

ECOLOGICAL STATEMENT, SOIL NUTRIENT ASSESSMENT AND HABITAT MANAGEMENT AND MONITORING PLAN



Site: Bracks Farm, School Lane, Freehay, Cheadle,
Staffordshire, ST10 1TS

Project: Proposed New Access, Closure of Existing
Access and Associated Biodiversity Net Gain Area

Client: Mr. Lee Bagnall

Prepared by: Tom Egerton (Lead Ecologist)

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Author:	Tom Egerton BSc(Hons)
Contact Details:	Hewitt&Carr Services DaisyBank House 17-19 Leek Road, Cheadle, Stoke-on-Trent, ST10 1JE 01538 711777 hello@hc-services.uk
Position:	Ecologist
Authors Signature:	

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Executive Summary

This Ecological Statement, Soil Nutrient Assessment and Habitat Management and Monitoring Plan has been prepared in support of proposals for a new access driveway, closure of the existing access and delivery of associated Biodiversity Net Gain habitats at Bracks Farm, School Lane, Freehay, Cheadle, Staffordshire.

The document responds to matters raised by Staffordshire Wildlife Trust by providing a focused assessment of the vegetation present within the affected access corridor, interpretation of the available soil nutrient results, consideration of the ecological effects of closing the existing access, and a detailed framework for the establishment, management and monitoring of the proposed habitats.

The proposed access corridor crosses parts of two grassland parcels previously classified as modified grassland and other neutral grassland. The affected modified grassland supports a relatively species-poor assemblage dominated by perennial rye-grass, with creeping buttercup, meadow foxtail and rough meadow-grass also frequent. Common nettle, common ragwort, creeping thistle, ribwort plantain and broad-leaved dock occur as smaller components of the sward.

The affected other neutral grassland supports common nettle, Himalayan balsam, perennial rye-grass, broad-leaved dock, cock's-foot, meadow foxtail and creeping thistle. The vegetation is rank and influenced by disturbance and nutrient enrichment. Although classified as a medium-distinctiveness habitat, it is currently in poor condition and does not represent species-rich neutral grassland or another priority grassland community.

The affected native hedgerow comprises common and widespread native woody species and provides a linear habitat feature within the site. No rare, protected or otherwise notable plant species were recorded within the access corridor or the section of boundary vegetation affected by the proposals.

The statutory biodiversity metric identifies the affected baseline habitats as:

- 0.0507 ha of modified grassland in moderate condition;
- 0.0105 ha of other neutral grassland in poor condition; and
- 0.011 km of native hedgerow in moderate condition.

The proposed development will create approximately 0.0345 ha of developed land and sealed surface associated with the permanent driveway. Habitat compensation and enhancement will be delivered through the establishment of

approximately 0.0286 ha of other lowland acid grassland in good condition and approximately 0.015 km of ecologically valuable line of trees in moderate condition.

The proposed acid grassland comprises:

- 0.0045 ha established through enhancement of existing poor-condition other neutral grassland; and
- 0.0241 ha established through enhancement of existing moderate-condition modified grassland.

The metric records an area-habitat net gain of approximately 11.65% and a hedgerow net gain of approximately 23.66%, with the applicable trading rules satisfied.

Laboratory analysis recorded a soil pH of 6.9, available phosphorus of 16.7 mg/l at Index 2, potassium at Index 1 and magnesium at Index 2. These results indicate that the soil is not currently strongly acidic and that phosphorus availability is above the preferred starting level for the most straightforward establishment of species-rich acid grassland. However, the results do not demonstrate that the proposed habitat is unachievable.

The soil is understood to be sandy and is therefore likely to have a relatively low cation exchange capacity. Sandy soils generally retain fewer positively charged nutrient ions than clay-rich or organic soils and have a lower capacity to buffer changes in soil chemistry. Subject to the cessation of liming and nutrient inputs, removal of vegetation arisings and continued low-input management, the soil may therefore gradually lose base cations and develop more acidic characteristics over time.

The proposed habitat creation strategy does not rely upon an immediate change in soil chemistry. Instead, it adopts a long-term management-led approach designed to reduce the vigour of the existing productive sward, progressively export nutrients and encourage the establishment of finer grasses and acid-tolerant or acid-associated forbs. Establishment will include appropriate site preparation, targeted seeding or green-hay introduction, repeated establishment cuts, removal of all arisings, exclusion of fertiliser and manure, and control of competitive or undesirable vegetation.

The soil's present pH means that the developing vegetation may initially contain species associated with both acidic and circumneutral conditions. This does not prevent the habitat from progressing towards the metric target, provided that management is sustained and monitoring demonstrates an appropriate trajectory towards the required habitat type and condition.

The closure of the existing access is not expected to result in a significant adverse ecological effect. The principal immediate risk relates to the potential disturbance or destruction of active bird nests during works to boundary vegetation. Works affecting the existing hedgerow or associated vegetation should therefore be undertaken outside the main nesting bird season, generally March to August inclusive. Where this cannot be achieved, the affected vegetation must be inspected by a suitably experienced ecologist immediately before works commence.

Closure of the existing access will allow the existing break in the boundary habitat to be reinstated. Redundant surfacing and unsuitable sub-base should be removed, compacted ground relieved and the area incorporated into the proposed linear tree habitat and adjoining grassland. Once established, this will improve the continuity and structural diversity of the boundary feature.

The Habitat Management and Monitoring Plan provides prescriptions for:

- establishment and long-term management of other lowland acid grassland
- creation and establishment of the ecologically valuable line of trees
- reinstatement of the former access
- protection of retained habitats during construction
- control of Himalayan balsam
- nesting bird precautions
- monitoring at defined intervals
- measurable habitat success criteria
- remedial action where habitat establishment departs from the required trajectory.

Subject to implementation of the measures set out within this report, the proposed access and closure of the existing access are not expected to result in significant adverse ecological effects. The proposed habitat creation and enhancement measures provide a credible means of compensating for the affected habitats and delivering the Biodiversity Net Gain recorded by the statutory metric.

1. Introduction

1.1 Background

This report has been prepared in support of proposals for the construction of a new access driveway, closure of the existing access and delivery of associated Biodiversity Net Gain habitats at Bracks Farm, School Lane, Freehay, Cheadle, Staffordshire.

The document has been prepared following a request from Staffordshire Wildlife Trust for further ecological information relating specifically to:

- the plant species present within the strip of land affected by the proposed access
- the ecological implications of closing the existing access
- the nutrient status and suitability of the soils for habitat creation
- the proposed post-development habitats
- the long-term management and monitoring arrangements required to deliver the Biodiversity Net Gain commitments

The wider site was previously subject to a Preliminary Ecological Appraisal. This report does not repeat the full site-wide assessment. Instead, it focuses on the habitats and ecological features directly affected by the proposed access works and the land identified for habitat creation and enhancement.

1.2 Site Location and Context

Bracks Farm is located at School Lane, Freehay, Cheadle, Staffordshire. The site lies within a predominantly rural landscape comprising agricultural grassland, hedgerows, mature trees, woodland, scattered residential properties and former quarry habitats.

The proposed access extends from the existing farmstead towards the adjoining highway. The affected corridor passes through areas of modified grassland and other neutral grassland and requires the loss of a short section of native hedgerow.

The land adjoining the driveway has been identified for habitat enhancement and creation. The post-development plan shows the permanent sealed access surface, an associated grassland habitat area and a new ecologically valuable line of trees running alongside the access.

1.3 Proposed Development

The proposed works comprise:

- construction of a new permanent access driveway
- creation of the associated junction with the public highway
- localised excavation, grading and surfacing
- loss of parts of the existing grassland parcels
- removal of approximately 0.011 km of native hedgerow
- closure and ecological reinstatement of the existing access
- creation and enhancement of approximately 0.0286 ha of other lowland acid grassland
- creation of approximately 0.015 km of ecologically valuable line of trees
- protection and management of retained habitats during and following construction

Approximately 0.0345 ha of the site will become developed land and sealed surface as a result of the new access.

1.4 Purpose of the Report

The purpose of this report is to:

- describe the habitats and plant species present within the affected access corridor
- evaluate the ecological importance of those habitats
- assess the likely effects of constructing the new access
- assess the implications of closing the existing access
- interpret the soil pH and nutrient results in relation to the proposed habitat target
- explain the rationale for the proposed other lowland acid grassland
- describe the proposed linear tree habitat
- set out measures to avoid harm to nesting birds and other wildlife
- provide a detailed Habitat Management and Monitoring Plan
- define measurable success criteria and remedial actions
- demonstrate how the Biodiversity Net Gain commitments will be delivered and maintained

1.5 Relationship with Previous Ecological Work

The baseline habitat information used within this report is derived from the ecological survey of the wider Bracks Farm site. The affected strip falls within the previously identified modified grassland and other neutral grassland parcels and includes a section of native hedgerow.

The botanical assessment within this report therefore concentrates on the species recorded within those habitat parcels where they occur inside the access corridor.

The soil nutrient results and statutory biodiversity metric have been considered alongside the field survey findings to produce a combined assessment of habitat feasibility, likely impacts and long-term management requirements.

1.6 Mapping Note

The post-development habitat plan identifies the proposed access, the associated grassland enhancement area and the proposed linear tree feature.

The plan currently labels the proposed grassland as other neutral grassland. The statutory biodiversity metric identifies the intended target as other lowland acid grassland in good condition. For the purposes of this report and the Habitat Management and Monitoring Plan, the metric habitat target is treated as the controlling habitat description.

The plan legend should be updated before final submission so that the mapping, metric and report use the same habitat classification.

2. Methodology

2.1 Desk-Based Review

The assessment was informed by a review of the existing ecological information available for Bracks Farm, including:

- the Preliminary Ecological Appraisal for the wider site
- the statutory biodiversity metric prepared for the proposed access
- the post-development habitat plan
- the available soil laboratory results
- mapped habitat boundaries and linear features
- previous botanical records collected during the site survey

The review focused on the habitats directly affected by the proposed access and the adjoining land identified for habitat creation and enhancement.

