

BRITISH STANDARD 5837

TREE SURVEYS ARBORICULTURAL IMPLICATION STUDIES

TPO/PLANNING ADVICE/ PROJECT MANAGEMENT

TREE INVENTORIES AND RISK ASSESSMENTS

WOODLAND MANAGEMENT PLANS

TREE PLANTING SCHEMES

TPO RE-SURVEY



Knowsley Safari Park, Proposed Africa Hoof House

Ecological Scoping Assessment Report

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1 Introduction

1.1 Background

Kingdom Ecology have carried out an Ecological Assessment of an approximately 0.4ha area of land located at Knowsley Safari Park, Prescott, Knowsley (National Grid Reference SJ 4602 9486).

Survey has been carried out as part of a proposed planning application to construct a new animal house (the Africa Hoof House) to house safari park ungulates. The new animal house would be located within an existing area of rank grassland located immediately to the west of Park Farm. The new animal house will measure approximately 1130m² in area comprising of a portal framed shed with adjacent external compounds with sand floors. The location of the study site is shown on Figure 1 in the Appendix.

The purpose of the assessment was to identify any potential ecological constraints to the proposed works and to make recommendations to allow the development to deliver a biodiversity net gain. Field survey was undertaken on 12th July 2023. Surveys were carried out by Richard Roe (BSc, MSc, MIEEM, CEnv). Richard has extensive experience of undertaking protected species and habitat surveys as a professional ecological consultant with over twenty years' experience.

1.2 Purpose of Report

This report provides and outlines the findings of the field survey undertaken in July 2023.

Surveys aimed to identify habitats and species which are either of importance in terms of their conservation value or are afforded statutory legal protection. The presence of such habitats or species would form a material consideration during the planning process and could pose a constraint to the redevelopment of the site.

The field surveys comprised of an ecological walkover survey with a search for habitats that could support any protected species.

Following a description of the survey findings and an evaluation of habitats at the site, the report goes on to make recommendations for further works, mitigation and ecological enhancement measures to allow the development to deliver a biodiversity net gain.

1.3 Relevant Legislation

1.3.1 Birds

All wild birds in England and Wales are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird, or take, damage or destroy the nest (whilst being built or in use) or its eggs.

1.3.2 Brown Hare

Brown hare are listed as a species “of principal importance for the purpose of conserving biodiversity” covered under section 41 (England) of the NERC Act (2006) and therefore need to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity.

1.3.3 Bats

All British bat species are fully protected under the Wildlife and Countryside Act 1981 (as amended) and through their inclusion in Schedule II of the Habitats Regulations 2010 which transpose Annex II of the Council Directive 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (“EC Habitats Directive”) which defines European protected species of animals.

British bats species are afforded further protection by the Countryside and Rights of Way Act 2000; and the Natural Environment and Rural Communities Act 2006.

Taken together, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture bats.
- Deliberately disturb bats, whether at roost or not.
- Damage, destroy or obstruct access to bat roosts.
- Possess or transport bats, unless acquired legally.
- Sell, barter or exchange bats.

A bat roost is interpreted as “any structure or place, which any wild bat uses for shelter or protection.” (Bat Conservation Trust 2016¹). A bat roost is protected whether or not bats are present at the time.

¹ Bat Conservation Trust (2016) ‘Bat Surveys: Good Practice Guidelines 3rd Edition’

All species of British bat are considered a European Protected Species (EPS). The Conservation of Habitat and Species Regulations (2010) provide derogation against certain offences which could potentially affect an EPS through the EPS Licensing system.

1.3.4 Great Crested Newt

The great crested newt receives full protection under the Wildlife and Countryside Act 1981 (as amended) and through their inclusion in Schedule II of the Habitats Regulations 2010. This legislation makes it an offence to:

- intentionally kill, injure or take a great crested newt;
- disturb a great crested newt;
- intentionally or recklessly damage, destroy, obstruct access to a breeding site or resting place of a great crested newt;
- sell, offer for sale, possess or transport a great crested newt for the purpose of sale.

2 Field Survey Methods

2.1 Survey Aims and Objectives

The survey aim was to assess the site as to its ecological importance by assessing the value of habitats and their suitability to support any protected or notable species. The purpose of this was to highlight any ecological constraints associated with future development proposals.

Field survey comprised of an Extended Phase 1 Habitat Survey, this included an assessment of habitats at the site in terms of their suitability to support any protected species.

