

Landscape Ecological Management Plan (LEMP)

Land off Luke's Lane, Monkton, South Tyneside

February 2024

Barratt Homes North East

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1. Introduction

1.1 OS Ecology Ltd were commissioned by Barratt Homes to produce a Landscape Ecological Management Plan (LEMP) in relation in relation to the proposed development of land at Luke's Lane, Monkton, South Tyneside.

Purpose and Structure of the LEMP

A Landscape and Ecological Management Plan as per the British Standard for Biodiversity (BS 42020:2013[1]) shall include, but is not necessarily limited to, the following information:

a. Description and evaluation of features to be managed.
b. Ecological trends and constraints on the site that might influence management.
c. Aims and objectives of management.
d. Appropriate management options for achieving aims and objectives.
e. Prescriptions for management actions.
f. Preparations of a work schedule.
g. Details of the body or organisation responsible for the implementation of the plan.
h. Ongoing monitoring and remedial measures.

1.2 This document whilst incorporating the details above, includes a management plan for the creation and enhancement of habitats on the site and includes the following elements:

- A pre-development baseline habitat, ecological trends and constraints description.
- A description and evaluation of the habitat features to be created/enhanced including target habitats, aims and objectives and timescales for the target habitats adapted from the Biodiversity Metric 3.1 and the Biodiversity Metric 3.1 – User Guide[2].
- Details of habitat creation prescriptions.
- Details of short-term management prescriptions (enhancements).
- Details of the long-term management prescriptions of the habitats.
- A schedule of works linked to the DEFRA 3.1 habitat condition target aims.
- A monitoring and remediation scheme in relation to delivery of the target habitats.

[1] British Standards Institute (2013). Biodiversity – Code of practice for planning and development. British Standard BS 42020:2013.

[2] Stephen Panks A, Nick White A, Amanda Newsome A, Mungo Nash A, Jack Potter A, Matt Heydon A, Edward Mayhew A, Maria Alvarez A, Trudy Russell A, Clare Cashon A, Finn Goddard A, Sarah J. Scott B, Max Heaver C, Sarah H. Scott C, Jo Treweek D, Bill Bitcher E And Dave Stone A 2022. Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide. Natural England. A – Natural England, B – Environment Agency, C – Department for Environment, Food and Rural Affairs, D – Treweek Environmental Consultants Ltd, E – eCountability Ltd

Site Location

1.3 The site is located to the north east of Monkton, South Tyneside at an approximate central grid reference of NZ 31933 62380. The site location is illustrated within figure 1 in the appendices.

Description of the Proposals & Background

1.4 The site is proposed for residential development with associated infrastructure.

1.5 Site plans can be found in the accompanying Ecological Appraisal Report[3] and Biodiversity Net Gain Report[4].

1.6 The report aims to meet the requirements of the following condition 21 attached to planning permission ST/0882/21/FUL:

21. No dwelling hereby permitted shall be occupied unless and until a Habitat Management and Monitoring Plan has been submitted to and approved in writing by the Local Planning Authority. The contents of that plan shall accord with the requirements of 'BS 8683:2021 - Process for designing and implementing Biodiversity Net Gain - Specification' including details in respect of, but not restricted to, the following:

a) The project's biodiversity baseline assessment against which BNG outcomes are assessed and monitored.
b) the project's BNG targets.
c) the number of years to achieve and then maintain the BNG targets which shall comprise a continuous period of at least 30 years from first occupation of the development.
d) a programme detailing the long-term phases of the management and monitoring activities.
e) a monitoring plan to inform decisions about management, whether assessing progress towards the BNG targets is on track and whether changes to management are required to achieve the targets.
f) the roles, responsibilities and required competencies of those involved with implementing and monitoring the BNG design during the implementation and post-implementation stages.
g) details in respect of how the retained grassland to the east of the site will be managed to increase its value for biodiversity including the prevention of public access to this area of the site.

[3] 21018 EcIA v7. OS Ecology Ltd August 2022.
[4] 21018 BNG v9. OS Ecology Ltd September 2022.

h) details on how habitat associated with the existing watercourses within the site will be managed to improve the condition of those watercourses.

i) provision for any approved landscaping that is removed, dies or becomes seriously diseased within the agreed timescales for achieving and maintaining the BNG targets to be replaced in the next planting season with landscaping of similar size and species to that which it replaces.

Thereafter the Habitat Management & Monitoring Plan shall be carried out/implemented as approved and in accordance with the approved timetables.

2. Baseline Site Conditions

2.1 The pre-development site is approximately 7.43ha in extent and comprises a two pastoral fields with hedgerow boundaries and a watercourse flowing through the site. The northern boundary is formed by the Metro line.

2.2 Full details can be found in the accompanying Ecological Appraisal Report[5] and Biodiversity Net Gain Report[6].

2.3 Based on the results of field survey, the following table details the baseline Biodiversity Units associated with the proposed development area.

Table 1.1: Baseline Biodiversity Units					
Habitat Type	**Area (ha)/ Length (km)**	**Distinctiveness**	**Condition**	**Strategic Significance***	**Biodiversity Units**
Habitat Element					
Other Neutral Grassland	7.23	Medium	Moderate	Location ecologically desirable but not in local strategy	63.62
Bramble Scrub	0.14	Medium	Poor		0.62
				Baseline Habitat Units:	64.24
Hedgerow Element					
Native Hedgerow	0.38	Low	Moderate	Within area formally identified in local strategy	1.75
Native Hedgerow	0.15	Low	Moderate	Within area formally identified in local strategy	0.69
				Baseline Hedgerow Units:	2.44
River Element					
Other Rivers and Steams	0.47	High	Moderate	Low potential/action, not identified in any plan	4.29
				Baseline River Units:	**4.29**
*Native hedgerow is a priority habitat within the Durham Biodiversity Action Plan (BAP), The grassland, stream and scrub habitats within the site are not considered to meet the definitions within the Durham BAP for priority grassland, stream and scrub habitats.					

