Ecological Design Strategy

Gilroyd Lane, Linthwaite

15th February 2022



Prepared by:

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For Planning	P Middleton MCIEEM	Robert Bell MCIEEM	-	15/02/22

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1. Summary

1.1.1 This Ecological Design Strategy (EDS) incorporating biodiversity Metric 3.0 calculations was commissioned by architect Steve Mitchell on behalf of the client SB Homes Ltd, on 8th February 2022.

1.1.2 The EDS has been requested by Kirklees Council, in order to address Condition 26 of the planning approval for application no: 2018/62/90208/W.

1.1.3 A detailed scheme prescription is included in this EDS, which addresses the design and implementation of the ecological mitigation, compensation and enhancement measures for the scheme. The EDS is informed by a Biodiversity Metric 3.0 calculation which demonstrates the change in value of the site post development.

1.1.4 This report details mitigation measures to be implemented in relation to retained trees and nesting birds. Enhancement proposals relating to house nesting bird and bat species are also provided, together with measures to allow continued hedgehog access around the site.

1.1.5 The scheme will result in a net loss of - 2.04 Habitat Units which is a -65.27% decrease on the baseline. In order to achieve a 10% level of net ecological gain, off-site compensation on a third-party land holding needs to demonstrate an increase of 2.34 units (calculated as the 2.04 Habitat Units net loss + 10% of the site's baseline value (0.30 Habitat Units)).

2. Introduction

2.1.1 This Ecological Design Strategy (EDS) incorporating Biodiversity Metric 3.0 calculations was commissioned by architect Steve Mitchell on behalf of the client SB Homes Ltd, on 8th February 2022.

2.1.2 The EDS has been requested by Kirklees Council, in order to address Condition 26 of the planning approval for application no: 2018/62/90208/W.

2.1.3 Condition 26 states:

> *Prior to the commencement of development (including ground works), details of enhancement and mitigation measures to secure a biodiversity net gain shall be submitted to and approved in writing by the Local Planning Authority. The measures shall be informed by biodiversity metric calculations. The details shall be set out in an Ecological Design Strategy or other appropriate document and shall correspond with details to be submitted pursuant to condition 25. The development shall be implemented in accordance with the approved details and all measures and features shall be retained in that manner thereafter.*

2.1.4 Condition 25 details that prior to the commencement of superstructure works, details of all hard and soft landscaping should be submitted to and approved in writing by the Local Planning Authority.

2.1.5 This EDS should be implemented in accordance with the approved details and all ecological features should be retained in that manner thereafter.

3. Purpose and Conservation Objectives

3.1.1 The strategy is aimed at achieving the following:

- An accurate calculation of the scheme's ecological impact using the Biodiversity Metric 3.0 calculator.
- Ensuring the optimal benefits to biodiversity from the scheme are achieved in line with the requirements of Kirklees Council and the National Planning Policy Framework (2021) Section 15.
- Ensuring that existing trees to be retained are protected from damage during the development.
- Maximising the biodiversity value of the post development site by the implementation of a soft landscaping scheme which will include the planting of native trees and shrubs.
- Providing detail of boundary fences which will ensure the free movement of hedgehogs
- Providing bat roost provision and to ensure correct location of these features on site to maximise the likelihood of use.
- Providing nest boxes, suitable for use by swift *Apus apus*, house sparrow *Passer domesticus* and starling *Sturnus vulgaris*.

4. Review of Site Potential and Constraints

Existing site (Grid Reference SJ 93323 83563)

4.1.1 A Preliminary Ecological Appraisal (PEA) was undertaken by Middleton Ecological Consultancy in November 2017 (MEC, 2017). Habitats on site were considered to be of importance to nature conservation at no more than the site level.

4.1.2 The site is accessed off Gilroyd Lane, Height, Linthwaite. It consists of approximately 0.76ha of land steeply sloping from east to west. Habitats on site at the time of the 2017 survey included broad leaved woodland, dense and scattered scrub, poor semi improved grassland, bracken, tall ruderal vegetation and introduced scrub. Land adjacent to the site includes residential dwellings and associated gardens, grassland and broadleaved woodland (see Figure 1).

Figure 1. Site, as indicated by red line boundary (image captured in 2021)



Biodiversity Metric 3.0 calculation methodology

4.1.3 The original Phase 1 Habitat Map (MEC, 2017), together with aerial images accessed from Google Earth and descriptions of habitats provided in the PEA (MEC 2017), were used to produce a UK Habitat Classification plan (Butcher *et al*., 2020) for the habitat baseline inputted into the Metric 3.0 Tool (Appendix 1).