2.2 Field Survey Information

The botanical baseline within the affected strip was derived from the wider habitat survey undertaken at Bracks Farm.

The access corridor crosses parts of two previously mapped habitat parcels:

- modified grassland
- other neutral grassland

The species recorded within those parcels were used to characterise the vegetation present within the corresponding parts of the access corridor.

The affected boundary feature was also assessed as native hedgerow.

The purpose of this focused review was not to repeat the full site survey, but to identify the plant species and habitat characteristics relevant to the proposed access footprint and associated Biodiversity Net Gain area.

2.3 Habitat Classification

Habitats were classified using the UK Habitat Classification system and assessed in accordance with the habitat descriptions used within the statutory biodiversity metric.

The baseline habitats considered within this report are:

- modified grassland
- other neutral grassland
- native hedgerow

The proposed habitats are:

- developed land, sealed surface
- other lowland acid grassland
- ecologically valuable line of trees

The statutory biodiversity metric was treated as the controlling source for habitat areas, condition targets, strategic significance and calculated biodiversity units.

2.4 Botanical Assessment

Plant species were considered in relation to:

- their abundance within the affected habitat parcels
- whether they are common or widespread
- whether they indicate disturbance, nutrient enrichment or poor condition
- whether they are associated with species-rich grassland
- whether any protected, notable or invasive species were present
- their relevance to the proposed habitat creation strategy

The assessment distinguished between the modified grassland and other neutral grassland components of the affected strip.

2.5 Soil Nutrient Assessment

The soil assessment considered the available laboratory results for:

- pH
- available phosphorus
- potassium
- magnesium

The results were interpreted in relation to:

- the existing grassland composition
- the proposed other lowland acid grassland target
- likely nutrient retention and leaching behaviour
- the cation exchange capacity expected from a sandy soil
- the likely response to long-term low-input management
- the feasibility of reducing soil fertility through removal of vegetation arisings

The assessment does not assume that the soil will immediately support a fully developed acid grassland community. Instead, it considers whether the soil and proposed management regime provide a realistic pathway towards the target habitat over the required establishment period.

2.6 Biodiversity Metric Review

The statutory biodiversity metric was reviewed to identify:

- baseline habitat areas
- baseline habitat condition
- habitat losses
- habitat enhancement areas
- proposed habitat types
- proposed target condition
- time to target condition
- difficulty multipliers
- strategic significance
- total net unit change
- percentage net gain
- trading rule compliance

The relevant outputs are summarised later in this report.

2.7 Impact Assessment Approach

Potential effects were considered in relation to:

- permanent habitat loss beneath the proposed driveway
- partial loss of the affected grassland parcels
- removal of the native hedgerow section
- closure of the existing access
- disturbance during construction
- soil compaction
- runoff and pollution
- invasive species spread
- nesting birds
- impacts on retained habitat connectivity
- long-term delivery of the proposed BNG habitats

The significance of effects was assessed in proportion to the scale of the works and the ecological value of the affected features.

2.8 Habitat Management and Monitoring Plan Approach

The Habitat Management and Monitoring Plan has been prepared to provide:

- habitat creation objectives
- site preparation requirements
- establishment methods
- long-term management prescriptions
- monitoring intervals
- measurable success criteria
- remedial triggers
- adaptive management measures
- responsibilities for implementation
- requirements for maintaining the habitats over the agreed management period

The management prescriptions are designed to secure the target habitats recorded within the statutory biodiversity metric and to allow intervention where monitoring shows that a habitat is not progressing as intended.

2.9 Limitations

The strip-specific botanical assessment is based on the species recorded within the corresponding wider habitat parcels rather than a separately tabulated quadrat survey confined solely to the access corridor.

This is considered sufficient because the affected strip lies within those mapped habitat parcels and was observed as part of the wider survey. The vegetation within the strip was consistent with the surrounding parcel descriptions.

The soil assessment is based on the available laboratory sample and should be interpreted as representative of the sampled area. Local variation may occur across the enhancement area.

Monitoring during establishment will therefore be important to confirm that the developing vegetation is following the expected trajectory and to identify whether additional soil management or reseedling is required.

3. Baseline Ecological Conditions

3.1 Overview

The proposed access corridor crosses land previously mapped as modified grassland and other neutral grassland and requires the loss of a short section of native hedgerow.

The affected habitats are common within the local agricultural landscape and are influenced by grazing, disturbance, nutrient enrichment and historic land management.

No rare, protected or otherwise notable plant species were recorded within the affected strip.

The baseline habitats relevant to the proposed access are summarised below.

Baseline habitat	Area or length	Condition
Modified grassland	0.0507 ha	Moderate
Other neutral grassland	0.0105 ha	Poor
Native hedgerow	0.011 km	Moderate

3.2 Modified Grassland

The majority of the affected access corridor lies within modified grassland.

This habitat is characterised by a relatively species-poor sward dominated by productive grasses and common agricultural forbs. The vegetation reflects historic improvement and ongoing nutrient influence.

The principal species recorded were:

- perennial rye-grass
- creeping buttercup
- meadow foxtail
- rough meadow-grass
- common nettle
- common ragwort
- creeping thistle
- ribwort plantain
- broad-leaved dock

Perennial rye-grass was dominant within the sward, with creeping buttercup, meadow foxtail and rough meadow-grass also forming frequent components.

Common nettle, common ragwort and creeping thistle occurred as more localised or occasional species. Ribwort plantain and broad-leaved dock were present in lower abundance.

The habitat provides some ecological function for common invertebrates, foraging birds and small mammals. However, its botanical value is limited by low species richness and dominance by widespread productive species.

The habitat does not represent species-rich grassland or another priority grassland community.

3.3 Other Neutral Grassland

A smaller part of the affected strip crosses other neutral grassland.

This habitat was taller and more rank than the modified grassland and contained a stronger ruderal and nutrient-enrichment influence.

The principal species recorded were:

- common nettle
- Himalayan balsam
- perennial rye-grass
- broad-leaved dock
- cock's-foot
- meadow foxtail
- creeping thistle

Common nettle formed a dominant or abundant component, with Himalayan balsam frequent in parts of the habitat. Perennial rye-grass, broad-leaved dock, cock's-foot and meadow foxtail were also present.

The habitat was assessed as being in poor condition due to:

- low diversity of characteristic neutral-grassland species
- dominance by common nettle and other nutrient-demanding vegetation
- presence of Himalayan balsam
- limited structural and botanical quality
- evidence of disturbance and enrichment

Although other neutral grassland is a medium-distinctiveness habitat within the biodiversity metric, the affected parcel does not represent a species-rich or high-quality example.

3.4 Native Hedgerow

The proposed access requires the removal of approximately 0.011 km of native hedgerow.

The hedgerow comprises common and widespread native woody species and forms a linear habitat feature within the site.

The species recorded within the hedgerow include native shrubs and small trees typical of agricultural boundaries in the local area.

The feature provides:

- nesting opportunities for common birds
- shelter and movement habitat for small mammals
- foraging resources for invertebrates
- structural connectivity across the site
- a locally useful commuting feature for bats

The hedgerow was assessed as being in moderate condition. Its ecological value is greater than that of the adjacent modified grassland due to its linear structure and role in habitat connectivity.

3.5 Invasive Species

Himalayan balsam was recorded within the other neutral grassland and adjoining disturbed vegetation.

The species is capable of spreading rapidly through seed dispersal and may be transferred through:

- movement of contaminated soil
- vegetation clearance
- machinery
- footwear
- runoff
- inappropriate disposal of arisings

Construction and habitat creation works must therefore include appropriate biosecurity and control measures.

The proposed grassland enhancement area should not be seeded or managed without first addressing established Himalayan balsam within or immediately adjoining the works area.

3.6 Protected and Notable Species Potential

The affected grassland is of limited value for protected species due to its small extent, existing management and relatively low structural diversity.

The main ecological constraints associated with the access works are:

- potential nesting birds within the native hedgerow
- possible use of grassland margins and dense vegetation by common amphibians, reptiles, hedgehogs and other small animals
- use of retained hedgerows and tree lines by foraging and commuting bats
- potential spread of Himalayan balsam during ground disturbance

No direct effect upon a confirmed bat roost is anticipated because the access works do not require demolition or alteration of buildings.

3.7 Ecological Evaluation

The modified grassland is of low ecological value at site level.

The other neutral grassland has greater distinctiveness within the biodiversity metric but is currently of limited botanical quality due to poor condition, nutrient enrichment and invasive-species presence.

The native hedgerow is the most important feature directly affected by the access proposal because it provides a continuous or partly continuous linear habitat.

The principal ecological effects of the works are therefore:

- permanent loss of common grassland beneath the driveway
- removal of a short section of native hedgerow
- temporary disturbance during construction
- potential disturbance to nesting birds
- risk of spreading Himalayan balsam
- potential damage to retained boundary habitats if construction is not controlled

These effects are capable of mitigation and compensation through the proposed habitat creation, access closure, tree planting and long-term management measures set out later in this report.

4. Soil Nutrient Assessment

4.1 Soil Test Results

Laboratory analysis of soil from the proposed habitat creation area recorded the following:

Parameter	Result	Interpretation
Soil pH	6.9	Neutral to slightly alkaline
Available phosphorus	16.7 mg/l	Index 2
Potassium	Index 1	Low
Magnesium	Index 2	Moderate

The results indicate that the soil is not currently strongly acidic and contains a moderate concentration of plant-available phosphorus.

Phosphorus is the principal nutrient constraint relevant to the establishment of species-rich grassland because elevated phosphorus can favour vigorous grasses and nutrient-demanding species over slower-growing fine grasses and wildflowers.

However, the recorded phosphorus level does not indicate an excessively enriched soil and does not mean that habitat creation is unachievable.

4.2 Existing Soil Conditions

The soil is understood to be sandy in character.