Species that are considered unlikely to be significantly affected by the proposed development, even if known to be present in the general vicinity, were 'scoped out' of the assessment.

2.2 Extended Phase 1 Habitat Survey

2.2.1 Methods

An Extended Phase 1 Habitat Survey of the study site was undertaken on the 12th July 2023. Survey was carried out following standard methodologies as described in the '*Handbook for Phase 1 Habitat Survey - a technique for environmental audit*' (JNCC, 2004²).

The aims of the Extended Phase 1 Habitat Survey were to:

- identify and map all areas of semi-natural habitat within the study area;
- provide a botanical description of the semi-natural habitats surveyed;
- identify areas or habitats that are of particular ecological interest for nature conservation and which require more detailed investigation;
- provide additional information regarding incidental observations of protected species and the potential of habitats to support such species.

² JNCC (2004) '*Handbook for Phase 1 Habitat Survey - a technique for environmental audit*'

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A habitat map was produced and lists of dominant or notable vascular plant species were recorded in each of the major habitat types where relevant. Typical habitats recorded at the site are also shown in photographs in the Appendix.

3 Survey Results

3.1 Site Description

The study area comprises of an approximately 0.4ha area of grassland located immediately to the west of Park Farm at Knowsley Safari Park.

Affected habitats comprise of tall, thistle dominated grassland and areas of marshy grassland.

No trees or areas of trees or tall woody vegetation will be affected by development proposals.

Immediately beyond the proposed new animal house, the adjacent land use comprises of further areas of unmanaged grassland and tall herb. Stock fencing extends around the perimeter of the wider compound, with scattered mature trees including sycamore and alder. There is a row of young silver birch running along the fence line immediately to the north-west of the proposed development area (Target Note 3 and Figure 2). Wider habitats to the north and west comprise of areas of grassland, grazed by safari park animals.

The site location, proposed development area and layout are shown on Figures 1 and 2 in the Appendix. Habitats are Target Noted on Figure 2 and are described below. Photographs of the site are provided in the Appendix.

3.2 Habitats and Protected Species

3.2.1 Habitats

The study site comprises of a combination of unmanaged, modified grassland and areas of marshy grassland habitat.

The site slopes downwards towards the northern boundary of the site and there are occasional damp hollows which are developed wetter, marsh habitats.

The grassland is located within a fenced enclosure which was previously used to hold sitatunga antelope. The enclosure is currently disused and so the grassland has grown tall and rank.

The area of drier grassland (Target Note 1) comprises of abundant Yorkshire Fog with frequent false oat-grass and patches of cock's foot with occasional common bent and rough Meadow-grass. The grassland has been nutrient enriched by antelope dung and so the grassland supports abundant creeping thistle and occasional common ragwort and broadleaved dock. For the purposes of the Biodiversity Net Gain assessment grassland was assessed as representing 'modified grassland' in a 'moderate' condition.

The areas of marshy grassland (Target Note 2) comprise of frequent Yorkshire fog with patches of tufted hair-grass, floating sweet-grass and creeping bent with rushes including soft rush, hard rush and jointed rush. Herbs present include broadleaved willow herb, creeping thistle, common ragwort and creeping buttercup. For the purposes of the Biodiversity Net Gain assessment grassland was assessed as representing 'other neutral grassland' in a 'moderate' condition.

There is a row of recently planted silver birch trees running along the northern boundary of the site (Target Note 3). The trees are estimated to be approximately 20 years old. These trees would not be affected by development proposals.

Habitats recorded at the study site are shown on Photographs and Target Noted on Figure 2 in the Appendix.

3.2.2 Protected Species

The proposed development will not affect any areas of hedgerow or trees. However, the areas of rank grassland habitat could be used by ground-nesting birds during the breeding season.

The affected areas of tall grassland habitat offer suitable habitat for brown hare. Brown hare were observed using grassland habitats within the wider Safari Park.

There is a row of shallow ponds located within the main Safari Park approximately 120 m to the south-west of the proposed development area. The ponds are of relatively recent origin, having been created in approximately 2014 to provide water features for Safari Park ungulates. The ponds are shallow, heavily poached and do not support any aquatic vegetation. The ponds are likely to dry out periodically and will suffer frequent disturbance from Safari Park animals.

The waters within pond were observed to be very turbid and they are likely to be frequently churned up.