[5] 21018 EcIA v7. OS Ecology Ltd August 2022.
[6] 21018 BNG v9. OS Ecology Ltd September 2022.

3. Habitat Creation & Enhancement

3.1 The overall objectives have been established as follows:

- *To enhance the site's areas of retained grassland, watercourse and scrub habitats.*
- *To create new areas of tree planting, grassland, wetland and scrub.*
- *Maintain a free movement of small mammals across the Proposed Development*
- *To enhance ecological connectivity within the site and wider area.*
- *To improve opportunities for protected and notable site-specific species.*

3.2 The specific management aims and biodiversity outcomes of each habitat type can be seen in in the table below.

Habitat Creation

3.3 The following habitat creation and enhancement is proposed:

Table 3.1: Post Development Habitats

Habitat Type	**Metric Category**	**Area (Ha)/ Length (Km)***
Native Scrub Planting	Mixed Scrub	0.02
Amenity Grassland	Modified Grassland	0.21
Development Area *(3.55ha, split 70/30 between developed land and gardens as per metric guidance)*	Developed Land; Sealed Surface	2.569
	Vegetated Garden	1.101
EM2 Wildflower Mix and EM8 Wetland Mix	Other Neutral Grassland	0.37
Native Species Rich Hedgerow	Native Species Rich Hedgerow	0.4
Native Species Rich Hedgerow	Native Species Rich Hedgerow	0.12
Ornamental Hedgerow	Hedge Ornamental Non Native	0.07
Broadleaved Trees – 18 Heavy Standards	Urban Tree	0.0732
Broadleaved Trees – 20 varied species non native Heavy Standards	Urban Tree	0.0814

3.4 The following table details the condition of the post-development habitats present on site and the target condition. The proposed criteria for the assessment of habitats are adapted from those used for the Biodiversity Metric 3.1 and provided within the Biodiversity Metric 3.1 – User Guide[7]. Habitats which have a 'poor' condition target or which are not applicable such as areas of built development are not included in the management prescriptions below.

Table 3.2: Post Development Habitat Creation - Biodiversity Units Delivered

Habitat Type	Area (ha)/Length	Distinctive-ness	Condition	Time to target condition/years	Biodiversity Units Delivered
Habitat Creation					
Mixed Scrub	0.02	Medium	Moderate	10	0.18
Other Neutral Grassland	0.42	Medium	Good	10	3.58
Modified Grassland	0.17	Low	Moderate	4	0.73
Urban Tree	0.732	Medium	Moderate	27	0.22
Urban Tree	0.081	Medium	Poor	10	0.23
Native Species Rich Hedgerow	0.4	Medium	Moderate	5	3.08
Native Species Rich Hedgerow	0.12	Medium	Moderate	5	0.92

Habitat Enhancement

3.5 Site design has ensured the retention of the areas of scrub within the site and an area of grassland to the east. These areas will be enhanced. The following table details the area of habitat to be enhanced, the current habitat condition, the target habitat condition and the number of biodiversity units delivered through the proposed enhancement:

Table 3.3: Post Development – Habitat Enhancement

Habitat Type	Area (Ha)/ Length (Km)*	Current Condition	Target Condition	Biodiversity Units Delivered
Other Neutral Grassland	3.08	Moderate	Good	38.51
Mixed Scrub	0.06	Moderate	Good	0.77
Other Rivers and Streams	0.47	Moderate	Good with moderate encroachment	6.19

[7] Stephen Panks A, Nick White A, Amanda Newsome A, Mungo Nash A, Jack Potter A, Matt Heydon A, Edward Mayhew A, Maria Alvarez A, Trudy Russell A, Clare Cashon A, Finn Goddard A, Sarah J. Scott B, Max Heaver C, Sarah H. Scott C, Jo Treweek D, Bill Bitcher E And Dave Stone A 2022. Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide. Natural England. A – Natural England, B – Environment Agency, C – Department for Environment, Food and Rural Affairs, D – Treweek Environmental Consultants Ltd, E – eCountability Ltd

4. Detailed Creation Prescriptions

Native Hedgerow

4.1 A total of 520m of native hedgerow planting along the site boundaries is proposed as part of the development.

4.2 Suitable ground preparations will depend on the previous usage of the area. Areas of grassland can be short mown to ~20mm and then planted, whilst densely compacted agricultural soils will require cultivation and harrowing prior to planting. All planting to follow appropriate British Standards.

4.3 Specimens will be 60-80cm whips planted in a double staggered row at 400mm apart and to have minimum 5 species. They should be planted into 'slits or notches' in 60cm tubex shrub shelter tubes or equivalent, with a minimum 75cm stake.

4.4 Unwanted weed growth will be controlled through the use of tree spats/mulch mats, composted mulch or similar. This control should cover at least 1m diameter around the newly planted tree. Chemical use will be avoided if possible.

4.5 Planting is best undertaken in mid-autumn to late winter, during periods when the soil is easily workable.

4.6 The following species mix is proposed:

Table 4.1: Native Hedgerow Planting Mix	
Species	**% of Mix**
Hawthorn (*Crataegus monogyna*)	60%
Hazel (*Corylus avellana*)	10%
Holly (*Ilex aquifolium*)	5%
Blackthorn (*Prunus spinosa*)	20%
Dog rose (*Rosa canina*)	5%

Wildflower Meadow

4.7 A total of 0.42ha of other neutral 'wildflower' grassland is proposed to be created.

4.8 The successful establishment of the wildflower grasslands depends on good seedbed preparation and good control of undesirable species, particularly in the first year. The following will be undertaken to establish the areas of wildflower grassland[8]:

- To prepare a seed bed, first remove weeds using repeated cultivation (if soil has not been removed as above). The soil will then be harrowed or raked to produce a fine tilth and then rolled to produce a level firm surface.
- Sowing will occur during March/May or August/September. The seed is to be surface sown by machinery (or by hand), then firmed in through rolling.
- Areas sown with seed will then be cordoned until established to prevent people/machinery access and to prevent damage.