Sandy soils generally have:

- relatively low clay content
- relatively low organic matter retention unless specifically built up
- rapid drainage
- lower nutrient-holding capacity than clay-rich soils
- relatively low cation exchange capacity
- limited buffering against changes in soil chemistry

Cation exchange capacity describes the ability of soil particles to retain positively charged nutrient ions such as calcium, magnesium, potassium and ammonium.

Clay particles and organic matter typically have a higher cation exchange capacity than coarse sand. Sandy soils therefore tend to retain fewer base cations and are more susceptible to nutrient leaching.

4.3 Likely Long-Term Acidification

The current pH of 6.9 represents the soil condition at the time of sampling and does not necessarily represent a fixed long-term state.

The relatively low cation exchange capacity expected from a sandy soil means that the soil is likely to have a limited ability to retain calcium, magnesium, potassium and other base cations.

Where no lime, fertiliser, manure or other nutrient-rich material is added, these cations may gradually be removed through:

- plant uptake
- removal of vegetation arisings
- natural leaching
- rainfall
- drainage through the soil profile

The progressive loss of base cations may reduce the soil's buffering capacity and allow gradual acidification over time.

This process is likely to be slow and should not be presented as an immediate conversion from neutral soil to strongly acidic soil. However, the sandy texture and associated low cation exchange capacity provide a credible basis for the soil becoming more favourable to acid-associated vegetation under sustained low-input management.

4.4 Phosphorus Status

The available phosphorus result of 16.7 mg/l falls within Index 2.

This is above the lowest fertility range generally preferred for the easiest establishment of species-rich grassland. It is nevertheless below levels normally associated with heavily enriched agricultural soils.

The soil should therefore be regarded as having a moderate constraint rather than being unsuitable for habitat creation.

The proposed management regime will seek to reduce the ecological effect of the existing phosphorus level through:

- complete cessation of fertiliser applications
- no manure, slurry or compost inputs
- removal of all cut vegetation
- repeated establishment cuts
- control of vigorous grasses
- prevention of nutrient-rich soil importation

- avoidance of nutrient-rich mulch
- long-term low-intensity management

Phosphorus itself is relatively immobile within soil compared with more soluble nutrients. A rapid reduction should not therefore be expected.

The objective is to reduce the availability and ecological influence of nutrients over time while preventing further enrichment.

4.5 Potassium and Magnesium

Potassium was recorded at Index 1 and is therefore relatively low.

This is beneficial in the context of low-productivity grassland creation because it reduces the likelihood of vigorous agricultural grass growth being sustained by high potassium availability.

Magnesium was recorded at Index 2 and is considered moderate.

Neither potassium nor magnesium is considered to create an overriding constraint to the proposed habitat target.

4.6 Relationship Between Soil Results and Existing Vegetation

The existing vegetation is consistent with a soil that has experienced historic agricultural improvement and localised nutrient enrichment.

Species such as perennial rye-grass, common nettle, broad-leaved dock, creeping thistle and rough meadow-grass are associated with productive or disturbed soils.

The presence of these species indicates that the existing sward will require active suppression and management before a more diverse low-productivity community can establish.

The existing vegetation should not be retained unchanged and merely overseeded. Without appropriate preparation, vigorous grasses and nutrient-demanding species would be likely to outcompete newly introduced species.

4.7 Feasibility of Other Lowland Acid Grassland

The current pH does not represent ideal established acid-grassland conditions. The habitat target should therefore be understood as a long-term creation and enhancement objective rather than an immediate description of the soil or vegetation.

The feasibility of the target is supported by:

- the sandy soil texture
- relatively low cation exchange capacity
- low potassium status
- the potential for progressive base-cation loss
- cessation of nutrient and lime inputs
- removal of arisings
- active suppression of the productive baseline sward
- long-term adaptive management

The developing vegetation may initially include a mixture of acid-associated and circumneutral species.

This transitional composition would not necessarily represent failure, provided that monitoring demonstrates:

- declining dominance of perennial rye-grass and other vigorous species
- increasing cover of fine grasses
- increasing native forb diversity
- reduced nutrient-demanding vegetation
- stable grassland cover
- movement towards the target habitat condition criteria

4.8 Habitat Creation Approach

The proposed habitat should be established through a combination of soil preparation, vegetation control and appropriate introduction of seed or green hay.

The precise preparation method should reflect conditions immediately before implementation but may include:

- close cutting of the existing sward
- removal of all cut material
- repeated cutting to reduce vigour
- scarification to expose areas of bare soil
- localised removal of accumulated organic material
- control of Himalayan balsam
- targeted control of docks, thistles and nettles
- introduction of an appropriate acid-grassland seed mixture or locally sourced green hay

Nutrient-rich topsoil should not be imported into the habitat creation area.

Where soil is required following construction disturbance, it should be compatible with the existing sandy substrate and should not increase phosphorus availability.

4.9 Monitoring of Soil Development

Soil testing should be repeated where monitoring indicates that vegetation development is not following the expected trajectory.

Repeat testing should consider:

- pH
- available phosphorus
- potassium
- magnesium
- organic matter where appropriate

Routine annual soil testing is not considered necessary unless establishment problems occur.

A repeat assessment during the early management period may be useful to confirm whether:

- pH is declining
- nutrient status remains stable or reduces
- additional nutrient export is required
- the species mixture remains appropriate

4.10 Soil Assessment Conclusion

The soil test identifies constraints that require active management but does not demonstrate that the proposed habitat target is unachievable.

The pH of 6.9 and phosphorus Index 2 mean that immediate establishment of a fully characteristic acid-grassland community should not be assumed.

However, the sandy soil is likely to have a relatively low cation exchange capacity and limited ability to retain base cations. Under a sustained regime of no liming, no fertiliser input, vegetation removal and low-intensity management, the soil may gradually become more acidic and less favourable to vigorous agricultural grasses.

The proposed other lowland acid grassland is therefore considered a reasonable long-term target, subject to:

- appropriate site preparation
- careful species selection
- complete nutrient-input exclusion
- removal of all arisings
- repeated establishment management
- monitoring against measurable criteria
- adaptive management where required

5. Ecological Impact Assessment

5.1 Overview

The proposed development will result in the construction of a new access driveway, closure of the existing access and delivery of associated Biodiversity Net Gain habitats.

The principal ecological effects arise from:

- permanent loss of grassland beneath the new access
- removal of a short section of native hedgerow
- temporary disturbance during construction
- potential damage to retained habitats
- potential spread of Himalayan balsam
- possible disturbance to nesting birds
- changes to habitat connectivity
- changes in runoff and drainage
- subsequent habitat creation and enhancement

The affected habitats are relatively limited in extent and are not considered to support rare, protected or otherwise notable plant communities.

5.2 Loss of Modified Grassland

Approximately 0.0507 ha of modified grassland is included within the baseline assessment.

Of this area, approximately 0.0241 ha will be enhanced to other lowland acid grassland. The remaining affected area will principally contribute to the permanent developed footprint of the new access.

The modified grassland is botanically species-poor and dominated by common productive grasses and widespread agricultural forbs.

The habitat provides limited ecological function for common invertebrates, birds and small mammals but is of low distinctiveness within the statutory biodiversity metric.

The permanent loss of part of this habitat is therefore considered to represent a minor and localised adverse effect.

This effect will be compensated through enhancement of retained grassland and long-term creation of a more diverse and lower-productivity habitat.

5.3 Loss of Other Neutral Grassland

Approximately 0.0105 ha of other neutral grassland is included within the baseline assessment.

Of this area, approximately 0.0045 ha will be enhanced to other lowland acid grassland.

The remaining affected area will be lost or altered as part of the proposed access works.

Other neutral grassland is treated as a medium-distinctiveness habitat within the biodiversity metric. However, the affected parcel is in poor condition and supports a rank, nutrient-influenced and partly invasive vegetation community.

Its species composition includes common nettle, Himalayan balsam, perennial rye-grass, broad-leaved dock, cock's-foot, meadow foxtail and creeping thistle.

The affected area does not represent species-rich neutral grassland and no rare or notable botanical features were identified.

The loss is therefore considered to result in a minor adverse effect at site level.

The impact will be addressed through enhancement of retained grassland to a higher-distinctiveness target habitat and implementation of long-term management.

5.4 Loss of Native Hedgerow

The proposed access requires the removal of approximately 0.011 km of native hedgerow.

The hedgerow provides greater ecological function than the adjacent grassland because it contributes to:

- habitat connectivity
- nesting opportunities
- shelter for small animals
- invertebrate forage
- bat commuting and foraging habitat
- landscape structure

The removal of the hedgerow section will create a permanent break at the location of the new access.

The affected length is relatively short. However, the loss represents a localised adverse effect upon linear habitat continuity.

This impact will be compensated through the creation of approximately 0.015 km of ecologically valuable line of trees and reinstatement of the former access.

The proposed linear habitat exceeds the length of hedgerow removed and is intended to provide a more structurally varied feature over time.

5.5 Closure of the Existing Access

The existing access will be closed and reinstated as part of the proposals.

The closure itself is not expected to result in a significant ecological impact.

The main immediate risk relates to works affecting existing vegetation at the access opening. If vegetation removal, cutting or planting is undertaken while birds are nesting, there is potential for active nests to be damaged or disturbed.

Works affecting hedgerow or dense vegetation should therefore be undertaken outside the main nesting bird season, generally March to August inclusive.

Where this cannot be achieved, the affected vegetation must be inspected by a suitably experienced ecologist immediately before works commence.

If an active nest is identified, works must be delayed in the affected area until the nest is no longer in use.

Subject to this precaution, closure of the access is expected to provide a longer-term ecological benefit by:

- reducing the existing break in boundary vegetation
- improving continuity of the linear habitat
- creating additional planting opportunities
- reducing repeated vehicle disturbance
- allowing grassland and woody vegetation to re-establish

5.6 Construction Disturbance

Construction activity may result in temporary effects through:

- trampling and vehicle movement
- soil compaction
- storage of materials
- excavation
- dust
- noise
- accidental pollution
- damage to retained vegetation

These impacts are capable of avoidance through standard construction controls.

