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BNG Impact Assessment and Enhancement Plan

Land Off Penny Hill Road, Holbeach

Ben Dawson

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Quality Management

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1 INTRODUCTION

- 1.1 This report has been prepared by Ecology Resources Ltd on behalf of Mr. Ben Dawson (the 'Applicant' hereafter) in relation to a development proposal at Land East of Penny Hill Road (interchangeably referred to as 'the Site' or 'the proposed development' hereafter), located within the town of Holbeach, Lincolnshire. The outline of the Site can be viewed in Figure 1 - Site Location Plan.

The Proposal

- 1.2 The Applicant is seeking planning approval for the development of the Site into six residential plots with associated driveways and car ports.
- 1.3 Biodiversity losses associated with the proposed development will be addressed through a combination of habitat creation and enhancement, consisting of tree, scrub and hedgerow planting and the establishment of a swathe of wildflowers along the Site's northern boundary.

Assessment Purpose

- 1.4 This report outlines and interprets the outcome of the Biodiversity Impact Assessment calculation delivered through the Statutory Metric¹ (the Metric hereafter) and sets out high-level recommendations for habitat enhancement and creation within the Site.

Site Location and Context

- 1.5 The Site is located at grid reference TF 36152 25705 (centroid) and covers an approximate area of 0.49 ha. The location of the Site is shown in Figure 1. It is situated on the northern edge of Holbeach, Lincolnshire with open arable countryside to the north, east and west.
- 1.6 The wider landscape is a patchwork of arable fields and villages interspersed with drains, small country roads and pockets of woodland. Old River Drain runs in a north-south direction, 11m from the eastern boundary of the Site and Penny Hill Road forms the Site's western boundary.
- 1.7 The Site comprises a horse grazed paddock surrounded by close board fencing, with a smaller section of gravel and ruderal/ephemeral vegetation in the southwest corner.

¹ Biodiversity Defra Statutory Metric - Calculation tool (November 2023)

2 METHODOLOGY

- 2.1 In the context of BNG, the classification and assessment of onsite habitats was underpinned by the UK Habitat classification method². The specifics of the survey approach are provided in the paragraphs that follow.

Desk-top Assessment

- 2.2 A full desktop review was not carried out as part of this exercise as any relevant information could be sourced from the existing Ecology Management Scheme³. Desk-based information gathering was delivered interrogating the following resources:

- Google Earth[®] aerial photography
- Magic Map - <https://magic.defra.gov.uk>
- NLS Historic Maps - <https://maps.nls.uk/>
- Living England Habitat Map - <https://naturalengland-defra.opendata.arcgis.com/datasets/b3069e7cb3084732b92478b3db51b9c6>

- 2.3 In line with the Metric's latest guidance, determination of *strategic significance* is based on the rules set out in Table 1. Where the relevant published Local Nature Recovery Strategy (LNRS) is not yet available for consultation, the assessment is based on the criteria and/or documentation listed below:

- Proximity to a nationally or locally designated site(s) (i.e. SSSI, NNR, LNR) and to a notable watercourse (i.e. river width exceeding 5m)
- Proximity to Priority and Irreplaceable Habitats
- Local Plans and Core Strategies
- BAPs
- Tree strategies, primarily to determine the strategic significance of urban trees
- River basin and management plans, to determine the strategic significance of river and streams.

Table 1. Strategic Significance assessment criteria

Category	Description
High	Locations/habitats featuring in a published LNRS and in the Local Habitat Map as an area where a potential measure has been proposed to help deliver the LNRS priorities. Where there is no published LNRS, the habitat type is mapped and described as locally ecologically important within the documents listed in Para. 2.3 If a project can deliver the measure(s) set out in the LNRS or alternative strategy (where the LNRS is not yet available), but the baseline habitat(s) does not qualify as high, strategic significance will be recorded as low in the baseline and as high in the post-intervention worksheet. Reference shall always be made to the plan/document used to determine strategic significance in the "comments" column of the Metric's worksheet.
Medium	Where the LNRS is not published or the habitat and/or location is not included within other LPA strategic documents, the ecologist applies his professional judgement to