4.9 The species mixes recommended is Emorsgate Standard General-Purpose Meadow Mixture EM2 [9] and Emorsgate EM8 Wetland mix although equivalent/similar mixes can be used.

Table 4.2: Meadow Grassland Planting Mix	
Species	**% of Mix**
Standard General Purpose Meadow Mixture EM2 (20% Wildflower/80% Grasses-sown at 4g/m²)	
Yarrow - *Achillea millefolium*	0.9%
Common Knapweed - *Centaurea nigra*	1.2%
Crosswort - *Cruciata laevipes*	0.075%
Wild Carrot - *Daucus carota*	0.15%
Field Scabious - *Knautia arvensis*	0.3%
Oxeye Daisy - *Leucanthemum vulgare*	0.75%
Musk Mallow - *Malva moschata*	2.1%
Ribwort Plantain - *Plantago lancelata*	3.0%
Salad Burnet - *Poterium sanguisorba ssp sanguisorba*	2.25%
Cowslip - *Primula veris*	0.15%
Meadow Buttercup – *Ranunculus acris*	0.6%
Red Campion - *Silene dioica*	2.25%
Bladder Campion - *Silene vulgaris*	0.075%
Lady's Bedstraw - *Galium verum*	1.20%
Common Bent – *Agrostis capillaris*	8.50%
Crested Dog's-tail – *Cynosurus cristatus*	29.75%
Red Fescue – *Festuca rubra*	25.50%
Smaller Cat's-tail – *Phleum bertolonii*	4.25%
Smooth-stalked Meadow-grass – *Poa pratensis*	17.00%

[9] Wildflowers, Wild Grasses and Mixtures | Emorsgate Seeds (wildseed.co.uk)

Table 4.3: Wet Grassland Planting Mix	
Species	**% of Mix**
Standard Meadow Mixture for Wetlands EM8 (20% Wildflower/80% Grasses-sown at 4g/m²)	
Yarrow - *Achillea millefolium*	2.0%
Common Knapweed - *Centaurea nigra*	4.0%
Betony - *Betonica officinalis*	0.1%
Lady's Bedstraw - *Galium verum*	2.4%
Oxeye Daisy - *Leucanthemum vulgare*	0.6%
Devil's Bit Scabious -*Succisa pratensis*	0.1%
Ribwort Plantain - *Plantago lancelata*	4.0%
Common Sorrel - *Rumex acetosa*	0.1%
Pepper Saxifrage - *Silaum silaus*	0.1%
Cowslip - *Primula veris*	0.2%
Meadow Buttercup - *Ranunculus acris*	1.4%
Greater Birdsfoot Trefoil - *Lotus pedunculatus*	0.8%
Meadow Vetchling - *Lathyrus pratensis*	0.4%
Great Burnet - *Sanguisorba officinalis*	1.0%
Tufted Vetch - *Vicia cracca*	0.1%
Wild Angelica - *Angelica sylvestris*	0.1%
Common Knapweed - *Centaurea nigra*	4.0%
Meadowsweet - *Filipendula ularia*	1.0%
Rough Hawkbit - Leontodon hispidus	0.6%
Common Bent - *Agrostis capillaris*	2.0%
Crested Dog's-tail - *Cynosurus cristatus*	48%
Red Fescue – *Festuca rubra*	22.0%
Sweet Vernal-grass - *Anthoxanthum odoratum*	2.0%
Quaking Grass - *Briza media*	4.0%
Tufted Hair-grass - *Deschampsia cespitosa*	2.0%

Modified Grassland

4.10 A total of 0.59ha of modified grassland is proposed to be created.

4.11 To prepare a seed bed, first remove weeds using repeated. The soil will then be harrowed or raked to produce a fine tilth and then rolled to produce a level firm surface.

4.12 Sowing will occur during March/May or August/September. The seed is to be surface sown by machinery (or by hand), then firmed in through rolling.

4.13 Areas sown with seed will then be cordoned until established to prevent people/machinery access and to prevent damage.

4.14 The following mix is proposed for used in these areas:

Table 4.4: Wildflower Lawn Planting Mix	
Species	**% of Mix**
(20% Wildflower/80% Grasses-sown at 4g/m²)	

Table 4.4: Wildflower Lawn Planting Mix	
Species	**% of Mix**
Yarrow - *Achillea millefolium*	5%
Common Knapweed - *Centaurea nigra*	5%
Birds foot trefoil – *Lotus corniculatus*	5%
Black medick – *Medicagp lupulina*	10%
Daisy – *Bellis perennis*	8%
Cowslip – *Primula veris*	5%
Self heal – *Prunella vulgaris*	12%
Ribwort Plantain - *Plantago lancelata*	8%
Meadow buttercup – *Ranunculus acris*	12%
Red clover – *Trifolium pratense*	8%
Rough hawkbit – *Leontodon hispidus*	5%
Common catsear – *Hypochaeris radicata*	5%
Lady's Bedstraw - *Galium verum*	10%
Common Bent – *Agrostis capillaris*	10%
Crested Dog's-tail – *Cynosurus cristatus*	20%
Slender creeping Red Fescue – *Festuca rubra ssp. litoralis*	20%
Strong creeping Red Fescue – *Festuca rubra ssp. rubra*	20%
Smooth-stalked Meadow-grass – *Poa pratensis*	30%

Native Scrub

4.15 A total of 0.02ha of native scrub will be created.

4.16 The existing grassland will be short mown to ~20mm and then planted. All planting will follow appropriate British Standards.

4.17 Tree and shrub species should be planted into 'slits or notches' as bare-root 40-60cm transplants in 60cm tubex shrub shelter tubes or equivalent, with a minimum 75cm stake.