The working area should be clearly defined before construction begins.

Retained habitats outside the approved footprint should be fenced or otherwise marked to prevent accidental damage.

No construction materials, spoil, plant or fuel should be stored within retained grassland, hedgerows or tree protection areas.

5.7 Soil Compaction and Disturbance

Heavy machinery may compact soils within the proposed habitat creation area.

Compaction could:

- reduce infiltration
- restrict root growth
- increase surface runoff
- favour disturbance-tolerant species
- delay grassland establishment

Construction traffic should therefore be excluded from the proposed habitat creation area wherever practicable.

Where compaction occurs, the soil should be relieved before seeding or planting.

Decompaction should be undertaken only when soil conditions are sufficiently dry to avoid smearing or further structural damage.

5.8 Drainage and Runoff

The creation of sealed surface may alter local runoff patterns.

Uncontrolled runoff could carry sediment, hydrocarbons or other pollutants into retained habitats.

The drainage design should therefore ensure that:

- contaminated runoff is not discharged directly into grassland or boundary vegetation
- sediment is controlled during construction
- fuel and chemical storage areas are bunded
- spill-response materials are available

- drainage does not create prolonged waterlogging within the proposed acid grassland
- erosion is prevented at discharge points

Where sustainable drainage features are used, they should be designed to complement rather than compromise the habitat creation objectives.

5.9 Himalayan Balsam

Himalayan balsam is present within the other neutral grassland and adjoining vegetation.

Ground disturbance creates a risk of spreading the species through contaminated soil, seeds and plant material.

Without control, Himalayan balsam could colonise the proposed grassland and undermine the habitat target.

The following measures will therefore be required:

- stands should be identified before works begin
- affected areas should be clearly marked
- contaminated soil should not be moved into unaffected areas
- machinery should be cleaned before leaving affected zones
- vegetation should be controlled before seed set
- removed material should be handled and disposed of appropriately
- regrowth should be monitored and treated

5.10 Nesting Birds

The native hedgerow and adjoining vegetation provide suitable nesting habitat for common birds.

The main risk arises from hedgerow removal, cutting and access closure works.

Works should be undertaken outside the main nesting bird season wherever practicable.

Where this cannot be achieved, a pre-works inspection will be required.

Any active nest must remain undisturbed until the young have fledged and the nest is no longer in use.

5.11 Amphibians, Reptiles and Small Mammals

The affected grassland and vegetation may provide limited shelter for common amphibians, reptiles, hedgehogs and other small animals.

No dedicated survey is considered necessary due to the small scale and limited suitability of the affected habitats.

Precautionary working methods should nevertheless be used.

Vegetation should be cleared progressively and potential refuges should be lifted carefully.

Open excavations should be covered overnight or provided with a means of escape.

Any animal encountered should be allowed to move away from the works or carefully moved to nearby retained habitat by an appropriately experienced person.

5.12 Bats

The access works do not affect buildings or confirmed bat roosts.

Retained hedgerows and tree lines may be used by bats for commuting and foraging.

The principal potential effect relates to loss of linear habitat and increased lighting.

The new line of trees and reinstatement of the former access will provide replacement connectivity.

Permanent lighting should be limited and should not illuminate retained or proposed linear habitats.

5.13 Residual Effects

Following implementation of mitigation and habitat creation measures, residual ecological effects are expected to be minor.

The main permanent losses comprise:

- common modified grassland
- poor-condition other neutral grassland
- a short section of native hedgerow

These losses will be compensated through:

- creation and enhancement of other lowland acid grassland
- creation of an ecologically valuable line of trees
- closure and reinstatement of the existing access
- long-term habitat management
- invasive-species control
- protection of retained habitats

The statutory biodiversity metric records a net gain and confirms that the applicable trading rules are satisfied.

6. Biodiversity Net Gain Proposals

6.1 Overview

The Biodiversity Net Gain proposals have been developed to compensate for habitat losses associated with the new access and to deliver an overall measurable improvement in biodiversity value.

The proposed post-development habitats comprise:

- developed land and sealed surface associated with the permanent driveway
- other lowland acid grassland in good condition
- an ecologically valuable line of trees in moderate condition
- reinstated habitat at the closed existing access
- retained grassland and boundary vegetation protected from construction damage

The statutory biodiversity metric records:

- an area-habitat net gain of approximately 11.65%
- a hedgerow net gain of approximately 23.66%
- compliance with the applicable trading rules

6.2 Baseline and Post-Development Habitat Summary

Habitat	Baseline or proposed extent	Condition
Modified grassland	0.0507 ha baseline	Moderate
Other neutral grassland	0.0105 ha baseline	Poor
Native hedgerow	0.011 km baseline loss	Moderate
Developed land, sealed surface	0.0345 ha proposed	Not applicable
Other lowland acid grassland	0.0286 ha proposed	Good
Ecologically valuable line of trees	0.015 km proposed	Moderate

6.3 Other Lowland Acid Grassland

A total of approximately 0.0286 ha of other lowland acid grassland will be delivered within land adjoining the proposed driveway.

This comprises:

- 0.0045 ha created through enhancement of existing poor-condition other neutral grassland
- 0.0241 ha created through enhancement of existing moderate-condition modified grassland

The target condition is good.

The objective is to establish a low-productivity grassland community containing a varied mixture of fine grasses and native forbs, with reduced dominance by perennial rye-grass, common nettle, broad-leaved dock, creeping thistle and other nutrient-demanding species.

The habitat should develop towards a community associated with acidic to circumneutral sandy soils rather than being expected to display a fully characteristic acid-grassland flora immediately after establishment.

The target is supported by:

- the sandy nature of the soil
- likely relatively low cation exchange capacity
- low potassium status
- cessation of liming and nutrient inputs
- removal of vegetation arisings
- gradual loss of base cations through leaching and biomass removal
- long-term adaptive management

6.4 Target Grassland Characteristics

The proposed grassland should develop the following characteristics:

- a continuous but structurally varied sward
- a mixture of short and taller grassland areas
- increased cover of fine-leaved grasses
- increased native forb diversity
- reduced dominance by perennial rye-grass
- limited cover of nettle, dock and thistle
- no significant Himalayan balsam infestation
- low levels of bare ground after establishment
- no fertiliser, manure or lime inputs
- evidence of progression towards the applicable good-condition criteria

Species composition may initially include both acid-associated and neutral-grassland species because of the present soil pH.

This transitional character is acceptable during establishment provided that monitoring demonstrates a clear trajectory towards lower fertility and increased botanical diversity.

6.5 Grassland Establishment Method

Before habitat establishment, the area should be inspected to confirm:

- the extent of Himalayan balsam
- the cover of perennial rye-grass and other vigorous species
- the level of thatch accumulation
- any construction-related compaction
- the presence of bare or disturbed soil
- whether additional soil testing is required

The establishment method should include:

- control of Himalayan balsam before seed set
- close cutting of the existing vegetation
- removal of all arisings
- repeated cutting where necessary to weaken the existing sward
- scarification to expose suitable areas of bare soil
- localised removal of dense thatch
- decompaction where machinery has damaged the soil
- introduction of a suitable seed mixture or locally sourced green hay
- rolling or firming seed into contact with the soil without deep burial
- protection from vehicle movement and material storage

The grassland should not simply be overseeded into a dense productive sward without preparation.

6.6 Species Selection

The seed mixture should be suited to free-draining, low-fertility sandy soils and should contain a combination of fine grasses and native forbs capable of establishing across the expected acidic to circumneutral conditions.

Suitable grasses may include:

- common bent
- sweet vernal-grass
- red fescue
- sheep's fescue
- crested dog's-tail
- wavy hair-grass where locally appropriate

Suitable forbs may include:

- common cat's-ear
- heath bedstraw
- tormentil
- sheep's sorrel
- yarrow
- selfheal
- bird's-foot trefoil
- ribwort plantain
- mouse-ear hawkweed
- lesser stitchwort where locally appropriate

The final mixture should be reviewed before sowing to ensure that:

- all species are native and appropriate to the local area
- the mixture is compatible with the recorded soil conditions
- agricultural rye-grass cultivars are excluded
- the mix is not dominated by general-purpose meadow species
- species requiring strongly acidic conditions are not relied upon during early establishment
- seed is obtained from a reputable supplier with suitable provenance

6.7 Green Hay or Donor Material

Where a suitable local donor site is available and permission has been obtained, green hay or brush-harvested seed may be used to supplement the commercial seed mixture.

Any donor material should:

- come from a habitat appropriate to the target conditions
- be free from invasive species
- be free from significant dock, thistle or ragwort seed
- be spread promptly after collection
- not be sourced from a protected or designated site without appropriate consent

Green hay should not be treated as essential where no suitable donor site is available.

6.8 Ecologically Valuable Line of Trees

Approximately 0.015 km of ecologically valuable line of trees will be created.

The target condition is moderate.

The purpose of the new linear habitat is to:

- compensate for the loss of approximately 0.011 km of native hedgerow
- provide a continuous woody habitat feature
- improve connectivity along the access
- provide nesting and foraging opportunities for birds
- provide shelter and movement habitat for small mammals
- provide invertebrate resources
- provide commuting and foraging habitat for bats
- increase structural diversity within the site

6.9 Tree Species Composition

The line of trees should use a mixture of native species appropriate to the local landscape and soil conditions.

Suitable species may include:

- pedunculate oak
- silver birch
- downy birch
- rowan
- field maple
- goat willow
- holly
- hazel

The final mixture should take account of:

- available planting width
- proximity to the highway
- visibility requirements
- underground and overhead services
- drainage infrastructure
- mature canopy spread
- the need to avoid future conflict with the access

At least three native tree species should be included to reduce the risk of failure and improve ecological diversity.

6.10 Planting Layout

Trees should be planted to form a recognisable and continuous linear feature while allowing sufficient space for healthy crown development.