² UK Hab Ltd (2023). UK Habitat Classification V2.0 (at <https://www.ukhab.org>)

³ Parry J. (2023) Ecology Management Scheme. *Land off Penny Hill Road, Holbeach*. Wild Frontier Ecology. Norwich

Table 1. Strategic Significance assessment criteria	
Category	Description
	determine how the habitat type is ecologically important within a specific location. This can be demonstrated, for example, by making reference to the habitat's functionality within the wider landscape (i.e., the provision of ecological linkage).
Low	Where the definitions for high and medium strategic significance are not met. If the project is within a plan area, but if it does not deliver the specific actions outlined in such plan(s), strategic significance is recorded as low in both the baseline and post-intervention sheets.

Trading Rules Definition

- 2.4 The Metric categorises habitats based on distinctiveness, which ranges from very low, to very high. The attribution of distinctiveness is automated and cannot be manually interfered with.
- 2.5 The trading rules set out clear terms for the delivery of post-intervention habitat enhancement/creation based on the distinctiveness and type of the baseline habitat being lost, up to the point of 'No Net Loss'. For clarity, '*band*' identifies the degree of distinctiveness, and '*type*' the characterising biotic and abiotic elements of a given habitat, respectively. For example, a stand of blackthorn is a *medium* band habitat of the *heathland and scrub* type.
- 2.6 Once trading rules have been met, biodiversity net gain requirements can be delivered through the creation and enhancement of any habitat, as long as relevant to the applicable module; this is to say that the delivery of +10% for 'area habitats' can only be achieved by creating 'area habitat' units, and so on.
- 2.7 A breakdown of the trading rules applicable to each module is provided in Table 2.

Table 2. Trading rules summary			
Habitat distinctiveness	Area habitat	Hedge	Watercourse
Very High	Bespoke agreement with LPA required. Avoidance strongly encouraged.	units of the same habitat type required	Bespoke agreement with LPA required. Avoidance strongly encouraged.
High	units of the same habitat type required	units of the same type or higher band habitat required	units of the same habitat type required
Medium	either units of medium band habitats (within the same broad habitat type) or any habitat of a higher band from any broad habitat type required	Losses must be replaced with hedgerow units of the same or of a higher band	Losses must be replaced with watercourse units of the same habitat type
Low	units of the same or higher band required (can be of different broad habitat type)	units of the same or of a higher band required (broad habitat type can be different)	watercourse units of a higher band required
Very low	Not applicable	units of the same or higher band required (broad	Not applicable

Table 2. Trading rules summary			
Habitat distinctiveness	Area habitat	Hedge	Watercourse
		habitat type can be different)	

2.8 Whilst, in exceptional circumstances, the Local Planning Authority may permit deviation from the above rules, Applicants should expect their application to be widely enforced and therefore seek to:

- *minimise* impact on medium distinctiveness, and
- *avoid* impact on high and very high distinctiveness habitats *by design*.

Field Survey

2.9 Habitats were surveyed adopting the UK Habitat classification method and subsequently adapted to the Metric's, which deviates slightly from its parent methodology particularly in the context of urban habitats. The highest level of UK Hab Primary Habitat Hierarchy recorded was Level 4 (i.e., u1b). Although irrelevant to the compilation of the Metric, secondary codes (numerical codes that describe a particular attribute of the surveyed habitat) may also have been noted for reference.

2.10 Habitat parcels and linear features may require the attribution of a condition score. The condition score is a measure of the habitat's quality benchmarked against the UK Habitat's definition of the habitat when found in optimal condition and on other criteria that are set out in the relevant habitat condition assessment sheets.

2.11 It should be noted that some habitats (e.g., u1b - developed land-sealed surfaces) are exempt from condition assessment because intrinsically ecologically poor.

2.12 Where applicable, habitat condition is recorded as either GOOD, MODERATE OR POOR. Apart from rivers and streams, which are assessed via a methodology designed to capture intermediate values on a numerical scale from 1 to 5, the use of "fairly good" or "fairly poor" is deliberately avoided as it adds an element of subjectivity.