4.18 Trees and shrubs will be planted at 2.5-3 metre intervals.

4.19 Specimens will be planted randomly but in single species in groups of nine to 21 trees, blending edges into the next species group. Straight line planting will be avoided to create a natural appearance and emulate natural processes. Approximately 20% of the total scrub area will be maintained as open space (e.g. rides, glades).

4.20 Light-loving trees and shrubs, such as blackthorn, dog rose and field maple will be planted at the edges of the woodland, shrubs which enjoy shade, such as hazel, holly, and hawthorn, will be planted towards the centre.

4.21 Unwanted weed growth will be controlled through the use of tree spats/mulch mats, composted mulch or similar. This control should cover at least 1m diameter around the newly planted tree. Chemical use will be avoided if possible.

4.22 Planting is best undertaken in mid-autumn to late winter, during periods when the soil is easily workable.

4.23 The following indicative species mix is proposed:

Table 4.5: Native Scrub Planting Mix	
Species	**% of Mix**
Hawthorn (*Crataegus monogyna*)	20%
Holly (*Ilex aquifolium*)	20%
Blackthorn (*Prunus spinosa*)	20%
Dog rose (*Rosa canina*)	20%
Guelder rose (*Viburnum opulus*)	20%

Urban Tree

4.24 A total of 18 heavy standard urban trees will be planted on the site.

4.25 Details of their planting methodology is included within the landscape plans for the scheme. All works will take place in line with British Standards.

Native Hedgerow

4.26 A total of 520m native hedgerow will be planted.

4.27 The existing grassland will be short mown to ~20mm and then planted. All planting will follow appropriate British Standards.

4.28 Tree and shrub species should be planted into 'slits or notches' as bare-root 40-60cm transplants in 60cm tubex shrub shelter tubes or equivalent, with a minimum 75cm stake.

4.29 Plants will be planted in offset double rows at 30cm intervals. Species will be randomly varied along the hedge lines.

4.30 Unwanted weed growth will be controlled through the use of composted mulch or similar. This control should cover at least 1m diameter around the newly planted hedgerow. Chemical use will be avoided if possible.

4.31 Planting is best undertaken in mid-autumn to late winter, during periods when the soil is easily workable.

4.32 The following indicative species mix is proposed:

Table 4.6: Native Hedgerow Planting Mix	
Species	**% of Mix**
Hawthorn (*Crataegus monogyna*)	60%
Holly (*Ilex aquifolium*)	2%
Blackthorn (*Prunus spinosa*)	20%
Field Maple (*Acer campestre*)	2%

Table 4.6: Native Hedgerow Planting Mix	
Species	**% of Mix**
Privet (*Ligustrum vulgare*)	2%
Crab apple (*Malus sylvestris*)	2%
Dog rose (*Rosa canina*)	2%
Hazel (*Coryllus avellana*)	10%

5. Detailed Habitat Enhancement Plan

Short Term Management Interventions

Grassland (Other Neutral Grassland)

Diversity Enhancement

5.1 It is proposed that sections of existing grassland to be retained within the site boundaries are enhanced to good condition. The following methods are prescribed to achieve this:

i. Scarification of the grassland. The grassland will initially be cut very short, and the area then scarified (heavily raked using suitable machinery) to expose 50% bare soil.

ii. The areas will be oversown/seeded with the Standard General-Purpose Meadow Mixture EM2 as per section 4 above.

iii. Sowing will occur during March/May or August/September. The seed is to be surface sown by machinery (or by hand), then firmed in through rolling.

iv. Areas sown with seed will then be cordoned until established to prevent people/machinery access and to prevent damage.

5.2 Scrub encroachment into the grassland is apparent. Sections of scattered scrub will be coppiced now before the long term (30 year) management of the site begins. The locations of these areas can be seen in the appendices.

5.3 The coverage of pernicious weeds should not be allowed to develop on site, with a target of <5% coverage of the grassland. Where necessary species indicative of sub-optimal condition will be removed through spot treatment. If required, the use of Glyphosate weed killer will be applied directly to actively growing weeds (April – October). The use of glyphosate weed killers will damage and/or kill plants which come in contact with the chemical, therefore spray drift will be minimised and operations carried out by suitably trained individuals. The use of chemical pesticides and herbicides will be prohibited within 10m of any waterbodies on site.

Scrub

5.4 It is proposed to enhance areas of bramble scrub to become mixed scrub. Removal of bramble from the areas to be enhanced through the use of a brush cutter. Stems will be cut to the base and then treated with an effective weedkiller to ensure that the plants die off.

5.5 Once the brambles have been removed, the new scrub mix can be planted as detailed within section 4 above.

5.6 The coverage of pernicious weeds will not be allowed to develop on site, with a target of <5% coverage of the grassland. Where necessary species indicative of sub-optimal

condition will be removed through spot treatment. If required, the use of Glyphosate weed killer will be applied directly to actively growing weeds (April – October). The use of glyphosate weed killers will damage and/or kill plants which come in contact with the chemical, therefore spray drift will be minimised and operations carried out by suitably trained individuals. The use of chemical pesticides and herbicides will be prohibited within 10m of any waterbodies on site.

Native Hedgerow

5.7 Gaps within the existing hedgerows will be plugged. This will follow the methodology as seen within Section 4 above. This will be done with the same mix but excluding hawthorn in order to increase diversity. The remaining species will be planted at the following ratios:

Table 5.1: Native Hedgerow Gapping Up Mix	
Species	**% of Mix**
Holly (*Ilex aquifolium*)	15%
Crab apple (*Malus sylvestris*)	10%
Field Maple (*Acer campestre*)	10%
Blackthorn (*Prunus spinosa*)	30%
Dog rose (*Rosa canina*)	15%
Hazel (*Coryllus avellana*)	20%

Watercourse

5.8 Works to the watercourse will include minor interventions in order to increase the condition of this feature from moderate to good condition (with moderate encroachment).