4.1.4 Due to the site's recent clearance, it was considered most accurate to calculate the baseline from the descriptions of the habitats present at the time of the original PEA.

4.1.5 The proposed site layout plan (Residential Development at Gilroyd Lane, Linthwaite. SB Homes 0217-01)) for the scheme was used to obtain landscaping proposals for the site, used to calculate the ecological value of the post development site.

4.1.6 The Biodiversity Metric 3.0 (Butcher *et al*., 2020) was used to calculate the ecological impact of this scheme. This metric uses habitat as a proxy for wider biodiversity with different habitat types scored according to their relative biodiversity value. This value is then adjusted depending on the condition and location of the habitat, to calculate 'biodiversity units'. Biodiversity Metric 3.0 incorporates similar but separate calculations for habitats that require a different method of measurement such as hedgerows, lines of trees, rivers, streams and street trees. Calculations are undertaken in a purpose designed spreadsheet, which provides the main output of the process.

5. Results of Biodiversty Metric 3.0

5.1.1 The landscaping proposals include the retention of a small area of woodland edge together with the creation of substantial areas of mixed scrub which will eventually mature to linear areas of woodland.

5.1.2 The scheme is anticipated to result in a net loss of 2.04 Habitat Units which equates to a 65.27% decrease in the site's ecological value.

5.1.3 In order to achieve a 10% level of net ecological gain (in accordance with Kirklees Council guidance (Kirklees Council, 2021)), off-site compensation on a third-party land holding needs to demonstrate an increase of 2.34 units (calculated as the 2.04 Habitat Units net loss + 10% of the site's baseline value (0.30 Habitat Units)).

6. Detailed Scheme Prescription

Soft landscaping scheme

6.1.1 The soft landscaping scheme for the development will include the planting of small blocks of mixed scrub which will naturally develop into broadleaved woodland. Species planted will include silver birch *Betula pendula*, rowan *Sorbus aucuparia*, wild cherry *Prunus avium*, holly *Ilex aquifolium* and hawthorn *Crataegus monogyna*. In addition, native shrubs or shrubs beneficial to wildlife will be used for all garden plantings together with native street trees to include rowan and whitebeam (see landscaping plan in Appendix 4).

Tree protection measures

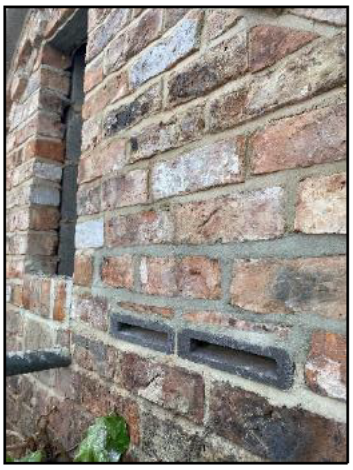
6.1.2 In order to protect existing trees along south and east boundaries during development, British Standard 5837 (2012): Trees in relation to design, demolition and construction, will be followed. Root Protection Zones (RPZs) should be calculated and implemented to prevent harm to trees. This should also apply to any trees outwith the site, up to 5m from the boundary.

Bat roost provision

6.1.3 The new development will have four cavity bat boxes integrated at wall top height on the south and west elevations of dwellings (see Figures 2, 3 & 5). The Vivara Pro Build-in Woodstone Bat Box has been specifically designed to fit into the cavity of house walls. It features a slim sized entrance hole which can sit flush in a course of bricks or sone to provide a discreet entry way for bats. The bottom entrance means that no maintenance is required as droppings will simply fall out the bottom.