2.13 Parcels/lengths of a given habitat displaying a variation in condition are split into sub-parcels to reflect such change. This is so that the habitat is attributed the correct unit value in the Metric. Survey metadata are summarised in Table 3.

Table 31. Field survey metadata	
Scope of survey	Classification and condition assessment of terrestrial habitats
Survey Date(s)	25 th June 2024
Weather Conditions	Dry, clear skies, 26°C
Field surveyor(s)	Ben Turner MSc, Ecologist
Surveyors' Organisation	Ecology Resources Ltd
Habitat area	ca. 0.49ha
Survey Methodologies	UKHab v2.0
Minimum Mapping Unit (areas)	25m ² (5m x 5m)
Minimum Mapping Unit (lines)	> 1m (refer to Hedgerow assessment)

Table 31. Field survey metadata	
Terrestrial Habitat Coding	Habitats are coded based on the area cover which is set to $\geq 70\%$; a change of habitat is recorded when there is a change of primary habitat or secondary code (but only when greater than MMU)
Level of UK Hab Primary Hierarchy	Level 2
Additional Attributes Recorded	Annotations made in the attribute table of the applicable shapefile
Map Projection and Units	OSGB1936/British National Grid, metres
Data Collection Apps	<i>QField</i> (QGIS ⁴ field collection app) to map terrestrial habitats and condition assessment data
GIS Dataset	Google Satellite Imagery Polylines and points collected at the time of survey

Survey Limitations

- 2.14 No limitations were encountered when delivering the habitat survey. The survey was delivered at a suitable time of year where plant identification could be reliably undertaken.

Spatial Data Collection and Processing

- 2.15 GIS field data collection is carried out using an Android mobile device, using a bespoke survey app built by Ecology Resources in adherence with the Metric's GIS data standards⁵, for use in QField Cloud⁶.
- 2.16 Geometries and attributes of any polygons and lines drawn on Site are imported and reviewed in QGIS, and baseline data is subsequently fed to the Metric using a dedicated "Import tool"⁷. The post-development Unit score is determined by overlaying the Site layout provided by the Client (in this instance, "1514-6_SK_SP01 Rev A", provided by Robert Doughty Consultancy) with the habitat baseline and "subtracting" as required. Data is once again fed to the Metric via the Import tool.
- 2.17 The Metric is a macro-enabled Microsoft Excel spreadsheet designed to enable a quantified assessment of the biodiversity value of a given site, pre and post development. This is achieved by attributing habitats a Unit value, based on their distinctiveness and condition.
- 2.18 The Metric was compiled by Ben Turner, Ecologist at Ecology Resources, on the 17th September 2024.

⁴ QGIS Version 3.28.5-Firenze

⁵ The Biodiversity Metric 4.0 and Small Sites Metric - GIS Data Standard

⁶ <https://qfield.cloud/>

⁷ Metric 4.0 - GIS Import Tool

3 QUANTIFIED IMPACT ASSESSMENT RESULTS

Introduction

- 3.1 This section discusses the results of the Metric calculations applicable to pre- and post-development.

Baseline Habitat Assessment

- 3.2 Table 3 outlines the results of baseline calculations for habitats (A-1). The location and extent of each habitat can be viewed in Figure 2.

Table 3. Baseline habitat assessment results						
	Habitat ID	Primary Habitat (name)	UK Hab Primary Code (sec code)	Area (ha) / Length (km)	Condition	Units
A-1 (Habitats)	H1	Modified grassland	g4	0.405	Moderate	1.62
	H2	Developed land; sealed surface	u1b	0.035	N/A - Other	0.00
	H2	Developed land; sealed surface	u1b	0.003	N/A - Other	0.00
	H3	Ruderal/Ephemeral	(81)	0.005	Poor	0.01
	H3	Ruderal/Ephemeral	(81)	0.012	Poor	0.02
	H4	Ruderal/Ephemeral	(81)	0.029	Poor	0.06
BASELINE HABITAT UNITS						1.71

- 3.3 The strategic significance of baseline A1 (Habitats) has been determined through consultation of the Lincolnshire Biodiversity Action Plan⁸, Greater Lincolnshire Nature Partnership Strategy⁹ and of Southeast Lincolnshire Local Plan¹⁰.
- 3.4 All baseline habitats have been assigned 'Area/compensation not in local strategy/no local strategy' due to their low ecological value, with consideration to other habitats in the local area.