5.9 Increased riparian vegetation structure to increase diversity at bank tops and on the banks themselves. This will involve the spreading of a native wildflower mix such as EM8 as shown above, in order to increase the proportion of wildflowers and other wildlife along the watercourse but minimise additional shading. The same methods will be used as detailed within the grassland enhancement section above for this.

5.10 Additional bank top and bank face tree planting in order to increase the richness of tree features to include tree roots, and trailing branches. It is proposed to plant a small number of native trees along the banks in order to provide additional diversity. These should include 6 no. alder (Alnus glutinosa). These will be planted on the banks next to existing vegetation such that areas of the watercourse remain unshaded, but will provide suitable bankside habitat and root systems in the long term. Planting will be done in the same manner as that described above for scrub.

5.11 Maintenance of non-native species absence from the site. An annual assessment of the watercourse for non-native species will take place with particular care taken to confirm the absence of Himalayan balsam, cotoneaster, Japanese knotweed and giant hogweed.

Where recorded, these species will be treated immediately under a species-specific method statement.

5.12 Management of bank-top habitats for wildlife. Bank top habitats will be managed in the same manner as wildflower grassland with cutting of these areas minimised to once or twice a year depending on the level of growth. Arisings from the cutting will be removed and allowed to compost on site or taken offsite.

5.13 Increased bank profile variation. Where banks have been subject to poaching already, they will be modified to become more natural in their profile, with vegetation encouraged to develop. This will involve using a small mini digger to create a varied profile within these areas using the existing bank material. Works will be done under ecological supervision with suitable silt mitigation measures in place downstream of the works to prevent silt from entering the watercourse. The exact design of these features will be determined on site but will aim to create shallow edges to the watercourse where possible, allowing small flood plain areas to develop and then steeper areas behind these features with the aim of creating areas which are inaccessible, and which allow wetland species to develop.

5.14 Reduction in poaching along the banks allowing for them to re-vegetate in places, but also allowing some areas of bare bank to persist. This will be achieved through the fencing of the banks of the river to prevent encroachment. Areas of existing bank which have been poached in the past will be allowed to re-vegetate.

5.15 Native species can be introduced to the channel, however it is recommended that with the above interventions, this is delayed and reviewed once enhancement have been made to determine whether such additional interventions are needed. If the introduction of these species is proposed, it is recommended that species such as aquatic mint and water forget me not are planted along the banks of the watercourse between November and March and then allowed to develop naturally with minimal intervention.

6. Management Prescriptions

Overview

6.1 The table below details the work schedule, target aim, and target condition for each habitat type and an estimated time to target condition.

6.2 The proposed criteria for the assessment of habitat are adapted from those used for the Biodiversity Metric 3.1 and provided within the Biodiversity Metric 3.1 – Technical Supplement[10].

[10] Stephen Panks A, Nick White A, Amanda Newsome A, Mungo Nash A, Jack Potter A, Matt Heydon A, Edward Mayhew A, Maria Alvarez A, Trudy Russell A, Clare Cashon A, Finn Goddard A, Sarah J. Scott B, Max Heaver C, Sarah H. Scott C, Jo Treweek D, Bill Bitcher E And Dave Stone A 2022. Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide. Natural England. A – Natural England, B – Environment Agency, C – Department for Environment, Food and Rural Affairs, D – Treweek Environmental Consultants Ltd, E – eCountability Ltd

Table 6.1: Work Schedule, Habitat Target Actions and Objectives and Timescales					
Habitat	**Target Condition**	**Target Aims**	**Management Measures**	**Management Measure Timing**	**Time to Target Condition**
Native hedgerow	Moderate	○ Gaps make up less than10% of the total length, and gaps between the ground and base are <0.5m. ○ The hedgerows are at least 1.5m in height and width. ○ >1m of undisturbed ground at the base of each side of the hedgerow. ○ Five woody species are present within a 30m length. ○ Combined cover of species indicative of sub-optimal condition (Nettle, cleavers dock sp.) is <20%. ○ There is an absence of invasive non-native species.	○ Hedgerows (once established) cut on a cycle of one third of total hedgerow length cut each year with all arisings removed. The end hedgerow height will be approximately 2-3m with an 'A' shape.' ○ Cuts to be undertaken between 1st September and 28th February (inclusive) to avoid the nesting bird season. ○ **Review in years 1, 3 and 5 post establishment and every five years thereafter**.	1st September -28th February (inclusive)	5 years
			<u>Ongoing Maintenance</u> ○ Replace weak or diseased specimens. ○ If necessary, remove invasive non-native species and/or ruderal vegetation and pernicious weeds. ○ Prior to year 5 any damaged tree guards/shelter will be replaced as necessary. Post year 5 check and remove guards annually as soon as they split and before they start to disintegrate (usually after 5-10 years). ○ If applying mulch, this will be applied to the base of hedgerow trees once or twice a year (as required) to minimise weeds and retain soil moisture. ○ Trees will be watered during dry periods as required to maintain soil moisture. ○ Review any signs of damage/ grazing/browsing.	As required for the first 5-10 years or until it is no longer necessary.	
Mixed scrub	Moderate (created areas) Good (enhanced areas)	○ The habitat and species composition is representative of the UK Habs description. ○ There is a good age range (seedling, young shrub and mature shrub all present). ○ Combined cover of species indicative of sub-optimal condition is <5% and no Schedule 9 species are present.	○ Scrub management will be undertaken on 15-year basis once matured (i.e. 1/15th cut every year), with the aim of creating occasional tall grassland/herb clearings, a well-developed edge and age structure and sections of scattered scrub. Cuts to be undertaken between 1st September and 28th February (inclusive) to avoid the nesting bird season. Use tools according to the size of the task and access/resource limitations. Suitable tools range from hand tools – such as bow saws, mattocks, chainsaws and brush cutters –to tractor-mounted flails ○ Felled sections will be used to create regular log piles.	1st September -28th February (inclusive).	10 years