Planting should:

- follow the alignment shown on the habitat plan
- use irregular spacing where space permits
- avoid an overly formal ornamental appearance
- retain sufficient distance from the carriageway
- include lower-growing native shrubs where compatible with the metric classification
- maintain visibility and highway safety requirements
- protect tree roots from future vehicle overrun

The closed access should be incorporated into the linear habitat wherever this is compatible with the final layout.

6.11 Planting Stock and Establishment

Trees should normally be planted during the dormant season between November and March.

Planting stock should:

- be healthy and disease-free
- be of appropriate native provenance
- have a well-developed root system
- be free from major damage
- be planted at the correct depth
- be secured only where necessary

Each tree should receive:

- appropriate protection from browsing and accidental damage
- a vegetation-free establishment area where required
- watering during prolonged dry periods
- inspection for movement, damage and disease
- replacement if it fails during the establishment period

Plastic guards should be avoided where a suitable durable or biodegradable alternative is available.

6.12 Closure and Reinstatement of the Existing Access

The existing access will be closed and restored as a vegetated habitat feature.

The works should include:

- removal of redundant surfacing
- removal of unsuitable compacted sub-base where necessary
- careful retention of any suitable uncontaminated soil
- decompaction of the underlying ground
- reinstatement with compatible sandy soil where required
- integration with the proposed line of trees
- seeding of exposed grassland margins
- installation of measures preventing continued vehicle use

The area should not be filled with nutrient-rich imported topsoil.

Closure of the access should create a permanent habitat connection rather than leaving a narrow cosmetic planting strip over compacted material.

6.13 Developed Land and Sealed Surface

Approximately 0.0345 ha will become developed land and sealed surface as part of the permanent driveway.

This habitat has no meaningful botanical value and does not require ecological management as a habitat.

Management considerations relate instead to:

- preventing contaminated runoff
- maintaining functional drainage
- avoiding encroachment into adjoining habitats
- preventing vehicle overrun of the proposed grassland and tree line
- avoiding unnecessary permanent lighting

6.14 Strategic Relationship Between Habitats

The proposed grassland and line of trees should be delivered as an integrated habitat scheme.

The grassland will provide:

- nectar and pollen resources
- invertebrate habitat
- low vegetation structure
- transitional habitat beside the access

The tree line will provide:

- vertical structure
- shelter
- shade
- nesting opportunities
- woody habitat
- linear connectivity

Together, the habitats will provide greater ecological diversity than either feature would provide in isolation.

6.15 Metric Delivery

The habitat areas, lengths and target conditions within the HMMP must remain consistent with the final statutory biodiversity metric.

Any material change to:

- habitat type
- habitat area
- linear length
- target condition
- location
- establishment method

should be reviewed by a suitably qualified ecologist and checked against the metric before implementation.

The current post-development plan labels the proposed grassland as other neutral grassland, while the metric identifies other lowland acid grassland. The final plan should be amended so that the habitat name matches the metric and this HMMP.

7. Habitat Management and Monitoring Plan

7.1 Purpose of the HMMP

This Habitat Management and Monitoring Plan sets out the measures required to create, establish, manage and monitor the habitats proposed as part of the Biodiversity Net Gain scheme.

The plan applies to:

- 0.0286 ha of proposed other lowland acid grassland
- 0.015 km of proposed ecologically valuable line of trees
- the reinstated former access
- retained habitats adjoining the construction area
- areas affected by Himalayan balsam

The management prescriptions are intended to ensure that the habitats reach and maintain the condition targets recorded within the statutory biodiversity metric.

The plan should be implemented for the full period secured through the planning process or associated Biodiversity Gain Plan.

7.2 Habitat Management Compartments

For management purposes, the site should be divided into the following compartments.

Compartment	Habitat	Extent	Target condition
HM1	Other lowland acid grassland created from other neutral grassland	0.0045 ha	Good
HM2	Other lowland acid grassland created from modified grassland	0.0241 ha	Good
HM3	Ecologically valuable line of trees	0.015 km	Moderate
HM4	Closed and reinstated existing access	As shown on final plan	Integrated with adjoining habitats
HM5	Retained habitats and construction protection area	As retained	No deterioration

HM6	Himalayan balsam control area	Extent confirmed on site	Eradication or sustained suppression
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The final habitat plan should clearly identify the location and boundary of each management compartment.

7.3 General Management Principles

The following principles apply across all habitat compartments:

- no fertiliser, manure, slurry or lime should be applied to the proposed grassland
- nutrient-rich topsoil should not be imported into habitat creation areas
- cut grass and other vegetation arisings should be removed from the grassland
- vehicles and construction plant should remain outside completed habitat areas
- pesticides should not be used routinely
- herbicide should be limited to targeted treatment where necessary
- invasive species should be controlled before they set seed
- management should avoid the main nesting bird season where woody vegetation is affected
- monitoring findings should be used to adjust management where necessary
- any material change to the target habitat should be reviewed against the statutory biodiversity metric

7.4 Pre-Construction Requirements

Before construction begins, the following actions should be completed:

- confirm the final boundaries of the driveway and BNG habitats
- mark the proposed grassland creation areas
- mark the proposed line of trees
- identify retained hedgerows, trees and grassland requiring protection
- identify the extent of Himalayan balsam
- establish construction exclusion zones
- confirm the route of site access and material storage areas
- confirm that the final plans match the metric habitat areas and lengths
- undertake a nesting bird check where vegetation works fall within the nesting season

The contractor should receive an ecological toolbox talk before site clearance.

The toolbox talk should explain:

- the location of retained habitats
- the location of Himalayan balsam
- soil handling requirements
- nesting bird precautions
- restrictions on material storage
- pollution prevention measures
- procedures for unexpected wildlife encounters

7.5 Soil Handling

Soil handling is a critical part of the habitat creation process.

The following measures should be followed:

- soil should not be handled when waterlogged
- topsoil and subsoil should be stored separately where excavation occurs
- stockpiles should be kept as low as practicable
- stockpiles should not be placed within retained habitats
- soil should not be mixed with concrete, rubble or construction waste
- nutrient-rich imported topsoil should not be used within the grassland creation area
- sandy soil from the site should be retained where suitable
- compacted soil should be relieved before seeding
- soil should not be cultivated more deeply than necessary

Where the existing access is removed, any unsuitable sub-base should be taken away before habitat reinstatement.

7.6 HM1 and HM2 Other Lowland Acid Grassland

7.6.1 Management Objective

The objective is to establish and maintain a diverse low-productivity grassland community with a substantial component of fine grasses and native forbs.

The habitat should progressively show:

- reduced dominance of perennial rye-grass
- increased abundance of fine-leaved grasses
- increased native forb diversity
- low cover of nutrient-demanding species
- no significant Himalayan balsam infestation
- structural variation across the sward
- limited bare ground
- no scrub encroachment
- progression towards good condition

7.6.2 Initial Vegetation Preparation

Before seeding, the existing vegetation should be cut closely.

All arisings should be removed from the habitat area.

Where the sward remains dense and vigorous, preparation should include:

- repeated cutting during the preceding growing season
- scarification to expose approximately 40% to 60% bare soil
- removal of dense thatch
- localised turf reduction where necessary
- targeted control of docks, nettles and creeping thistle
- complete treatment of Himalayan balsam before seeding

The objective is to create sufficient open soil for seed establishment without causing unnecessary deep soil disturbance.

7.6.3 Seeding

Seeding should normally be undertaken during:

- early autumn between August and October
- spring between March and April where autumn sowing is not possible

Autumn sowing is preferred where ground conditions are suitable.

The seed should be:

- suitable for sandy acidic to circumneutral soils
- of native provenance where available
- free from agricultural rye-grass cultivars
- sown at the supplier's recommended rate
- broadcast evenly across prepared soil
- lightly rolled or firmed after sowing
- not deeply buried

The final species mix should be agreed by the project ecologist before purchase.

7.6.4 Establishment Management in Year 1

During the first growing season, the grassland should be cut whenever the sward reaches approximately 150 mm.

Cuts should reduce the vegetation to approximately 50 mm to 75 mm.

All arisings should be removed.

This may require between three and five cuts during the first year, depending on growth.

The purpose of establishment cutting is to:

- reduce shading of young seedlings
- suppress vigorous grasses
- prevent annual weeds from setting seed
- export nutrients
- encourage basal growth

Spot treatment may be undertaken for persistent docks, creeping thistle, nettles and Himalayan balsam.

Broad herbicide application should be avoided.

7.6.5 Management in Years 2 to 5

During Years 2 to 5, the grassland should receive:

- one early cut where vigorous spring growth occurs
- one principal late-summer cut
- removal of all arisings
- targeted control of undesirable species
- annual inspection for bare ground, scrub and compaction
- reseeding of failed areas where required

The main cut should generally occur between late July and September after flowering and seed set.

Where the sward remains highly productive, an additional spring cut may be necessary.

7.6.6 Long-Term Management

Once established, the grassland should normally be managed through one principal annual cut.

The cut should:

- occur after the majority of target species have flowered
- leave a sward height of approximately 50 mm to 100 mm
- remove all arisings
- retain approximately 10% to 20% of the area uncut on rotation where practicable

The uncut area should be moved each year.

This will provide overwintering habitat for invertebrates without allowing scrub or coarse grass dominance.

Where grazing is introduced, it should be:

- light
- carefully controlled
- undertaken during suitable ground conditions
- prevented from causing poaching
- excluded where it would conflict with highway safety or tree establishment

7.6.7 Undesirable Species Control

The following species should not become dominant:

- perennial rye-grass
- common nettle
- broad-leaved dock
- creeping thistle
- Himalayan balsam
- bramble
- dense rushes where not characteristic of the target

Control should be targeted.

Suitable methods include:

- repeated cutting
- hand pulling
- digging out isolated plants
- wiping or spot treatment with herbicide
- reseeding after localised treatment

Ragwort should be monitored in relation to land use and animal welfare requirements but should not automatically be treated as an ecological failure where present at low cover.