⁸ Greater Lincolnshire Nature Partnership (2015). *Lincolnshire Biodiversity Action Plan*. GLNP. Horncastle. 2nd rev.

⁹ <https://glnp.org.uk/our-services/nature-strategy>

¹⁰ <https://southeastlincslocalplan.org/>.

Habitat Loss through Development

3.5 Table 4 outlines the extent of habitat loss incurred as a result of the proposed development.

Table 4. Habitat Units lost to development					
	Metric ID	Primary Habitat (name)	UK Hab Primary Code (sec code)	Area (ha) / Length (km) loss	Units loss
A-1 (Habitats)	1	Modified grassland	g4	0.4	1.62
	2	Developed land; sealed surface	u1b	0.04	0
	3	Ruderal/Ephemeral	81	0.02	0.03
	4	Ruderal/Ephemeral	81	0.03	0.06
BASELINE HABITAT UNITS LOST					1.71

3.6 All losses incurred result from the construction of the residential plots and associated infrastructure.

Post-intervention Assessment

3.7 Table 5 interprets the outcome of the Metric's 'Creation' results and shows the area to which the action(s) apply, the proposed target condition and the Biodiversity Units created. The post-development scenario has been based on the Site layout submitted by the Client.

Table 5a. Habitat units delivered through creation						
ACTION	Baseline Habitat	Proposed Habitat	Area (ha)	Target Condition	Time to Target condition	BNG Units Created
CREATION	Modified grassland	Developed land; sealed surface	0.1734	N/A	0 y	0
		Modified grassland	0.0035	Poor	1 y	0.01
		Other neutral grassland	0.027	Poor	2 y	0.1
		Vegetated garden	0.1943	N/A	1 y	0.37
		Rural trees	0.0529	Moderate	27 y	0.19
	Developed land; sealed surface	Modified grassland	0.0025	Moderate	4 y	0.01
		Vegetated garden	0.0355	N/A	1 y	0.07
	Ruderal/Ephemeral	Modified grassland	0.005	Moderate	4 y	0.02
		Mixed scrub	0.0291	Moderate	5 y	0.21
		Vegetated garden	0.0115	N/A	1 y	0.02
UNITS DELIVERED THROUGH CREATION						1.00

Table 5b. Hedgerow units delivered through creation					
ACTION	Proposed Habitat	Length(km)	Target Condition	Time to Target condition	BNG Units Created
CREATION	Native Hedgerow	0.044	Poor	5 y	0.17
UNITS DELIVERED THROUGH CREATION					0.17

3.8 Rural trees and hedgerows have been assigned 'Formally identified in local strategy'. Policy PLIN3_POL_A07 of the Greater Lincolnshire Nature Strategy states that efforts should be made to 'Continue to target conservation management and habitat creation of trees and hedgerows' and that the planting of 'linear habitats and trees is encouraged'. These habitats are also listed as 'priority habitat' under the Lincolnshire BAP. Mixed scrub has been assigned 'Location ecologically desirable but not in local strategy' as it is not specifically identified as a priority habitat, but it does support Lincolnshire BAP priority species, particularly birds.

3.9 It has been assumed that habitat creation will neither be delivered in advance nor delayed; however, additional unit gains would be made if the proposed habitats were created ahead of commencing construction works (by at least 2 years). Regardless of Unit gain, the early planting of trees is strongly recommended, provided that they are not negatively impacted during the construction phase.

3.10 A review of the development proposals and of the above results indicates that:

- the development will drive the loss of 0.4ha of modified grassland and of 0.01ha of ruderal/ephemeral habitats, which equates to a loss of 1.19 Habitat units.
- the actions outlined in Table 5 would result in the creation of 1.05 Habitat units and 0.17 hedgerow units.