Table 6.1: Work Schedule, Habitat Target Actions and Objectives and Timescales					
Habitat	**Target Condition**	**Target Aims**	**Management Measures**	**Management Measure Timing**	**Time to Target Condition**
		○ There is a well-developed edge and clearings present. ○ At least 3 woody species should be present	○ **Review in years 1, 3 and 5 post establishment and every five years thereafter.**		
			<u>Ongoing Maintenance</u> ○ Replace weak or diseased specimens. ○ If necessary, remove invasive non-native species and/or ruderal vegetation and pernicious weeds. ○ Prior to year 5 any damaged tree guards/shelter will be replaced as necessary. Post year 5 check and remove guards annually as soon as they split and before they start to disintegrate (usually after 5-10 years). ○ If applying mulch, this will be applied to the base of hedgerow trees once or twice a year (as required) to minimise weeds and retain soil moisture. ○ Trees will be watered during dry periods as required to maintain soil moisture. ○ Review any signs of damage/ grazing/browsing.	As required for the first 5-10 years or until it is no longer necessary.	
Grassland – Other Neutral	Good	○ Species diversity to >9sp/m^2 with a species composition closely matching the UK Hab definition. ○ Create a varied sward height with sections of short (<7cm) and long sward (>7cm) covering 20% each of the parcel respectively. ○ Cover of scrub is <5%, with a varied scrub layer throughout. ○ Cover of bare ground is between 1-5%. ○ Combined cover of species indicative of sub-optimal condition (*creeping thistle, spear thistle, curled dock, broad-leaved dock, common nettle, creeping*	<u>1st Growing Season</u> ○ There will often be a flush of annual weeds from the soil in the first growing season of wildflower meadows which may grow up and obscure the meadow seedlings beneath. This annual weed growth is easily controlled by spot treatment or mowing of weeds as required. ○ Cutting of newly sown grassland (first year grassland) will be undertaken regularly (monthly cuts) from April to September in order to control weed growth. Cut to 40-60mm and remove.	Cut regularly between April to September	10
			<u>2nd Growing Season Onwards</u> ○ Grassland will be subject to an annual cut to be undertaken in late August/September, after the bird nesting season and once the majority of wildflower species have set seed. If possible, leave arisings in situ for several days to allow seed drop before removal. ○ The sward will be cut to a height of 6-7cm. ○ Small unmown margin strips should be left around the scrub habitats to provide a food resource for insects and small mammals. The location of these margins should be alternated each year to	Cut once annually August/September	

Table 6.1: Work Schedule, Habitat Target Actions and Objectives and Timescales					
Habitat	**Target Condition**	**Target Aims**	**Management Measures**	**Management Measure Timing**	**Time to Target Condition**
		buttercup, greater plantain, white clover, cow parsley) is <5%. ○ There is an absence of invasive non-native species	○ avoid coarse grassland and scrub species from encroaching onto the main habitats. ○ All arisings will be removed from the site once dried. ○ **Review in years 1, 3 and 5 post establishment and every five years thereafter**.		
			<u>Ongoing Maintenance</u> ○ Remove scrub where encroaching on grassland areas. ○ If necessary, remove invasive non-native species and/or ruderal vegetation and pernicious weeds. ○ If necessary, consider further seeding/plug planting to enhance diversity.	As required for the first 5-10 years or until it is no longer necessary. Scrub removal 1st September -28th February (inclusive)	
Watercourse	Moderate	○ Increased riparian vegetation structure ○ increase the richness of tree features ○ Maintenance of non-native species absence from the site; ○ Management of bank-top habitats for wildlife; ○ Reduction in poaching along the banks ○ Increased bank profile variation;	○ Management of the watercourse will generally be non-interventionist subject to the results of monitoring work. ○ Peripheral habitats are to be managed as stated elsewhere in this table. ○ **Review in years 1, 3 and 5 post establishment and every five years thereafter.**	As required for the first 5-10 years or until it is no longer necessary. Scrub removal 1st September -28th February (inclusive)	5-10 years
			<u>Ongoing Maintenance</u> ○ Remove scrub where encroaching on grassland areas along the banks. ○ If necessary, remove invasive non-native species and/or ruderal vegetation and pernicious weeds. ○ Removal of any rubbish recorded along the watercourse. ○ Review any signs of damage/ grazing/browsing. ○ Any fallen deadwood will be left in situ as long as it is safe to do so.		
Urban Tree	Moderate	○ The tree is a native species. ○ Micro-habitats are present. ○ More than 20% of the tree canopy is oversailing vegetation beneath.	○ Management of urban trees will generally be non-interventionist subject to the results of monitoring work. ○ **Review in years 1, 3 and 5 post establishment and every five years thereafter.**	N/A	27

Table 6.1: Work Schedule, Habitat Target Actions and Objectives and Timescales					
Habitat	**Target Condition**	**Target Aims**	**Management Measures**	**Management Measure Timing**	**Time to Target Condition**
			Ongoing Maintenance ○ Replace weak or diseased specimens. ○ If necessary, remove invasive non-native species and/or ruderal vegetation and pernicious weeds. ○ Prior to year 5 any damaged tree guards/shelter will be replaced as necessary. Post year 5 check and remove guards annually as soon as they split and before they start to disintegrate (usually after 5-10 years). ○ Review any signs of damage/ grazing/browsing. ○ Any standing deadwood or fallen deadwood will be left on site as long as it is safe to do so.		
Grassland – Modified Grassland (Amenity Grassland)	Moderate	○ Create a varied sward height with sections of short and long sward. ○ Cover of scrub & bracken is <5%, with a varied scrub layer throughout. ○ Physical damage is evident in less than 5% of the total grassland area. ○ Cover of bare ground is between 1-10% ○ There is an absence of invasive non-native species.	○ Cut on a regular basis from the start of the growing season until the end of June and from the end of August to the end of the growing season – remove arisings from site. ○ **Review in years 1, 3 and 5 post establishment and every five years thereafter**. ○ If necessary, remove of invasive non-native species. Ongoing Maintenance ○ Remove scrub where encroaching on grassland areas. ○ If necessary, remove invasive non-native species and/or ruderal vegetation and pernicious weeds.	Cut every two weeks during the spring summer and autumn months (March to October)	4

7. Monitoring, Additional Site Working Methods & Responsibilities

Monitoring

7.1 Monitoring of the habitats will be undertaken in following years post establishment:

- Year 1
- Year 3
- Year 5
- Every 5 years thereafter for 30 years in total.