Plate 1. Vivara Pro Build-in Woodstone Bat Box





6.1.4 A web address for the purchase of this product is detailed below:

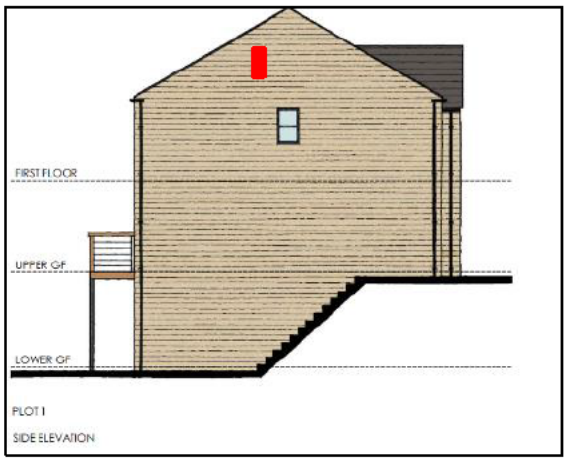
https://www.nhbs.com/equipment

6.1.5 The proposed development will be constructed of stone with concrete tile roofs. Correct placement of bat boxes is fundamental to their successful uptake by bats with temperature known to be a major factor influencing use of artificial roosts by bats. For this reason, three of the boxes are to be located in positions where they will receive the maximum amount of sunlight, on the southwest elevation. A fourth box will be installed on the northwest elevation providing a complementary roosting micro-climate. Installing boxes in these locations also avoids them being located over windows or doors.

Figure 2. Location of integrated bat boxes on rear elevation of Type E, Plot 12 and side elevation of Type E1 Plot 6



Figure 3. Location of integrated bat boxes on side elevations of Type S1 (A), Plots 1 and 16



6.1.6 No external lighting is to impact upon the locations of the new bat boxes.

Bird box provision

6.1.7 Bird box provision will be provided in the form of Manthorpe Swift Bricks. Research has shown that swift boxes are also often used by a range of other species including house sparrow *Passer domesticus* and starling *Sturnus vulgaris,* which is the reason they have been chosen over sparrow terraces or starling specific boxes in this case. The Manthorpe Swift Brick has been developed with the help of conservation experts. Available in six different colours, the box is designed to blend into the brickwork or masonry and so provides an aesthetically pleasing addition to any new build or development. Manufactured from PVC and Polypropylene, this nest box is designed to last for an extremely long time and will not rot or degrade. Swifts and house sparrows are colonial therefore it is advised two boxes of this type are located under the eaves of the north elevations of five units. The boxes should be installed as high as possible under the soffit. The locations of the boxes which will not be over windows or doors are shown in Figures 4 & 5.

Plate 2. Manthorpe Swift Box



6.1.8 A web address for the purchase of this product is detailed below:

https://www.nhbs.com/manthorpe-swift-brick?bkfno=242167

Figure 4. Locations of swift boxes on north elevation of Type F, Plot 18 and on north elevations of Type A1 & A2 Plots 5, 13 & 14 and south elevations of A2 Plots 3

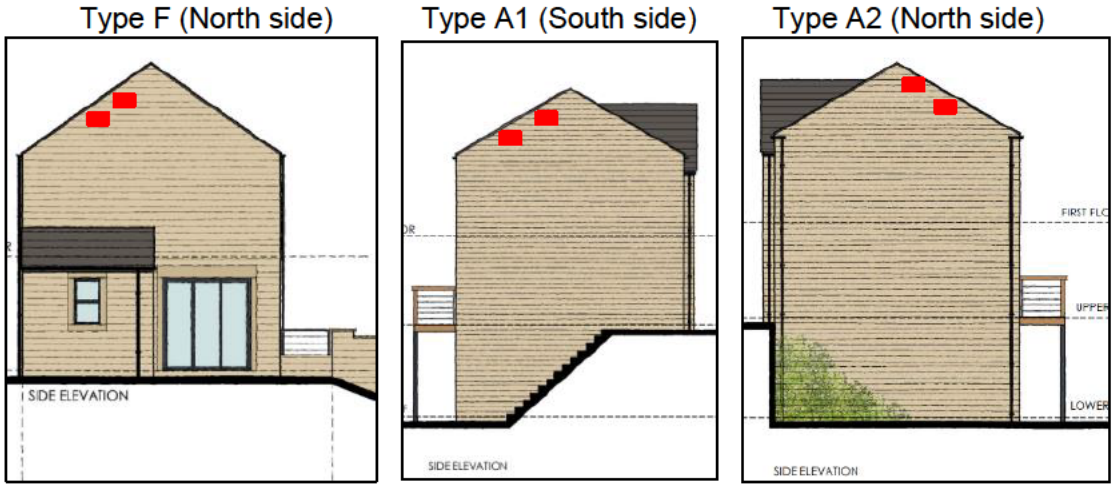


Figure 5. Site plan showing locations of all boxes



Maintenance and access for hedgehogs

6.1.9 Boundaries to individual dwellings must provide for the free movement of hedgehogs through the site by installing hedgehog friendly fences or walls (see Plates 3 & 4). At least two holes measuring at least 12cm x 12cm should be provided on each length of fence or boundary wall.