3.11 Table 6 shows the BNG unit change achieved post-intervention, relative to baseline.

Table 6. Project BNG net unit change					
	Baseline score	Units Lost	Units Created	Net Unit Gain	Percentage Gain
Habitat Units	1.71	1.71	1	-0.71	-41.59%

Trading Rules Summary

3.12 Table 7¹¹ shows the balance of units lost and created by *habitat distinctiveness*, highlighting that:

- The baseline Unit score is attributed entirely to *Low* distinctiveness habitats;
- The *Low* distinctiveness units gained through the creation of urban vegetated gardens (0.37 units) partially compensates for the losses incurred in the *low* distinctiveness habitat category. However, most of the losses (-1.62 units) are incurred from the loss of modified grassland to make way for developed land and vegetated gardens.
- the creation of *medium* distinctiveness habitats gained sufficient units to offset some of the losses incurred in association with the *low* distinctiveness habitats (0.50 units).

Table 7. BNG Trading Summary	
Low Distinctiveness Summary	Units
Low Distinctiveness net change in units	-1.21
Net Unit Change	-0.71
Medium Distinctiveness Summary	Units
Medium Distinctiveness Units available to offset Lower Distinctiveness Deficit	0.50
Medium Distinctiveness Broad Habitat Deficit to be offset by trading up	0.00
High Distinctiveness Surplus Units minus Medium Distinctiveness Broad Habitat Deficit	0.00
Cumulative surplus of units	0.50
High Distinctiveness Summary	Units
High Distinctiveness Units available to offset Lower Distinctiveness Deficit	0.00
Unit Deficit; like for like not satisfied	0.00
Very High Distinctiveness Summary	Units
Very High Distinctiveness Units available to offset Lower Distinctiveness Deficit	0.00

Biodiversity Offsetting

3.13 Based on the current Site layout, the on-site unit deficit amounts to -0.71 *Low* distinctiveness units; without off-site offsetting, the proposals cannot achieve Net Gain.

3.14 Offsite offsetting is required to deliver 0.88 units associated with *Low* distinctiveness habitats to achieve 10% net gain.

3.15 Table 9 outlines a possible scenario for the creation of other neutral grassland on arable land found *inside the LPA boundary or NCA of impact site*. The Strategic Significance of the created habitats has been set to *Location ecologically desirable but not in local strategy*.

¹¹ from the *Trading Summary Area Habitats* tab of the Metric

Table 8. Offsetting Strategy Simulation						
Baseline			Created			
Habitat Type	Unit score	Area (ha)	Habitat Type	Target Condition	Time to Target	Unit value
Cereal crops	0.33	0.165	Other neutral grassland	Moderate	5 y	0.89

3.16 The simulation presented in Table 8 would lead to the delivery of 0.89 units, corresponding to a Net change of +10.15 % relative to baseline.

3.17 With consideration given to the challenges associated with the delivery of habitat creation on 3rd party land, namely:

- the procurement of land;
- the delivery of habitat creation to a satisfactory standard;
- the ongoing management for the achievement of the prescribed target condition, and
- the maintenance of target condition, once achieved,

it is advised that compensatory units are purchased from an established Habitat Bank.

4 BIODIVERSITY ENHANCEMENT PROPOSAL

Introduction

- 4.1 No long-term, established habitat features are present onsite, however, the Site's proximity to a nearby drain in combination with the small patches of bramble present in H1 give the Site some ecological value for protected species. Therefore, the Site offers opportunities to deliver biodiversity enhancements in a manner which is practical, achievable and in keeping with the Client's aspirations.
- 4.2 The core principles underpinning this proposal are:
- the enhancement of connectivity with the wider landscape
 - the achievement of nature conservation outcomes that demonstrably exceed existing obligations (i.e. do not deliver something that would occur anyway).
 - the introduction of habitats that are expected to benefit species of principal importance (BAP) known to occur in the locality
- 4.3 The prescriptions set out herein are summarised and are spatially referenced in Figure 3 – Habitat Enhancement Plan.