Given the recent origin of the ponds, the relatively low suitability of aquatic habitats within the ponds and the high levels of disturbance, it is considered to be unlikely that they would support breeding great crested newt.

There are no other ponds or other significant water bodies located within 250m of the proposed works area, therefore it is considered to be very unlikely that great crested newt would be affected by development proposals. Photographs of the ponds are provided in the Appendix.

There is known to be a brown long-eared bat roost and pipistrelle roosts within the farm buildings of the adjacent Park Farm.

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However, the proposed will not affect the farm buildings and will not affect any of the trees or scrub habitat which runs around the perimeter of the study area and which could offer potential bat commuting routes.

There is also no additional lighting proposed as part of the new Africa Hoof House. Therefore, it is very unlikely that the proposals will significantly affect roosting bats using the adjacent Park Farm buildings or their associated foraging or commuting habitats.

No other protected or notable species are considered likely to be present at the study site.

4 Evaluation

4.1 Summary

4.1.1 Habitats

Development proposals will affect an approximately 1130m² area of land comprising of unmanaged modified grassland and marshy grassland.

The grassland habitats are not considered to be of any significant botanical value in their own right; with habitats present commonly occurring within similar areas of neglected agricultural land and areas of damp unmanaged grassland.

Nevertheless, such habitats are still considered to be of minor biodiversity value. The grassland habitats are likely to provide habitat for various common local wildlife including small mammals, invertebrates and birds.

In order to compensate for the loss of grassland habitats and to ensure that the development proposal achieves a biodiversity net gain, it is recommended that other areas of low value grassland located at the Safari Park are enhanced to provide replacement neutral grassland habitat.

An appropriate area of grassland has been identified along the side the access road leading to the main car park. This is shown as grassland habitat 2 on Figure 3.

Further information on this grassland habitat, its future management and biodiversity net gain calculations are provided in Section 5.

4.1.2 Brown Hare

Brown hare are present in the surrounding landscape and may be present within proximity to the proposed works area

It is recommended that a tidy works area is maintained throughout with any hazardous substances or materials fenced off from mammals.

Where any trenches or pits must be left open overnight, these should be fitted with mammal ramps or be engineered with sloping sides so that animals do not become trapped within.

4.1.3 Breeding Birds

The tall grassland habitat may be used by nesting birds during the nesting bird season (March-August inclusive). Therefore, works to clear grassland habitats should be completed outside of the breeding bird season.

Where this is not possible, a check for breeding birds should be carried out a maximum of 48 hours before vegetation removal by an appropriately qualified ecologist.

4.1.4 Bats

To enhance surrounding habitats for bats and nesting birds, it is recommended that bat and bird boxes are installed on retained mature trees around the perimeter of the site. These should comprise of at least 2 x tree mounted bat boxes (comprising of Schwegler 2F Bat Boxes or CJ Wildlife Large WoodStone Bat Boxes or similar); and 2 x tree mounted bird boxes (comprising of Schwegler 1B nest boxes with 26mm entrance holes or similar).

The tree mounted bat boxes should be positioned on retained mature sycamore trees located around the existing perimeter fence. The boxes should be installed at a minimum height of 4m, positioned to avoid having a north facing aspect, and positioned so that the bat box entrance and bat flight lines below the entrance are not obstructed by vegetation (this may require some twigs and young branches to be removed within at least 1m beneath the bat box entrance).

The tree mounted bird boxes should also be positioned on mature trees around the fence. The boxes should be installed at a minimum height of 3m, located in a sheltered location and positioned so that the bird box entrances are not obstructed by vegetation.

5 Biodiversity Net Gain and Enhancement Recommendations

5.1.1 Overview

In order to ensure that the development achieves a biodiversity net gain, it is proposed that new areas of grassland habitat of biodiversity value are created at the Safari Park.

In order to calculate the appropriate area of compensation habitat required, the relative biodiversity value of the existing habitats at both the proposed development site and within the proposed mitigation grasslands have been calculated in terms of 'biodiversity units' following methodologies and using tools provided within the Natural England Biodiversity Metric Calculator Version 4.0.

An appropriate area of mitigation grassland has been identified on the access roads leading to/from the main entrance to the car parks. This is shown as Grassland Area 2 on Figure 3. Grassland Area 1 as shown on this plan is a further area of mitigation grassland to be provided as part of an additional planning application (the new Baboon House). It is proposed that the two areas of grassland are managed to create blocks of neutral grassland habitat which is managed to promote its biodiversity value.