7.2 This will done as part of a 30 year plan to ensure the BNG metric ensures a net gain for the entirety of the 30 year period.

7.3 The site owner or an appointed contractor will be responsible for ensuring that the proposals are monitored by a suitably qualified ecologist and findings reported to the Local Planning Authority.

7.4 The condition of each habitat will be assessed based on the applicable DEFRA condition assessment document at the time (DEFRA 3.1 Condition Assessment during the site design) and a report will be produced to be submitted to the local authority. This will include an assessment of the current habitat condition and any recommendations regarding management.

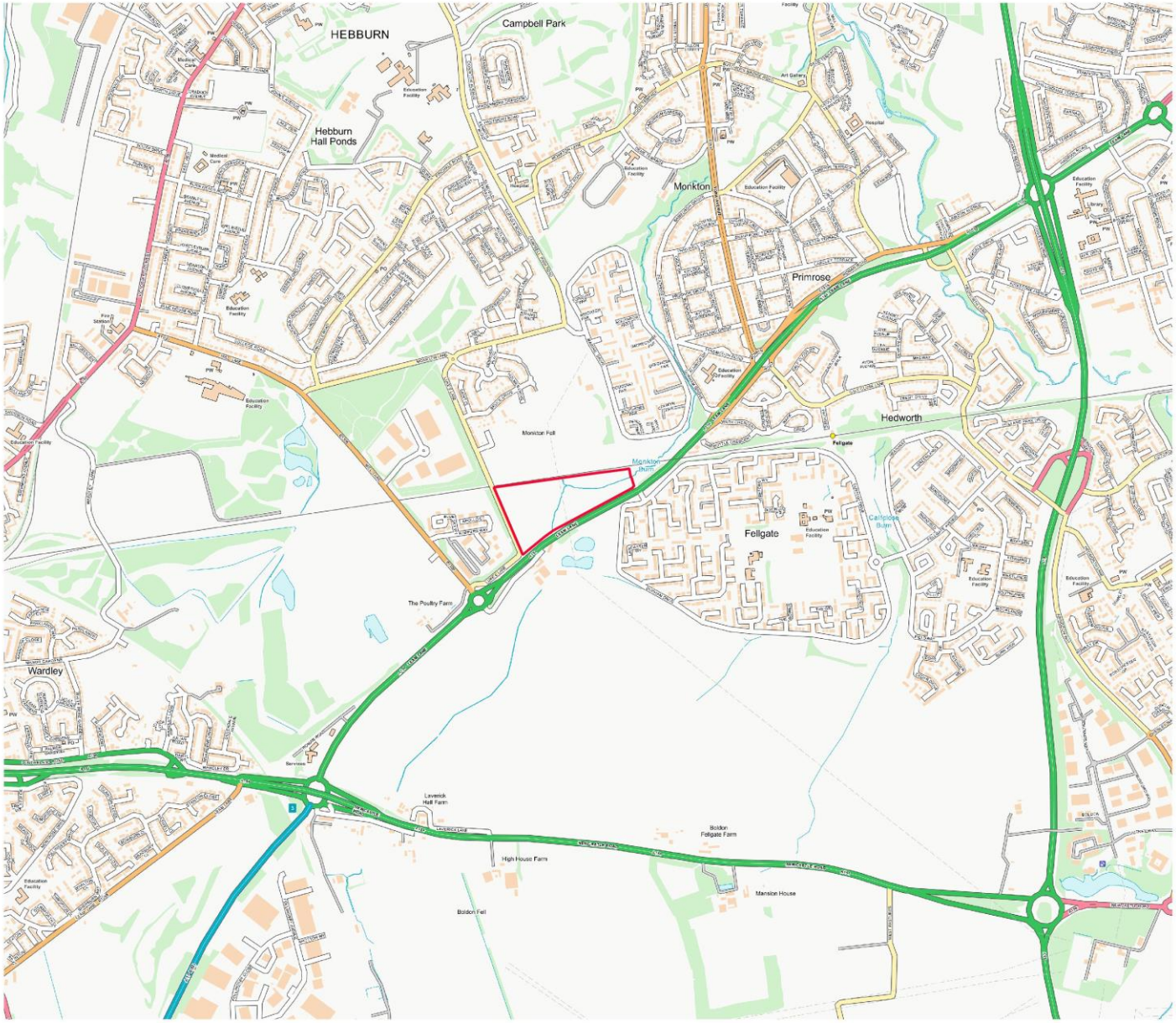
Biosecurity

7.5 All equipment required to complete management works must be free from material which could contaminate the site.

Responsibilities

7.6 Short and long-term habitat management and monitoring will be the responsibility of the site owner or an appointed contractor.