7.7 HM3 Ecologically Valuable Line of Trees

7.7.1 Management Objective

The objective is to establish a continuous and structurally diverse line of native trees in moderate condition.

The habitat should provide:

- continuous woody cover
- at least three native tree species
- varied age and canopy structure
- habitat connectivity
- nesting and foraging opportunities
- long-term replacement for the removed hedgerow section
- resilience to disease and climate stress

7.7.2 Planting Specification

The final species mixture should use native trees appropriate to the local area.

A suitable indicative composition is:

Species	Indicative proportion
Pedunculate oak	20%
Silver birch	20%
Rowan	20%
Field maple	15%
Hazel	10%
Holly	5%
Goat willow	5%
Downy birch	5%

The final mixture may be adjusted to reflect space, services and visibility requirements.

At least three canopy-forming native tree species should remain within the final design.

7.7.3 Planting Method

Planting should be undertaken during the dormant season.

Each planting location should be:

- free from rubble and construction waste
- adequately decompacted
- large enough to accommodate the root system
- planted at the correct depth
- firmed without excessive compaction
- protected from vehicle impact
- protected from browsing where necessary

Trees should not be planted directly into compacted road sub-base.

A vegetation-free area should be maintained around each tree during establishment.

7.7.4 Watering

Newly planted trees should be watered during prolonged dry periods.

Watering should be sufficient to wet the full rooting zone.

Particular attention should be given during:

- the first growing season
- the second growing season
- extended drought conditions
- periods following replacement planting

Watering frequency should respond to weather and soil moisture rather than follow a rigid calendar.

7.7.5 Tree Maintenance

Trees should be inspected annually during the establishment period.

Inspection should consider:

- survival
- stability
- guard condition
- ties and stakes
- disease
- browsing damage
- drought stress
- competing vegetation
- damage from vehicles or machinery

Failed trees should be replaced during the following dormant season.

Replacement planting should use the same species or another appropriate native species where repeated failure indicates poor suitability.

7.7.6 Pruning

Pruning should be limited to:

- removal of dead or damaged branches
- correction of structural defects
- maintenance of highway visibility
- prevention of direct conflict with the access
- health and safety requirements

Routine heavy pruning should be avoided.

Works affecting potential nesting habitat should take place outside the main nesting bird season unless preceded by an appropriate inspection.

7.7.7 Long-Term Tree Management

The line of trees should be allowed to develop a natural form.

Long-term management should include:

- retention of standing deadwood where safe
- retention of fallen woody material where appropriate
- replacement of significant failures
- control of invasive species
- prevention of vehicle encroachment
- periodic arboricultural inspection
- maintenance of continuity along the feature

Trees should not be removed solely because they have developed cavities or deadwood unless they present an unacceptable safety risk.

7.8 HM4 Closure and Reinstatement of the Existing Access

7.8.1 Objective

The objective is to restore the former access as a functioning vegetated habitat feature and prevent continued vehicle use.

7.8.2 Reinstatement Works

The works should include:

- removal of redundant surfacing
- removal of unsuitable sub-base
- decompaction of the underlying soil
- reinstatement with compatible soil where required
- planting associated with the line of trees
- seeding of exposed grassland margins
- installation of a permanent barrier to vehicle use

The completed surface should integrate with the adjoining ground levels.

Drainage should not create a permanent wet depression unless specifically designed as a habitat feature.

7.8.3 Nesting Bird Precaution

Any works affecting existing hedgerow or dense vegetation should be undertaken outside March to August inclusive where practicable.

Where this cannot be achieved, a pre-works nesting bird inspection should be completed.

If an active nest is found, the relevant area should remain undisturbed until the nest is no longer in use.

7.9 HM5 Retained Habitat Protection

Retained habitats should be protected throughout construction.

Protective measures should include:

- clearly marked construction boundaries
- exclusion of plant and vehicles
- no material storage
- no fuel storage
- no concrete washout
- no soil stockpiles
- no uncontrolled discharge
- no temporary lighting directed into retained habitats

Any accidental damage should be reported and repaired promptly.

7.10 HM6 Himalayan Balsam Management

7.10.1 Objective

The objective is to prevent the spread of Himalayan balsam and progressively remove it from the management area.

7.10.2 Control Method

Control should occur before seed set.

Suitable methods include:

- hand pulling
- cutting below the lowest node
- targeted treatment where necessary
- repeated visits throughout the growing season

Pulled plants should be:

- removed before seed pods mature
- placed away from watercourses and unaffected vegetation
- disposed of appropriately
- prevented from re-rooting

7.10.3 Biosecurity

Machinery and footwear should be cleaned before leaving affected areas.

Contaminated soil should not be moved into unaffected habitat creation areas.

The location and extent of treated stands should be recorded annually.

7.10.4 Monitoring Period

Monitoring should continue for at least three years after the last recorded plant.

Any recurrence should trigger renewed treatment.

7.11 Monitoring Schedule

Year	Grassland	Line of trees	Existing access	Invasive species
Construction	Check soil handling and protection	Check planting area protection	Check reinstatement works	Mark and control stands
Year 1	Two inspections	Two inspections	Check vegetation establishment	Multiple control visits
Year 2	Annual inspection	Annual inspection	Check continuity and damage	Annual control
Year 3	Annual inspection	Annual inspection	Check establishment	Annual control
Year 4	Annual inspection	Annual inspection	Remedial works if needed	Check for recurrence
Year 5	Formal condition assessment	Formal condition assessment	Confirm successful reinstatement	Confirm control status
Year 10	Condition assessment	Condition assessment	Check retained function	Check if required
Year 15	Condition assessment	Condition assessment	Check retained function	Check if required
Year 20	Condition assessment	Condition assessment	Check retained function	Check if required
Year 25	Condition assessment	Condition assessment	Check retained function	Check if required
Year 30	Final condition assessment	Final condition assessment	Final assessment	Final check

Additional monitoring should be undertaken where habitat failure or damage is identified.

7.12 Monitoring Method

Grassland monitoring should record:

- overall vegetation cover
- bare ground cover
- scrub cover
- dominant grass species
- native forb richness
- cover of perennial rye-grass
- cover of nettle, dock and thistle
- Himalayan balsam presence
- sward height and structural variation
- evidence of compaction
- evidence of nutrient enrichment

Tree-line monitoring should record:

- number of surviving trees
- species present
- continuity of the feature
- canopy development
- structural diversity
- browsing damage
- disease
- vehicle damage
- failed planting
- condition of guards and supports

Fixed-point photographs should be taken during each formal monitoring visit.

7.13 Reporting

A monitoring report should be prepared following each formal condition assessment.

The report should include:

- date and weather conditions
- habitats inspected
- management completed
- monitoring findings
- fixed-point photographs
- comparison against success criteria
- identified failures
- required remedial work
- responsible party
- target date for completion

Monitoring records should be retained for the full management period.

7.14 Adaptive Management

The prescriptions within this HMMP may be adjusted where monitoring demonstrates that the current approach is not delivering the intended outcome.

Adaptive measures may include:

- increasing cutting frequency
- altering cutting dates
- additional scarification
- supplementary seeding
- changing the species mixture
- further soil testing
- additional decompaction
- increased tree watering
- replacement of unsuitable tree species
- revised invasive-species control
- additional protection from vehicles or browsing

Any change that would alter the habitat type, target condition, area or length should be reviewed against the statutory biodiversity metric before implementation.

8. Success Criteria and Remedial Measures

8.1 Purpose

The success criteria define the measurable outcomes required for the proposed habitats to be considered successfully established and progressing towards the condition targets recorded within the statutory biodiversity metric.

The criteria apply to:

- other lowland acid grassland
- ecologically valuable line of trees
- the reinstated former access
- retained habitats
- Himalayan balsam control

Where monitoring identifies that a criterion is not being achieved, the corresponding remedial action should be implemented.

8.2 Other Lowland Acid Grassland Success Criteria

The proposed grassland should be considered successfully established where the following criteria are achieved.

Establishment criteria

By the end of Year 1:

- vegetation cover should be established across the majority of the habitat area
- bare ground should generally remain below 20%
- no extensive erosion or washout should be present
- seeded or introduced species should be visibly establishing
- Himalayan balsam should not be setting seed within the habitat area
- construction-related compaction should not prevent vegetation establishment

By the end of Year 3:

- a stable grassland sward should be present
- perennial rye-grass should no longer dominate the entire sward
- native forb richness should show an increasing trend
- nettle, dock and creeping thistle should remain localised rather than dominant
- scrub cover should remain low
- no fertiliser, manure or lime should have been applied
- management records should confirm removal of cut material

By the end of Year 5:

- the habitat should show a clear trajectory towards other lowland acid grassland
- fine-leaved grasses should form a substantial component of the sward
- native forbs should be distributed throughout the habitat rather than confined to isolated patches
- perennial rye-grass and other vigorous agricultural grasses should not dominate
- undesirable species should not collectively dominate the vegetation
- Himalayan balsam should be absent or under effective sustained control
- sward structure should include variation in height
- bare ground should generally remain below 10%
- scrub should not exceed 5% cover unless specifically required by the applicable condition assessment

The habitat should subsequently meet or remain on a credible trajectory towards the applicable good-condition criteria used by the statutory biodiversity metric.

8.3 Grassland Remedial Triggers

Remedial action should be triggered where:

- bare ground exceeds 20% after the first establishment year
- seedling establishment is poor or patchy
- perennial rye-grass remains overwhelmingly dominant
- nettle, dock or thistle become widespread
- Himalayan balsam is recorded
- scrub exceeds the target level
- the sward becomes uniformly tall and rank
- cut material is not being removed
- vehicle damage or soil compaction occurs
- monitoring identifies no improvement in botanical diversity
- soil conditions remain excessively fertile or unsuitable

8.4 Grassland Remedial Measures

Appropriate remedial actions may include:

- additional scarification
- supplementary seeding
- use of green hay from a suitable donor site
- additional establishment cuts
- earlier or more frequent cutting
- complete removal of accumulated arisings
- targeted control of undesirable species
- localised turf removal

- decompaction of damaged areas
- temporary fencing to prevent vehicle access
- repeat soil testing
- review of the seed mixture
- ecological review of the management regime

Where phosphorus continues to favour vigorous growth, additional biomass removal should be prioritised rather than adding soil amendments that could increase fertility.