5.1.2 Existing Grasslands in Mitigation Area

The existing grassland in areas 1 and 2 are of relatively limited biodiversity value. The grasslands are species-poor and grass dominated with an average of six species per metre square. The grasslands are mown short with the arisings left on site.

Grassland Area 1 extends to approximately 1500 m² whilst Grassland Area 2 extends to approximately 2500 m².

The grasslands comprise principally of perennial rye-grass and red fescue with occasional Yorkshire fog. Other grass species recorded include sweet vernal grass and common bent.

Forbs recorded in the sward include white clover, creeping buttercup, common mouse-ear, common ragwort, selfheal, cat's ear, common sorrel, dandelion, yarrow, bird's foot-trefoil, ox-eye daisy, meadow buttercup and rough hawkbit.

Although the species present are largely indicative of modified, nutrient enriched grasslands, there are some species present which indicate that the grasslands could be enhanced to provide a more species-rich habitat.

It is recommended that the grasslands are enhanced through some minor habitat creation and through modifications to how the grasslands are managed.

With regards to the biodiversity net gain calculation, the grasslands were assessed as representing 'modified grassland' in a 'moderate' condition. Proposals are to enhance this grassland to provide 'neutral grassland' also in a 'moderate' condition.

5.1.3 Habitats Creation and Management

Grassland Mitigation Area 2 covers an area of approximately 2500 m². This habitat currently comprises of relatively species-poor, modified grassland. The grassland is shown in Photograph 5 in the Appendix.

It is proposed that it is instead managed as a hay-meadow type habitat and species diversity within the grassland sward is enhanced through the creation of establishment gaps scattered throughout the grassland.

The establishment gaps should each measure approximately 4 m² in area. Approximately 60 such gaps should be scattered throughout the grassland. Within the gaps, areas of bare ground should be created by either digging, rotavating or raking. The establishment gaps should be over sown with an appropriate wildflower seed mix (e.g. Emorsgate EM1 General Purpose Meadow Mix). Management to allow the establishment of wildflowers within the establishment gaps should follow methodologies as provided by Emorsgate Seeds.

Once established, the grasslands should be managed as a hay meadow type habitat. The grassland should remain un-cut until late July. Following the hay cut, the grassland should be taken away from site. The cut grass must not be left on site to form a thatch as this can repress the establishment of more desirable plant species. Under no circumstances, should the grasslands be fertilised.

It is considered that the enhancement of the grassland and management as hay meadow, will allow the grassland to develop into more species-diverse, neutral grassland habitats.

An appropriate habitat creation and management plan would be produced and the grasslands will be managed over a minimum 30 year period.

5.1.4 Biodiversity Metric Calculation Results

For the purposes of the biodiversity net gain calculation, it has been assumed that all the above recommended habitat enhancements will be incorporated into the development. Where this is not possible, the biodiversity metric calculation will need to be revised.

Based upon these assumptions and taking account of the on-site and off-site proposals, the relative biodiversity units at the site before and after the development's completion have been calculated following methodologies and using tools provided within the Natural England Biodiversity Metric Calculator Version 4.0.

A summary table of these calculations is provided in the Appendix. The full Biodiversity Metric Calculation Tool Spreadsheet for the site has also been submitted.

The baseline biodiversity units (i.e. the site's pre-development condition) has been calculated at 0.54 Habitat Units. These will all be lost to the development.

The baseline biodiversity units of the proposed mitigation grassland has been calculated at 1.0 Habitat Unit. Following the completion of habitat and creation and management of the grassland these will result in an uplift to 1.70 Habitat units.

The combined net unit change between the development site and the mitigation site would therefore be **a net increase of 0.16 Habitat units representing a 30.65% biodiversity net gain.**

6 Appendix

PHOTOGRAPHS

Photograph 1 -Dry grassland habitats at Target Note 1



Photograph 2 - Marshy habitats at Target Note 2



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Photograph 3 – Birch trees at Target Note 3



Photograph 5 – Shallow ponds to South of site



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Photograph 5 - Existing proposed mitigation grassland habitats



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Biodiversity Net Gain Summary

