the small BNG enhancement area.
- Bed seed in to ensure good soil to seed contact by rolling immediately after sowing. Roll the area with a tractor and roller to consolidate soil and to ensure seeds are in good contact with the soil. Ensure that seeds are not completely covered by the soil – most wildflower seeds germinate better when exposed to some light.

3. First year management

- Nutrient management - Continue with reduced / ceased input of fertiliser and manures to discourage excessive grass growth which could compete with new seedlings.
- Initial Autumn Grazing - Around 4 to 6 weeks after sowing and the seedlings have established – graze lightly with low numbers of sheep to encourage tillering, increase light and space for growth and to reduce grass competition and overall sward height ahead of winter. Remove sheep promptly and do not

allow them to overwinter to avoid soil compaction and poaching. Aim for an overwinter sward height of 4 to 6cm.

- Spring Mowing - Mow and remove cuttings in spring to reduce soil fertility and to allow more room for forbs and legumes to establish. This could be followed by very light grazing to help encourage a diverse sward height but avoid heavy grazing which would result in a uniform sward and soil compaction.
- In the first spring post sowing keep an eye on the soil moisture and water regularly during dry spells to maintain moisture if required.
- Sheep / livestock to be removed throughout summer to allow flowering.

4. Ongoing management years 2 – 5 years

- Nutrient management - Continue with reduced / ceased input of fertiliser and manures to encourage a wider variety of species within the sward.
- Mowing cycle - The BNG area should be cut or grazed occasionally throughout early spring until April – when the sward should be left to flower and seed in summer. No cutting or grazing again until Autumn to allow plants to set seed. It is advised to leave cuttings for 5 to 7 days during this cut to allow any seeds to drop before removing the hay.
- Leave an area of 10 – 20% uncut each year to promote a diverse sward
- Grazing - Light grazing with cattle or sheep over short periods after the autumn cut will benefit the sward to prevent over-grazing and encourage an open sward structure with a variety of sward height. Grazing cattle/sheep at low numbers will introduce dung to support invertebrate species and trample the soil to create gaps in the sward for seedlings to establish.

Fence off the BNG area with electric or permanent fencing to allow for controlled/ rotational grazing – for protection from intense grazing livestock.

5. Monitor and Respond 5 years +

- If seeds fail to establish or sward declines over time – reseed the pasture to maintain clover and additional species presence.
- Check annually that species diversity is maintained. A range of sward heights and species diversity of around 6 to 9 species per m² should be expected.

- Ongoing monitoring is key for this to be a success and reactive to visual inspections of the sward. Respond with additional sowing / livestock management for low intensity grazing etc. Continue to graze and cut on rotation to manage the sward as moderate condition modified grassland. Ensure to avoid poaching and compaction by overgrazing / maintain the BNG area as a separate area fenced off from higher intensity grazing patterns.
- To maintain moderate to good condition there should be little evidence of physical damage to the area – keep vehicular access to a minimum (only access where necessary to manage the BNG action).
- Control of bracken to be achieved by spot-treating with herbicides or through repeated cutting/crushing if bracken cover starts to exceed 20% of the BNG area.
- BNG area regularly monitored for invasive species and actioned accordingly.

If the following implementation and management measures are followed it is believed that the modified grassland will achieve moderate to good condition within 2 to 5 years post development.