Expected Outcomes

- 4.4 If adhered to during implementation, this scheme is expected to result in:
- the introduction of species currently not recorded on Site;
 - the planting of more trees, to offset the losses driven by the development and achieve a net increase in canopy cover;
 - the planting of mixed scrub and a native species-rich hedgerow to improve the Site's connectivity and value to protected species;
 - supporting a wider range of invertebrate communities by increasing the habitat mix. This will in turn attract a variety of species that feed on invertebrates, including amphibians, bats and birds.
 - the delivery of ready-made habitat features to encourage species to use the Site (i.e. bat, bird, bug boxes)

Landscape Tree Planting (PT1-PT13)

- 4.5 The proposals allow for the planting of thirteen new landscape trees (PT1-PT13), the locations of which are shown in Figure 3. A selection of suitable species is referenced in Table 10.

Table 10. Proposed new trees				
Ref.	Species	Height at Maturity	Tolerance	
			Drought	Shade
PT1	Corkscrew hazel <i>Corylus avellana</i> 'Contorta'	<10m	Moderate	Low
PT2	Red snake-bark maple <i>Acer capillipes</i>	10-15m	Low	Moderate
PT3	Rowan <i>Sorbus aucuparia</i>	10-15m	Moderate	Moderate
PT4	Japanese cherry <i>Prunus serrulata</i>	12m	Moderate	Moderate

- 4.6 Trees shall be selected of standard size (6-8ft) and bare root, preferably from local suppliers and certified as pest and disease free.

Hedgerow and Mixed Scrub Planting (PHE1 and PH5)

- 4.7 A native hedgerow will be created to form the new western boundary, this will provide foraging, roosting, connecting and nesting habitat for a range of species. The area of proposed scrub habitat in the east of the Site can be created through the planting and management of the same native scrub species. Planting for both habitats shall be delivered in late autumn – late winter.
- 4.8 Species deemed suitable for inclusion in this proposal are referenced in Table 11.

Table 11. Mixed Scrub Planting		
Common Name	Latin Name	Height At Maturity
Dogwood	<i>Cornus sanguinea</i>	3m
Wayfaring tree	<i>Viburnum lantana</i>	5m
Guelder rose	<i>Viburnum opulus</i>	5m
Gorse	<i>Ulex europaeus</i>	2.5m
Hazel	<i>Corylus avellana</i>	5m
Wild privet	<i>Ligustrum vulgaris</i>	3m
Hawthorn	<i>Crataegus monogyna</i>	10m
Spindle	<i>Euonymus europaeus</i>	3m
Field maple	<i>Acer campestre</i>	25m
Dog rose	<i>Rosa canina</i>	4m
Elder	<i>Sambucus nigra</i>	6m

Bat Box Installation

- 4.9 The proposals should consider the provision of bat boxes, either integrated in the fabric of the buildings or mounted on existing trees, for the benefit of the local bat population. Table 12 outlines a selection of wall-mounted and integrated bat boxes, designed to provide a variety of roosting spaces. The boxes recommended are draught-proof and made from a thermally stable, resilient ecostyrocete or woodcrete material.