Plates 3 & 4. Hedgehog friendly fences





7. Timetable of Works

Table 1. Works timetable

Development activities and timing		
Activity	**Timing**	**Notes**
Site clearance	Already undertaken	Avoid site vegetation clearance between 1st March to 31st August, otherwise must be undertaken following a nesting bird check by a competent ecologist.
Erect protection fencing to existing trees	To be undertaken immediately after site clearance.	Protection through tree protection measures in accordance with BS5837:2012.
In-situ installation of bat boxes at wall top height	During construction when walls are almost complete	As described in Section 5 of this report.
In-situ installation of swift boxes on gables	During construction when walls are almost complete	As described in Section 5 of this report.
Provision of hedgehog holes in boundary fences	At the end of the project prior to soft landscaping	As described in Section 5 of this report.

Persons responsible for implementation of works

7.1.1 SB Homes Ltd are responsible for the implementation of works.

Aftercare and long-term maintenance

7.1.2 No maintenance or aftercare of bat and bird boxes are required. For prescription and aftercare of soft landscaping scheme see Appendix 2.

Details of monitoring and remedial measures

7.1.3 No monitoring is recommended in relation to the measures proposed.

8. References:

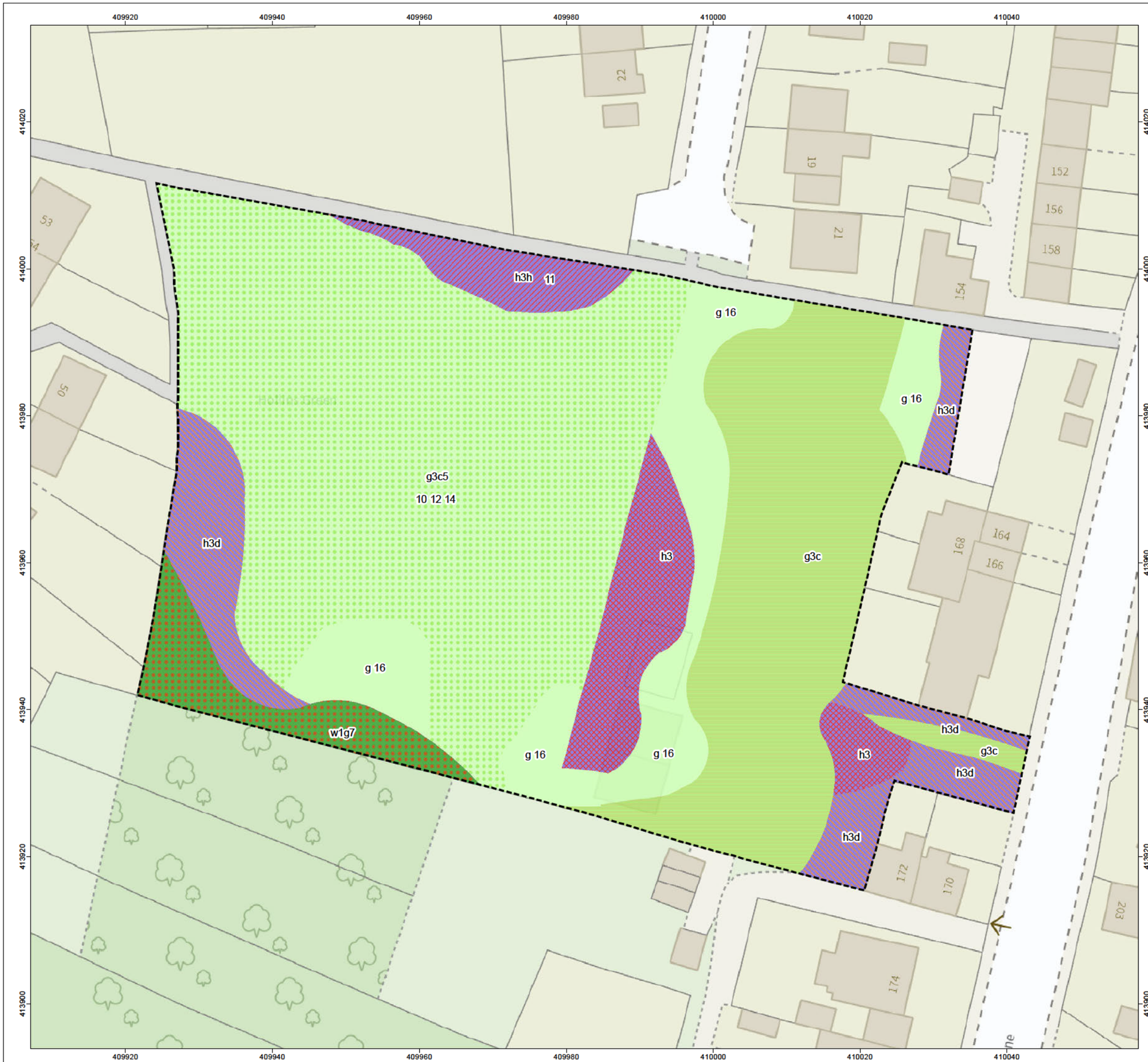
Kirklees Council (2021) Biodiversity Net Gain Technical Advice Note. Kirklees Council, Huddersfield.