Appendix 1 – Figures



Key

Site Boundary

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North

Figure No: 01
Figure Name: Site Location
Project Name: Land off Lukes Lane
Project Ref. No: 21018
Date: 4th February 2022
Author: JS

0 250 500 (m)



Key

Site Boundary

Reproduced from Google Earth 2022 (c)

North

Figure No: 02
Figure Name: Site Aerial
Project Name: Land off Lukes Lane
Project Ref. No: 21018
Date: 4th February 2022
Author: JS

0 25 50 (m)



Key

- g3c - Other Neutral Grassland
- h3 - Dense Scrub
- h2 - Hedgerow
- r1e - Stream

Secondary Codes
10 - Scattered Scrub

North

Figure No: 09
Figure Name: UK Habitat Classification
Project Name: Lukes Lane
Project Ref. No: 21018
Date: 4th February 2022
Author: JS

0 50 100 (m)



Key

- Development Area
- Buffer zone
- Site Boundary

Area within 10m buffer - 0.89ha
Area of development within 10m buffer - 0.2ha

22% of the riverine buffer zone is encroached.

North

Figure No: 10
Figure Name: River Habitat Encroachment
Project Name: Lukes Lane
Project Ref. No: 21018
Date: 21st April 2022
Author: JS

0 50 100 (m)



Key

Habitat Creation

- Mixed Scrub
- Modified Grassland
- Ornamental Scrub
- Other Neutral Grassland
- Other Neutral Grassland - SUDS
- Hedgerow
- Stream

Modified grassland outside of individual ownership areas is 0.21ha

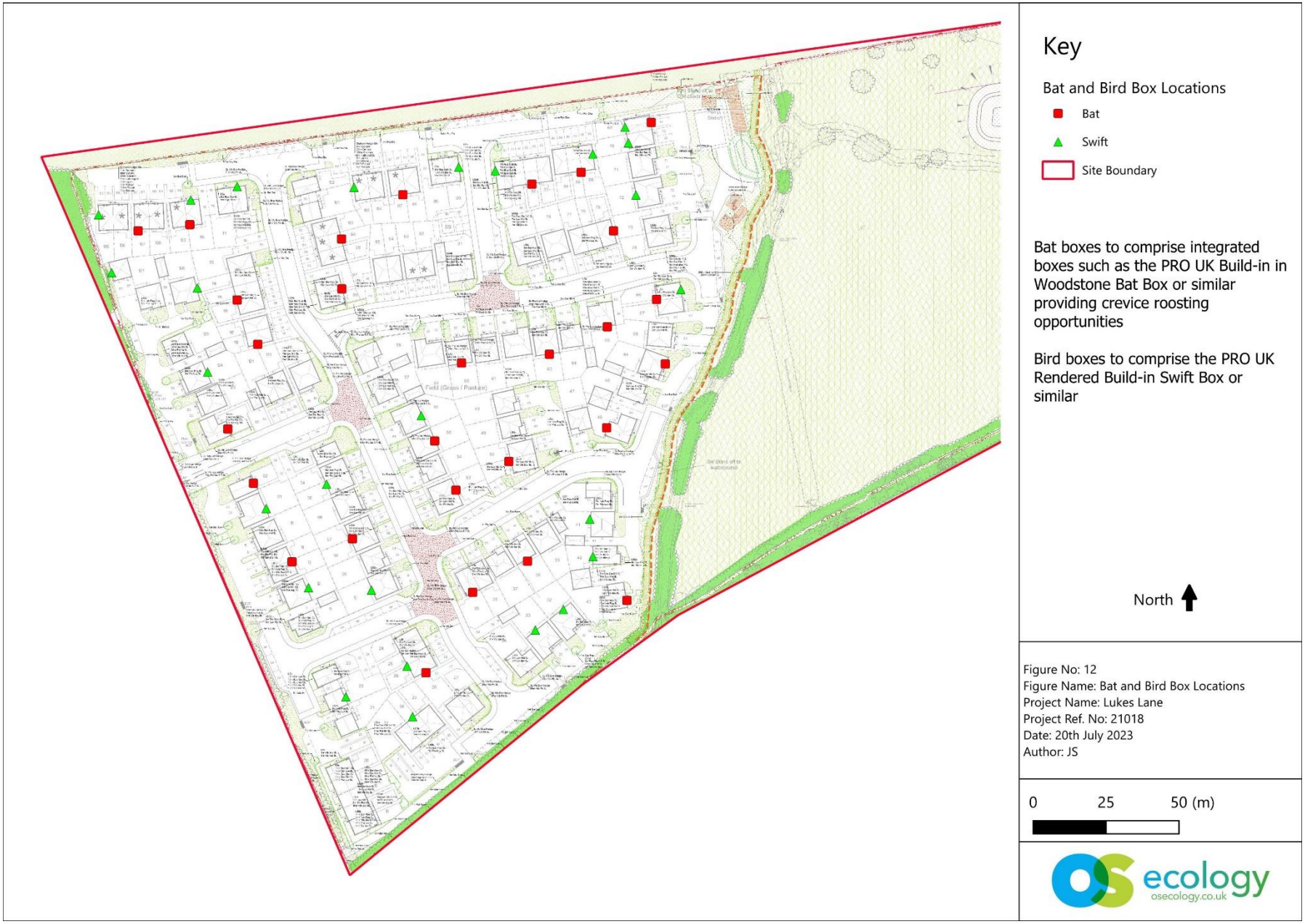
A total of 38 trees are to be planted in communal areas

North

Figure No: 11
Figure Name: Habitat Enhancement/Creation
Project Name: Lukes Lane
Project Ref. No: 21018
Date: February 2024
Author: JS

0 50 100 (m)





Key

Bat and Bird Box Locations

- Bat
- Swift
- Site Boundary

Bat boxes to comprise integrated boxes such as the PRO UK Build-in in Woodstone Bat Box or similar providing crevice roosting opportunities

Bird boxes to comprise the PRO UK Rendered Build-in Swift Box or similar

North

Figure No: 12
Figure Name: Bat and Bird Box Locations
Project Name: Lukes Lane
Project Ref. No: 21018
Date: 20th July 2023
Author: JS

0 25 50 (m)