Table 12. Recommended Bat Boxes	
Photo	Description and suitability
	<u>1FQ Schwegler Bat Roost</u> Ideal for all types of bats which inhabit buildings. The shape and design make it equally attractive to bats as a roost or nursery. Access is via a step-like recess which enables even young and inexperienced bats to safely access the box. The internal layout provides three different areas from which bats can hang and which offer different levels of light and temperature. It can easily be attached to most types of external brick, timber or concrete and can also be placed inside a roof space. The box should be positioned a minimum of 3m above the ground, where there is a clear flight path for bats entering and leaving.
	<u>Bat Access Brick</u> The bat brick is a standard sized brick, shaped especially to allow bats to access the cavity of a house. They can be incorporated during both new build and renovation projects. (A cavity chamber may need to be constructed to maintain an area free of insulating material where bats can roost). Brick dimensions: * Height: 60 mm * Width: 215 mm * Depth: 100 mm * Entrance dimensions: approx. 110 x 25 mm
	<u>1FE Schwegler Bat Access Panel</u> Provides access for bats to existing roost sites. With a specially shaped entrance hole and open back, bats can crawl through the entire panel. This is particularly useful when renovation or conservation work is being undertaken in buildings already containing bat roosts. Overall depth is just 8cm. The 1FE Bat Access Panel is made from Schwegler wood-concrete; an exceedingly durable, rot-proof and breathable natural material designed to mimic the properties of natural nest sites. The design is maintenance-free with a sloping shelf to allow droppings to fall out.
	<u>Habibat Bat Box - Custom Brick Facing</u> The Habibat Bat Box is a large, solid box made of insulating concrete with an internal roost space, which can be incorporated into the fabric of a building as it is built or renovated. A variety of facings can be fitted to suit any existing brick, wood, stonework or rendered finish, rendering the box unobtrusive and aesthetically pleasing. The Habibat box is suitable for species which are most commonly found roosting in buildings in the UK, such as Pipistrelle, Natterer's, Whiskered, and Brandt's bats.

- 4.10 Bat boxes should always be located close to/within unlit linear features, such as lines of trees or woodland edge. Several bat species are highly susceptible to light pollution and a box placed in proximity to a source of artificial light is likely to remain vacant. When fitted on trees, the approach to the box must not be impeded by overhanging branches. Bat boxes should be placed at a suitable height (3-5m) to reduce the risk of predation.

Bird Box Installation

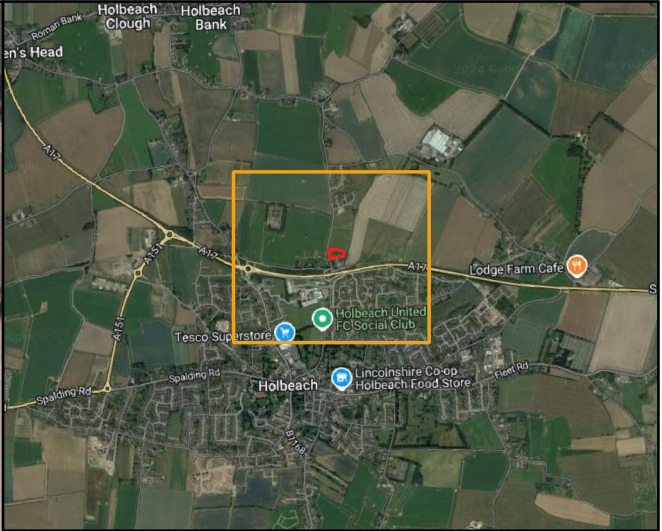
- 4.11** The installation of bird nest boxes should be considered in the proposal to provide additional roosting and breeding habitat. In a heavily modified landscape, features such as cavities, and knot holes are generally scarce and their artificial alternatives, if suitably selected and placed, can partly offset the habitat deficit. Table 13 outlines a selection of brick-mounted and integrated nest boxes suitable for species typical of residential areas, namely house sparrow, house martin and swift.

Table 13. Recommended bird boxes	
Photo	Description and suitability
	<u>Schwegler 1SP Sparrow Terrace</u> This box is designed specifically for House Sparrows, Britain's most common but also most rapidly declining bird (due to habitat loss). It is suitable for all types of houses in built-up areas, and on industrial and agricultural buildings such as barns, sheds and factories. Ideally place the terrace 2m or more above the ground.
	<u>Manthorpe Swift Brick</u> Swifts prefer to use existing holes, cracks and crevices for their nests such as those in old buildings and are becoming much more dependent on nest boxes. This brick has been developed for swifts to nest within the modern home. Available in six different colours, the box is designed to blend into the brickwork and provides an aesthetically pleasing addition to any development. The nest box is designed to last for an extremely long time and will not rot or degrade. The Swift Brick should be situated high within the gable wall of the property, ideally above 5 metres.
	<u>Kiki Bat and Swift Hybrid Box</u> The Kiki combined species box is designed for mounting on buildings. The box provides space for swifts and summer roosts for crevice-dwelling bats. It is made from environmentally friendly FSC wood that hasn't been treated with chemicals and has the durability to last for over 25 years.
	<u>Vivara Pro WoodStone House Martin Nest</u> House Martins build nests constructed from mud on the eaves of buildings often in colonies averaging five nests, but changes to house construction and roof design mean that suitable nest sites have dramatically declined. Providing an artificial nest provides an alternative, and house martins will readily use artificial nests. These WoodStone House Martin Nests have been designed to appeal to house martins and are constructed from WoodStone, a mixture of wood fibres and concrete that is durable and provides great thermal properties. The backing to the nests is also WoodStone, making them very durable. These nests should be sited underneath the eaves on exterior walls of your house or outbuildings, at a minimum height of 2m above the ground.