MEC (2017) Gilroyd Lane, Linthwaite, Preliminary Ecological Appraisal. Middleton Ecological Consultancy, Barnsley.

Appendix 1. Metric Headline Results

On-site baseline	*Habitat units*	3.12
	Hedgerow units	0.00
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	1.08
	Hedgerow units	0.00
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	-65.27%
	Hedgerow units	0.00%
	River units	0.00%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	-2.04
	Hedgerow units	0.00
	River units	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	-65.27%
	Hedgerow units	0.00%
	River units	0.00%

Appendix 2. UK Habitat Plan





Survey Information	
	Site boundary (7,613.3m^2)

UK Habitat Survey (Primary Habitats)	
	g - Grassland (944.8m^2)
	g3c - Other neutral grassland (1,667.6m^2)
	g3c5 - Arrhenatherum neutral grassland (3,384.0m^2)
	h3 - Dense scrub (477.2m^2)
	h3d - Bramble scrub (631.6m^2)
	h3h - Mixed scrub (200.2m^2)
	w1g7 - Other broadleaved woodland types (307.8m^2)

Secondary codes:

10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
16 - Tall herb

Source:
Ordnance Survey © Crown copyright 2022, All rights reserved. License Number 100049837.

N

0 2.5 5 10
Metres

PROJECT TITLE

GILROYD LANE

DRAW NG TITLE

Figure 1. UK Habitat Survey Plan

VER	DATE	REMARKS	Drawn	Checked
1.2	11/02/22	UKHab	MP	PM

DRAWING NUMBER:
MIDDLETONBELLECOLOGY/GilroydLane/UKHab

SCALE	1:500	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

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33 Wilthorpe Road, Barnsley, South Yorkshire, S75 1JA
www.middletonbellecology.co.uk
T. 01226 286282

Appendix 3. Proposed Plan





Survey Information	
	Site boundary (7,613.3m^2)

UK Habitat Survey (Primary Habitats)	
	Retained w1g7 - Other broadleaved woodland type (70.2m^2)
	h3h - Mixed scrub (798.2m^2)
	Native shrub planting (273.5m^2)
	Amenity grassland (138.7m^2)
	231 - Vegetated garden (2,179.7m^2)
	u1b - Developed land; sealed surface (2,943.4m^2)
	u1b5 - Buildings (1,209.6m^2)

Source:
Ordnance Survey © Crown copyright 2022, All rights reserved. License Number 100049837.

N

0 2.5 5 10
Metres

PROJECT TITLE

GILROYD LANE

DRAW NG TITLE

Figure 1. UK Habitat Survey - Proposed Site Layout

VER	DATE	REMARKS	Drawn	Checked
1.1	11/02/22	Proposal	MP	PM

DRAWING NUMBER:

MIDDLETONBELLECOLOGY/GilroydLane/Proposal

SCALE	1:500	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

Middleton Bell Ecology
33 Wilthorpe Road, Barnsley, South Yorkshire, S75 1JA
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Appendix 4. Landscaping Plan

NOTES

PROTECTION OF EXISTING VEGETATION

Existing vegetation to be retained on site shall be protected where necessary during works by a tree protective barrier, secured to a scaffold tubing framework with fluorescent tape to the top rail. Protective fencing shall be erected on the canopy drip line wherever possible. Laminated, waterproof A4 signs shall be fixed to the fence posts at 10m intervals bearing the words 'PROTECTED TREE ZONE - NO STORAGE OR OPERATIONS WITHIN FENCED AREA'.

Tracking of machinery, storage of chemicals and building materials shall not be permitted within the protected area. Leaks or spills should be removed immediately and the contaminated soil replaced. No bonfires shall be lit within 5m of the canopy spread. Any excavation work beneath the canopy spread shall be carried out by hand.

All works affecting trees within the development shall be subject to BS 5837:2012.