8.5 Soil Trajectory Criteria

The habitat target does not depend on rapid soil acidification.

Success should instead be assessed by evidence that management is moving the area towards lower fertility and a more suitable vegetation community.

Indicators of a suitable trajectory include:

- no further nutrient or lime inputs
- declining dominance of productive grasses
- increasing fine-grass cover
- increasing acid-tolerant or low-fertility-associated species
- continued removal of biomass
- no evidence of imported nutrient-rich soil
- stable or gradually declining pH where repeat testing is undertaken
- stable or declining available phosphorus over the longer term

A failure of pH to decline rapidly should not, by itself, be treated as habitat failure where vegetation development remains consistent with the target trajectory.

8.6 Ecologically Valuable Line of Trees Success Criteria

The line of trees should be considered successfully established where the following criteria are achieved.

By the end of Year 1:

- all planting positions should contain living trees or scheduled replacements
- guards, stakes and ties should be secure
- no substantial vehicle damage should be present
- competing vegetation should not suppress young trees
- watering records should demonstrate appropriate establishment care

By the end of Year 3:

- at least 90% of the originally required planting positions should support healthy living trees following replacement planting
- at least three native tree species should remain represented
- the feature should form a recognisable continuous line
- no individual gap should materially interrupt habitat continuity
- trees should show evidence of annual growth
- browsing and drought damage should be limited

By the end of Year 5:

- the line should be structurally established
- trees should be self-supporting or approaching that stage
- guards and stakes should be removed where no longer required
- canopy development should be evident
- the feature should remain continuous
- no invasive species should dominate the planting area
- tree health should be generally good
- the feature should be progressing towards moderate condition

Over the long term, the habitat should contain:

- a mixture of native tree species
- varied canopy structure
- continuity along the feature
- limited artificial disturbance
- suitable understorey or ground vegetation
- retained deadwood where safe
- replacement planting where significant gaps develop

8.7 Tree-Line Remedial Triggers

Remedial action should be triggered where:

- survival falls below 90%
- repeated failure occurs in the same location
- a single species becomes excessively dominant
- vehicle damage occurs
- guards or ties damage tree stems
- drought stress affects establishment
- browsing suppresses growth
- the linear feature develops significant gaps
- invasive species dominate the ground layer
- trees conflict with visibility or access requirements
- disease threatens continuity

8.8 Tree-Line Remedial Measures

Appropriate actions may include:

- replacement planting during the next dormant season
- substitution with a more suitable native species
- improved watering
- revised guards or browsing protection
- removal or adjustment of ties and stakes
- weed control around planting stations
- localised decompaction
- installation of vehicle protection
- infill planting to restore continuity
- arboricultural assessment
- selective pruning where required for safety or structure

Replacement species should remain consistent with the target habitat and should not reduce native species diversity.

8.9 Reinstated Access Success Criteria

The former access should be considered successfully reinstated where:

- redundant surfacing has been removed
- unsuitable sub-base has been removed or appropriately treated
- no continued vehicle use occurs
- the soil has been decompacted
- vegetation has established across the former access
- the area connects physically with adjoining habitats
- no persistent bare or eroded surface remains
- drainage does not create erosion or prolonged unsuitable waterlogging
- tree planting remains intact where included
- no invasive species dominate

8.10 Reinstated Access Remedial Triggers

Remedial action should be required where:

- vehicles continue to use the closed access
- surfacing or compacted sub-base remains exposed
- vegetation fails to establish
- settlement creates a depression
- erosion develops
- planting is damaged
- the former gap remains ecologically disconnected
- Himalayan balsam colonises the area

Remedial measures may include:

- installation or repair of barriers
- further surfacing removal
- additional decompaction
- soil reinstatement
- reseeding
- replacement planting
- drainage correction
- additional invasive-species control

8.11 Retained Habitat Success Criteria

Retained habitats should show no material deterioration as a result of the development.

Success criteria include:

- no unapproved habitat loss
- no construction storage within protected areas
- no significant vehicle damage
- no pollution incident
- no unmanaged soil deposition
- no persistent artificial lighting of retained linear habitats
- no severance beyond that approved
- successful repair of any accidental damage

Any unauthorised damage should trigger immediate assessment and proportionate restoration.

8.12 Himalayan Balsam Success Criteria

The objective is eradication where achievable and sustained suppression where complete eradication requires repeated treatment.

Success criteria include:

- no plant allowed to set seed within the management area
- annual reduction in the number and extent of plants
- no transfer into the proposed grassland
- no new infestation associated with soil movement
- machinery and footwear biosecurity implemented
- no plants recorded for at least three consecutive growing seasons before control is considered complete

8.13 Himalayan Balsam Remedial Triggers

Renewed or intensified control should occur where:

- flowering plants are recorded
- seed pods develop
- the infestation expands
- plants appear within the proposed grassland
- contaminated soil is moved
- treatment visits are missed
- regrowth persists after the planned control period

Control frequency should be increased where plants continue to emerge through the growing season.

8.14 Nesting Bird Compliance Criteria

Works affecting hedgerow or dense vegetation should be considered compliant where:

- works occur outside the main nesting bird season
- or a pre-works inspection confirms no active nest
- any active nest is protected until no longer in use
- records of checks and delays are retained

Discovery or disturbance of an active nest should trigger immediate cessation of works in the affected area and ecological advice.

8.15 Adaptive Management Review

A formal review should be undertaken following each major monitoring assessment.

The review should consider:

- whether each habitat is meeting its success criteria
- whether the management regime remains appropriate
- whether climate or weather conditions have affected establishment
- whether soil conditions have changed
- whether invasive species control is effective
- whether replacement planting is required
- whether the metric target remains achievable
- whether additional specialist advice is needed

Minor changes to cutting frequency, timing, watering or replacement planting may be made through adaptive management.

9. Implementation, Responsibilities and Governance

9.1 Purpose

Successful delivery of the Biodiversity Net Gain habitats will depend upon clear responsibility for implementation, management, monitoring and remedial action.

This section identifies the roles required to ensure that the habitat measures are completed in accordance with the approved plans, statutory biodiversity metric and this Habitat Management and Monitoring Plan.

9.2 Responsible Parties

The landowner or appointed site manager will retain overall responsibility for ensuring that the habitat creation, management and monitoring measures are implemented for the full period secured through the planning process.

Specialist tasks should be undertaken by appropriately competent contractors or advisers.

The principal roles are expected to include:

- landowner or developer
- principal construction contractor
- landscape contractor
- suitably qualified ecologist
- arboricultural contractor where required
- invasive-species contractor where required
- person or organisation responsible for long-term land management

The same individual or organisation may fulfil more than one role where they have suitable competence and capacity.

9.3 Landowner or Developer Responsibilities

The landowner or developer will be responsible for:

- securing implementation of the approved habitat scheme
- appointing competent contractors
- ensuring that the final habitat areas and lengths match the approved metric
- providing contractors with the relevant ecological plans and specifications
- funding the establishment and management works
- maintaining monitoring records

- arranging remedial works where targets are not achieved
- preventing unauthorised changes to the habitat areas
- notifying any future land manager of the continuing obligations
- retaining the habitats for the full secured management period

The habitats should not be removed, reduced in area or converted to another use without appropriate ecological review and any necessary planning approval.

9.4 Construction Contractor Responsibilities

The principal construction contractor will be responsible for implementing the ecological protection measures during the works.

Responsibilities will include:

- attending the ecological toolbox talk
- working within the approved construction footprint
- respecting habitat protection fencing
- preventing storage within retained or proposed habitat areas
- following soil-handling requirements
- implementing pollution-prevention measures
- preventing the spread of Himalayan balsam
- complying with nesting bird precautions
- reporting accidental habitat damage
- reporting unexpected wildlife encounters
- ensuring that subcontractors understand the ecological constraints

The contractor should nominate a site representative responsible for day-to-day ecological compliance.

9.5 Landscape Contractor Responsibilities

The landscape contractor will be responsible for completing habitat establishment works in accordance with the approved specification.

Responsibilities will include:

- preparing the grassland areas
- removing vegetation arisings
- controlling undesirable species before sowing
- supplying the approved seed mixture
- sowing at the appropriate time and rate
- planting the line of trees
- installing guards, stakes and other protection where required
- watering new planting
- replacing failed plants

- retaining delivery notes and planting records
- avoiding substitution of species without approval

The contractor should confirm the provenance and composition of the seed and planting stock before installation.

9.6 Ecologist Responsibilities

A suitably qualified ecologist should provide oversight at key stages.

The ecologist's role should include:

- checking the final habitat layout against the metric
- confirming the grassland seed mixture
- reviewing planting species
- delivering or preparing the ecological toolbox talk
- undertaking nesting bird checks where required
- advising on Himalayan balsam control
- inspecting habitat establishment
- undertaking formal condition assessments
- reviewing monitoring results
- recommending remedial action
- confirming whether adaptive management remains consistent with the habitat target

Ecological attendance is not required for every routine maintenance visit, provided that the works follow the approved prescriptions.

9.7 Arboricultural Responsibilities

Where tree management requires specialist work, a competent arborist should be appointed.

This may include:

- formative pruning
- inspection of structural defects
- management of dead or damaged branches
- assessment of disease
- works required for highway safety
- advice on retention of deadwood
- replacement recommendations following tree failure

Tree work should retain ecological features wherever this can be achieved safely.

9.8 Invasive-Species Management Responsibilities

Himalayan balsam control should be undertaken by a person familiar with the identification, growth cycle and control of the species.

The responsible person should:

- inspect the management area during the growing season
- ensure treatment occurs before seed set
- record treated locations
- prevent contaminated material entering unaffected areas
- apply appropriate biosecurity
- arrange repeated treatment where regrowth occurs
- report the annual extent of the infestation

Where herbicide is used, it should be applied by an appropriately trained and authorised person.