On-site baseline	Habitat units	0.54	
	Hedgerow units	0.00	
	Watercourse units	0.00	
On-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
On-site net change (units & percentage)	Habitat units	-0.54	-100.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%
Off-site baseline	Habitat units	1.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	1.70	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change (units & percentage)	Habitat units	0.70	70.03%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.16	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Spatial risk multiplier (SRM) deductions	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
FINAL RESULTS			
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.16	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	30.65%	
	Hedgerow units	0.00%	
	Watercourse units	0.00%	
Trading rules satisfied?	Yes ✓		

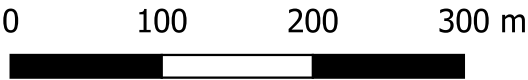
FIGURE 1- Site Location



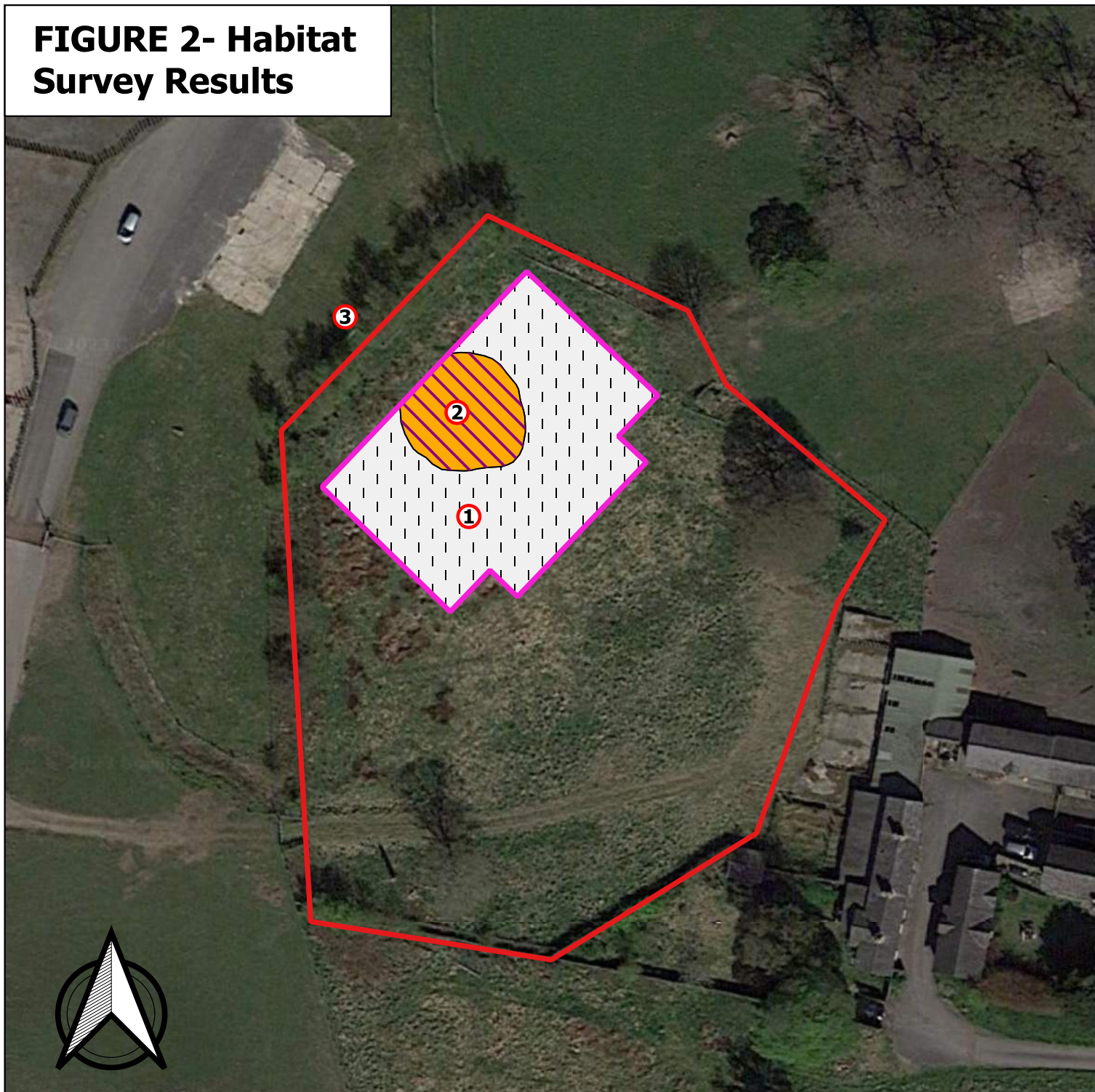
KEY



Study Site



**FIGURE 2- Habitat
Survey Results**



KEY



Proposed Development Area



Target Note



Fence



Improved grassland



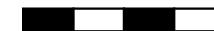
Marsh/marshy grassland



Planning boundary

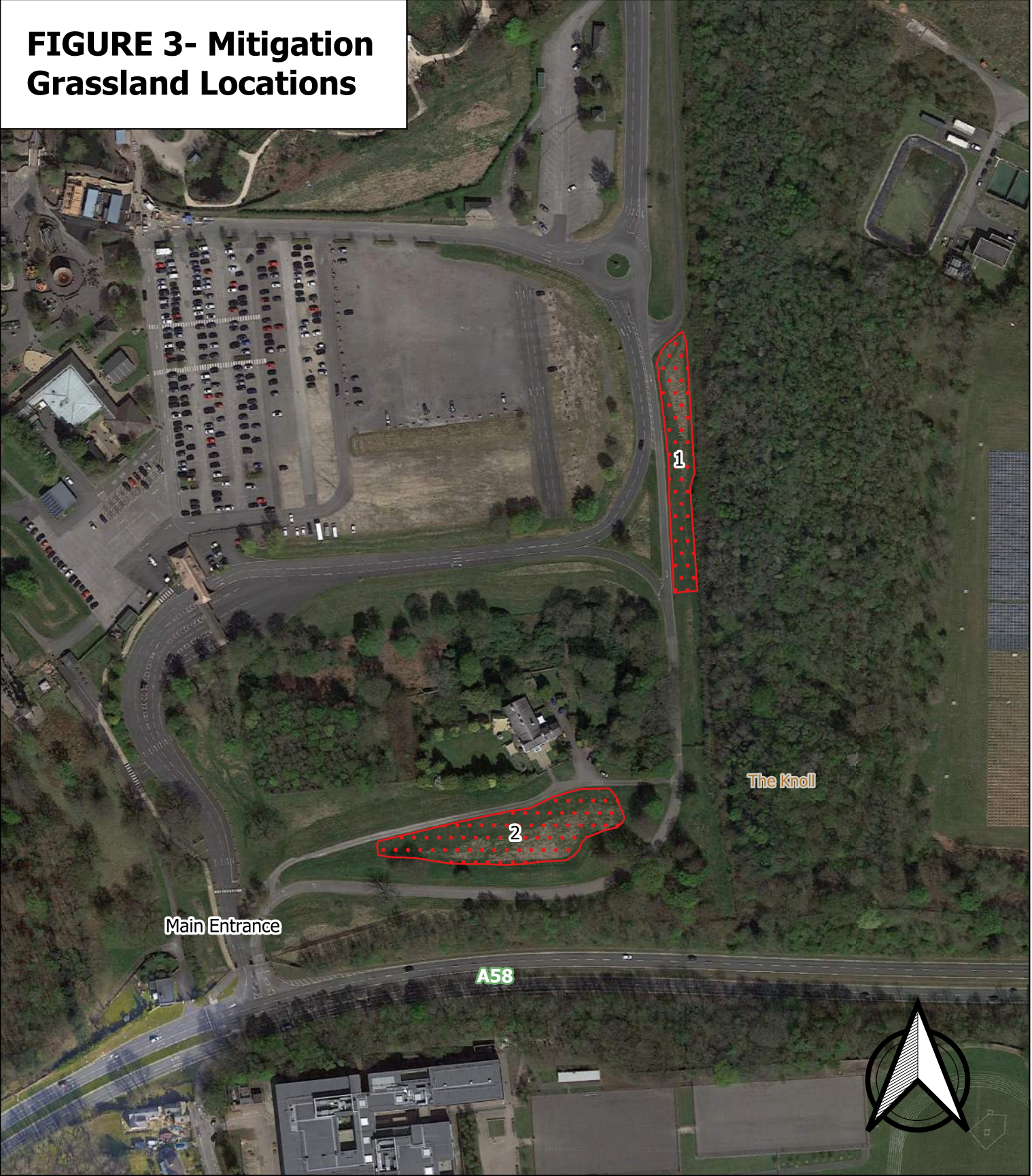


0 5 10 15 20 m



Map data ©2023 Google

**FIGURE 3- Mitigation
Grassland Locations**



KEY



Mitigation Grassland