Table 13. Recommended bird boxes	
Photo	Description and suitability
	<u><i>Sparrow Terrace Nest Box</i></u> The Sparrow Terrace provides much-needed nesting places for these endangered birds. The Terrace consists of three separate nest boxes which can be fitted next to each other, allowing these colonial birds to nest near to one another. The boxes have a 32mm entrance hole and are constructed from exterior grade FSC plywood, coated with a non-toxic, water-based preservative making it long-lasting and durable. The fixed roof allows fitting right up to the eaves and the slide out floor allows inspection and cleaning whilst improving ventilation and drainage

5 CONCLUSIONS

- 5.1 Delivery of the Proposed Development will result in the loss of modified grassland and of sparsely vegetated land. This will lead to net biodiversity losses which cannot be compensated for through the current proposals. Therefore, Net gain can only be achieved through off-site offsetting, as outlined in Table 8.
- 5.2 Post-development, habitats delivered on Site will have to be managed as specified in the dedicated Habitat Management and Monitoring Plan, to ensure that the proposed target conditions are met. Specification for habitat creation and management are beyond the scope of this document, but typically include:
- detailed land preparation techniques;
 - detailed prescriptions for habitat creation;
 - detailed prescriptions for the management of existing and newly created habitats, to be adhered to throughout the project's lifespan (30 years);
- 5.3 Subsequently, the Site will be subject to periodic monitoring to determine whether the prescribed habitats and target conditions are being achieved and if adaptive management is required.



LEGEND

Figure 1 - Site Location Plan

PROJECT	Penny Hill Road	
CLIENT	Ben Dawson	
Revision	Date	Produced by
-	18 Sep 24	Rob Harmsworth
Scale @ A3		Ecology Resources Reference
1:4042		24077





LEGEND

Site boundary

Developed land; sealed surface

Modified grassland

Ruderal/Ephemeral

Figure 2 - Baseline Habitat Survey Plan

PROJECT	Penny Hill Road	
CLIENT	Ben Dawson	
Revision	Date	Produced by
-	18 Sep 24	Rob Harmsworth
Scale @ A3	Ecology Resources Reference	
1:500	24077	



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RESOURCES

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APPENDIX 1. BIODIVERSITY NET GAIN PRINCIPLES

1. Apply the Mitigation Hierarchy Principle

Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision-makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.

2. Avoid losing biodiversity that cannot be offset by gains elsewhere

Avoid impacts on irreplaceable biodiversity - these impacts cannot be offset to achieve No Net Loss or *Net Gain*.

3. Be inclusive and equitable

Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluating the approach to *Net Gain*. Achieve *Net Gain* in partnership with stakeholders where possible and share the benefits fairly among stakeholders.

4. Address risks

Mitigate difficulty, uncertainty and other risks to achieving *Net Gain*. Apply well-accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised.

5. Make a measurable Net Gain contribution

Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.

6. Achieve the best outcomes for biodiversity

Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly justified choices [...]

7. Be additional

Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e. do not deliver something that would occur anyway).

8. Create a Net Gain legacy

Ensure *Net Gain* generates long-term benefits [...]

9. Optimise sustainability

Prioritise Biodiversity *Net Gain* and, where possible, optimise the wider environmental benefits for a sustainable society and economy

10. Be transparent

Communicate all *Net Gain* activities in a transparent and timely manner, sharing the learning with all stakeholders.