TREE PLANTING

Tree planting to the front gardens of selected plots will break up the hard lines of the buildings and create focal points within the development. The tree species selected will maximise food and nectar sources for birds and invertebrates. Trees will be planted as Select and Heavy Standards to provide a reasonable degree of instant maturity to the development. Foundation design of new buildings shall accommodate proposed tree planting in accordance with NHBC guidelines.

Species to be selected from:

Acer campestre (Ac)
Acer platanoides 'Laciniatum' (ApL)
Alnus incana (Ai)
Betula pubescens (Bpu)
Betula utillis var. jacquemontii (Buj)
Carpinus betulus (Cb)
Malus sylvestris (Ms)
Malus tschonoskii (Mt)
Prunus padus (Pp)
Prunus sargentii (Ps)
Prunus subhirtella 'Autumnalis Rosea' (PsAR)
Pyrus calleryana 'Chanticleer' (PcC)
Quercus robur (Qr)
Sorbus aria (Sa)
Sorbus aucuparia (Sau)
Sorbus 'Embley' (SE)
Sorbus 'Joseph Rock' (SJR)
Tilia x euchlora (Te)
Tilia cordata 'Green Spire' (TcGS)

SHRUB PLANTING

A mix of evergreen and deciduous shrubs will be planted in selected front gardens to soften the development and to provide a valuable food source for birds and invertebrates. A mix of medium/low shrubs will be planted to shrub beds with medium/large varieties used for informal hedging.

Species to be selected from: ( ) density/m2

Berberis frikartii 'Amstelveen'(5), Berberis thunbergii 'Atropurpurea Nana'(5), Bergenia cordifolia 'Silberlicht'(6), Buddleia davidii 'Lochinch'(2), Ceanothus thrysiflorus repens(4), Chaenomeles superba 'Jet Trail'(4), Cornus alba 'Spaethii'(2), Cornus stolonifera 'Flaviramea'(2), Cotoneaster conspicuus 'Decorus'(6), Cotoneaster lacteus(2), Cytisus 'Allgold'(4), Elaeagnus pungens 'Maculata'(3), Escallonia 'Apple Blossom'(4), Euonymous fortuneii 'Emerald Gaiety'(6), Festuca spp(6), Geranium 'Johnson's Blue'(4), Hebe albicans 'Red Edge'(4), Hebe 'Autumn Glory'(4), Hypericum x moserianum(4), Juniperus sabina 'Tamariscifolia' (3), Lavandula 'Hidcote'(6), Lonicera 'Maygreen'(4), Lonicera 'Silver Beauty'(4), Nepeta faasenii(4), Perovskia 'Blue Spire'(6), Phormium var, Potentilla 'Red Ace'(5), Prunus laurocerasus 'Zabelliana'(3), Pyracantha 'Orange Charmer'(3), Rubus x 'Betty Ashburner'(4), Spiraea 'Gold Flame'(4), Spiraea 'Shirobana'(4), Viburnum tinus 'Eve Price'(3)

HEDGE PLANTING

Hedges will be planted in selected plots to strengthen boundaries and improve screening. Ornamental hedge planting will consist of Beech, which will contribute to all year round colour and texture. Hedges are to be planted as a double staggered row of 40-60cm high hedging plants.

NATIVE HEDGE PLANTING

Native hedgerows will be planted in plots 3 and 11 to improve wildlife foraging opportunities. Native hedge planting will consist of Blackthorne, Spindle, Dog rose, Guelder rose and Hazel. Hedges are to be planted as a single row of 40-60cm high hedging plants.

Rev.A: Amended in accordance with ecological recommendations (SF) March 22

KEY

Line of existing tree's & shrubs to be retained

Proposed Extra heavy standard (14-16cm girth) tree

Proposed heavy standard (12-14cm girth) tree

Proposed selected standard (10-12cm girth) tree

Proposed Beech hedging

Proposed evergreen flowering hedge (Escallonia)

Proposed ornamental shrub planting

Proposed mixed native species hedge

Proposed mixed native species scrub

Proposed turf

Rear gardens

Proposed 1800mm high close boarded timber fencing (detailed by others)

Proposed 1500mm high close boarded timber fencing (detailed by others)

Proposed walls (detailed by others)

Sue Farmer BA MALD MLI
Landscape Architect

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client: SB Homes

project: Residential Development
Gillroyd Lane
Linthwaite

drawing title: LANDSCAPE MASTERPLAN

scale	date	drwn by	drawing no
1:200 @A1	Mar 22	MBN	R/2062/1A