9.9 Timing of Implementation

Habitat creation should be coordinated with the construction programme.

The general sequence should be:

1. Confirm the final development and habitat boundaries
2. Mark retained habitats and construction exclusion areas
3. Control Himalayan balsam within affected areas
4. Complete any required nesting bird checks
5. Undertake construction and access works
6. Remove redundant surfacing from the closed access
7. Relieve construction-related soil compaction
8. Prepare the grassland creation areas
9. Plant the line of trees during the dormant season
10. Sow the grassland during the appropriate sowing window
11. Begin establishment management
12. Complete the first monitoring inspection

Habitat establishment should not be left indefinitely following completion of construction.

9.10 Completion Inspection

A completion inspection should be undertaken after habitat creation works have been completed.

The inspection should confirm:

- grassland areas have been prepared
- the correct seed mixture has been applied
- tree numbers and species match the specification
- planting is located within the approved area
- guards and supports are correctly installed
- the former access has been decompacted and reinstated
- construction waste has been removed
- no significant bare or compacted areas remain
- retained habitats have not been damaged
- Himalayan balsam controls have been implemented

Any defects should be recorded and corrected within an agreed period.

9.11 Management Records

Records should be retained for all significant management actions.

Records should include:

- date of work
- habitat compartment
- type of work completed
- contractor or person responsible
- weather and ground conditions where relevant
- quantities of seed or planting stock
- species and provenance
- cutting dates
- confirmation that arisings were removed
- watering visits
- replacement planting
- invasive-species treatment
- photographs
- problems encountered
- remedial action completed

These records will help demonstrate that any slower-than-expected habitat development is not the result of omitted management.

9.12 Monitoring Reports

Formal monitoring reports should be produced at the intervals set out in the monitoring schedule.

Each report should include:

- site name and monitoring year
- date of inspection
- surveyor details
- habitats inspected
- management completed since the previous visit
- botanical findings
- tree survival and condition
- invasive-species findings
- fixed-point photographs
- comparison against success criteria
- identified failures
- recommended remedial actions
- timescale for remedial action
- person responsible

Reports should be retained by the landowner and made available to the local planning authority where required.

9.13 Remedial Works

Where monitoring identifies failure or deterioration, remedial measures should be completed within the next suitable management season.

Urgent matters should be addressed sooner where they involve:

- active pollution
- significant erosion
- uncontrolled vehicle damage
- spread of Himalayan balsam
- substantial tree failure
- unauthorised habitat removal
- disturbance of nesting birds

The completion of remedial works should be recorded and checked during the following monitoring visit.

9.14 Change Control

Minor changes may be made through adaptive management where they do not alter the agreed habitat type, extent or condition target.

Examples may include:

- changing the timing of a grassland cut
- increasing cutting frequency
- replacing a failed tree with another suitable native species
- modifying watering frequency
- adding localised scarification
- increasing invasive-species control visits

A formal ecological and metric review will be required where a proposed change would affect:

- the area of a habitat
- the length of the linear feature
- the habitat classification
- the target condition
- the location of the habitat
- the agreed management period
- the calculated biodiversity units

Material changes should not be implemented until the necessary approval has been obtained.

9.15 Transfer of Ownership or Management

Where the land is sold, leased or transferred during the management period, the new owner or manager should be provided with:

- the approved habitat plan
- this HMMP
- the statutory biodiversity metric
- previous monitoring reports
- management records
- details of outstanding remedial works
- the remaining duration of the management obligation

The transfer of land should not end or reduce the habitat management commitments.

9.16 Long-Term Safeguarding

The proposed grassland and line of trees should be safeguarded from activities that would prevent achievement of the habitat targets.

The following activities should not occur within the habitat areas unless specifically approved:

- application of fertiliser or lime
- conversion to amenity lawn
- regular short mowing
- storage of materials
- vehicle parking
- soil importation
- excavation
- installation of services
- removal of trees
- introduction of ornamental planting
- unmanaged discharge of runoff
- permanent lighting of the tree line

The habitat areas should remain clearly identifiable within future site management plans.

10. Conclusion

10.1 Summary of Baseline Conditions

The proposed access corridor affects parts of two grassland parcels and a short section of native hedgerow.

The relevant baseline habitats comprise:

- 0.0507 ha of modified grassland in moderate condition
- 0.0105 ha of other neutral grassland in poor condition
- 0.011 km of native hedgerow in moderate condition

The modified grassland is dominated by common productive species including perennial rye-grass, creeping buttercup, meadow foxtail and rough meadow-grass.

The other neutral grassland is rank and nutrient-influenced, with common nettle, Himalayan balsam, perennial rye-grass, broad-leaved dock, cock's-foot, meadow foxtail and creeping thistle recorded.

The affected vegetation does not represent species-rich neutral grassland, acid grassland or another priority grassland community in its current condition.

No rare, protected or otherwise notable plant species were identified within the affected strip.

The native hedgerow is the most ecologically valuable feature directly affected because it provides linear habitat continuity, nesting opportunities and shelter for common wildlife.

10.2 Soil Conditions

The soil laboratory results recorded:

- pH 6.9
- available phosphorus of 16.7 mg/l at Index 2
- potassium at Index 1
- magnesium at Index 2

The soil is not currently strongly acidic and the phosphorus concentration is above the lowest fertility range preferred for straightforward species-rich grassland establishment.

These results represent a constraint that requires active management but do not demonstrate that the proposed habitat is unachievable.

The sandy nature of the soil is relevant because sandy soils generally have relatively low cation exchange capacity and limited ability to retain base cations.

Under a long-term regime of no lime, fertiliser or manure inputs, together with repeated removal of vegetation arisings, the soil is expected to progressively lose nutrients and base cations.

This may allow gradual acidification and support the development of vegetation more characteristic of low-fertility acidic to circumneutral conditions.

The proposed habitat target should therefore be understood as a long-term trajectory rather than an immediate description of the existing soil or vegetation.

10.3 Ecological Effects of the New Access

The proposed driveway will result in the permanent loss of parts of the existing grassland and approximately 0.011 km of native hedgerow.

The grassland losses are limited in extent and affect vegetation of relatively low existing botanical quality.

The loss of modified grassland is considered minor and localised.

The loss of poor-condition other neutral grassland represents a localised adverse effect but does not involve the loss of a species-rich or notable grassland community.

Removal of the hedgerow section will create a local break within an existing linear feature. This impact will be compensated through the creation of a longer ecologically valuable line of trees and reinstatement of the former access.

Temporary construction risks include:

- damage to retained habitats
- soil compaction
- uncontrolled runoff
- pollution
- disturbance to nesting birds
- spread of Himalayan balsam

These risks can be controlled through the construction and ecological measures set out within this report.

10.4 Closure of the Existing Access

Closing the existing access is not expected to result in a significant adverse ecological effect.

The principal immediate constraint relates to potential nesting birds within hedgerow or dense vegetation.

Works affecting the boundary vegetation should therefore be undertaken outside the main nesting bird season, generally March to August inclusive.

Where this cannot be achieved, the affected vegetation should be inspected by a suitably experienced ecologist immediately before works commence.

Any active nest must remain undisturbed until the nest is no longer in use.

Once surfacing and unsuitable sub-base have been removed, the former access should be decompacted, restored and incorporated into the adjoining habitat scheme.

The closure will improve the continuity of the boundary habitat and reduce the existing break caused by vehicle access.

10.5 Proposed Habitat Delivery

The Biodiversity Net Gain proposals comprise:

- approximately 0.0345 ha of developed land and sealed surface associated with the driveway
- approximately 0.0286 ha of other lowland acid grassland in good condition
- approximately 0.015 km of ecologically valuable line of trees in moderate condition
- ecological reinstatement of the existing access
- protection of retained habitats
- long-term control of Himalayan balsam

The proposed other lowland acid grassland includes:

- 0.0045 ha created through enhancement of existing poor-condition other neutral grassland
- 0.0241 ha created through enhancement of existing moderate-condition modified grassland

The habitat will require active establishment and sustained low-input management.

The main requirements are:

- exclusion of fertiliser, manure and lime
- appropriate suppression of the existing productive sward

- control of Himalayan balsam
- introduction of suitable native seed or donor material
- repeated establishment cutting
- removal of all arisings
- long-term monitoring
- adaptive management where the habitat does not follow the expected trajectory

10.6 Biodiversity Net Gain

The statutory biodiversity metric records:

- an area-habitat net gain of approximately 11.65%
- a hedgerow net gain of approximately 23.66%
- satisfaction of the applicable trading rules

These results depend upon successful delivery of the habitat areas, lengths, types and condition targets entered into the metric.

The habitat plan, metric and this HMMP should remain consistent throughout implementation.

Any material alteration to the proposed habitat type, area, length or target condition should be reviewed by a suitably qualified ecologist and checked against the metric before implementation.

10.7 Overall Conclusion

The proposed access affects a limited area of common modified grassland, poor-condition other neutral grassland and a short section of native hedgerow.

No rare or notable botanical community has been identified within the affected strip.

The soil results identify moderate fertility and a neutral current pH but do not preclude the proposed habitat target.

The sandy soil and likely low cation exchange capacity provide a credible basis for gradual nutrient depletion and acidification under sustained low-input management.

The principal ecological impacts are capable of avoidance, mitigation and compensation through:

- appropriate timing of vegetation works
- nesting bird precautions
- construction controls
- protection of retained habitats
- Himalayan balsam management
- reinstatement of the former access
- creation of other lowland acid grassland
- creation of an ecologically valuable line of trees
- long-term habitat management and monitoring

Provided that the measures within this Ecological Statement and Habitat Management and Monitoring Plan are fully implemented, the proposed access is not expected to result in significant adverse ecological effects.

The proposed habitat scheme provides a reasonable and measurable pathway to deliver the Biodiversity Net Gain recorded within the statutory metric.

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