Biodiversity Net Gain Feasibility Assessment

Land South of Barrow Green Road, Oxted, Surrey

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LIABILITIES:

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing and whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date.

This report provides a snap shot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated only dominant species maybe recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 Introduction

1.1 The Ecology Partnership was commissioned by Croudace Homes to undertake a Biodiversity Net Gain (BNG) feasibility assessment for the outline application for the development to the south of Barrow Green Road, Oxted, hereafter referred to as the 'site' (Figure 1).

1.2 The site comprises an arable field with small areas of woodland at the northern and southern edges. The site is approximately 9.7ha and located on the north-western edge of Oxted, bound by Barrow Green Road and a railway corridor to the north, a cemetery to the east, residential housing and gardens to the south, ancient woodland to the south-west and a small ephemeral stream to the west (TQ 387 531). The wider surrounding area comprises residential areas of Oxted to the north, east and south, with extensive woodland and private green space to the west. The aerial photograph below (Figure 1) shows the site and its immediate surroundings.

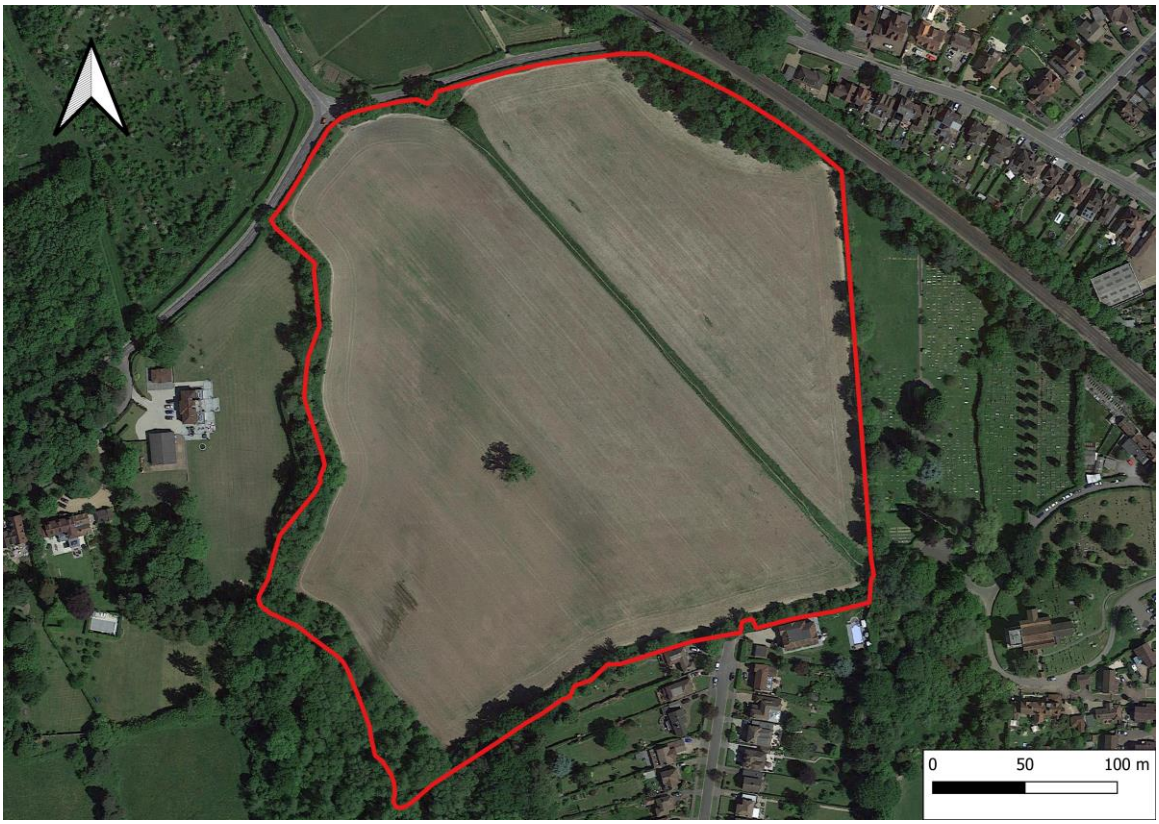

Figure 1: Site application boundary (red line).
Satellite imagery obtained from Google Earth Pro on 11/12/2024

1.3 The assessment is based on the Illustrated Landscape Strategy Plan produced by CSA Environmental (CSA/6514/100) (see Figure 2 below).

Figure 2: Illustrative Landscape Strategy Plan (CSA Environmental, 2025)

2.0 Statutory Biodiversity Metric

2.1 BNG principles are aimed to support both the aspired green infrastructural proposals set to define the created landscape and support biodiversity and habitat enhancement. BNG principles are set within the Environment Bill (2021).

2.2 In order to determine the on-site habitat baseline, habitats were mapped and subject to a condition assessment on 3rd May 2022, with an update survey on 26th September 2024, which included a River Condition Assessment (RCA) of the adjacent stream following the standard metric and RCA guidelines. This work was undertaken by Principal Ecologist Matthew Pendry BSc (Hons) MCIEEM, an experienced botanist who holds a Level 4 Field Identifications Skills Certificate (FISC) and is certified to carry out RCA surveys.

2.3 A single unnamed watercourse along the western boundary of the site was subject to a River Condition Assessment (RCA). In order to inform the assessment, a series of MoRPh5 surveys were undertaken along this water course to characterise each sub-reach. Each MoRPh5 comprises five contiguous modules. As the width of the water course was less than 5m, the minimum module length of 10m was used, and so each MoRPh5 totalled 50m per sub reach. MoRPh5 surveys are repeated so that a minimum of 20% of the length of river within the development red line boundary is surveyed and each sub-reach should be equally spaced and located to best capture variations along within the red line boundary. In this instance, the channel measured *c.*335m, and so this was divided into two sub-reaches, with a 50m MoRPh5 survey carried out on each, which accounted for c.30% of the watercourse length.

2.4 The MoRPh survey involves a detailed assessment of a number of features on the channel bed, banks, and immediate bank tops (to 10 m from the bank top edge). This includes morphological and hydraulic features, habitats, and presence and extent of non-native invasive plant species, land use pressures on the bank top and human interventions within the river channel. Data is gathered using the Cartographer App, and is automatically uploaded to the Cartographer Website (www.Cartographer.io). A series of positive and negative indicator scores are then generated ranging from -4 to 0 for negative indicators and 0 to +4 for positive indicators. The average of negative indicators are then subtracted from the average of positive indicators to generate the preliminary condition score. A desk study is undertaken within the Cartographer Website to determine the river type. The preliminary condition score is then compared against the river type to determine the river condition for the purposes of the statutory metric.

2.5 The Statutory Biodiversity Metric is used to calculate biodiversity losses and gains for terrestrial habitats within the application area. This metric underpins the Environment Bill's provisions for mandatory biodiversity net-gain in England.

2.6 The Statutory Biodiversity Metric uses habitat as a proxy for wider biodiversity with different habitat types scoring different values according to their relative biodiversity value and dependent on the condition and location of the habitat, to calculate 'biodiversity units'.

On-Site Habitat Baseline

2.7 The habitats currently present on site have been identified and assessed. These are shown in Figure 3 and in Tables 1-3, overleaf. A full condition assessment is presented in Appendix 1.

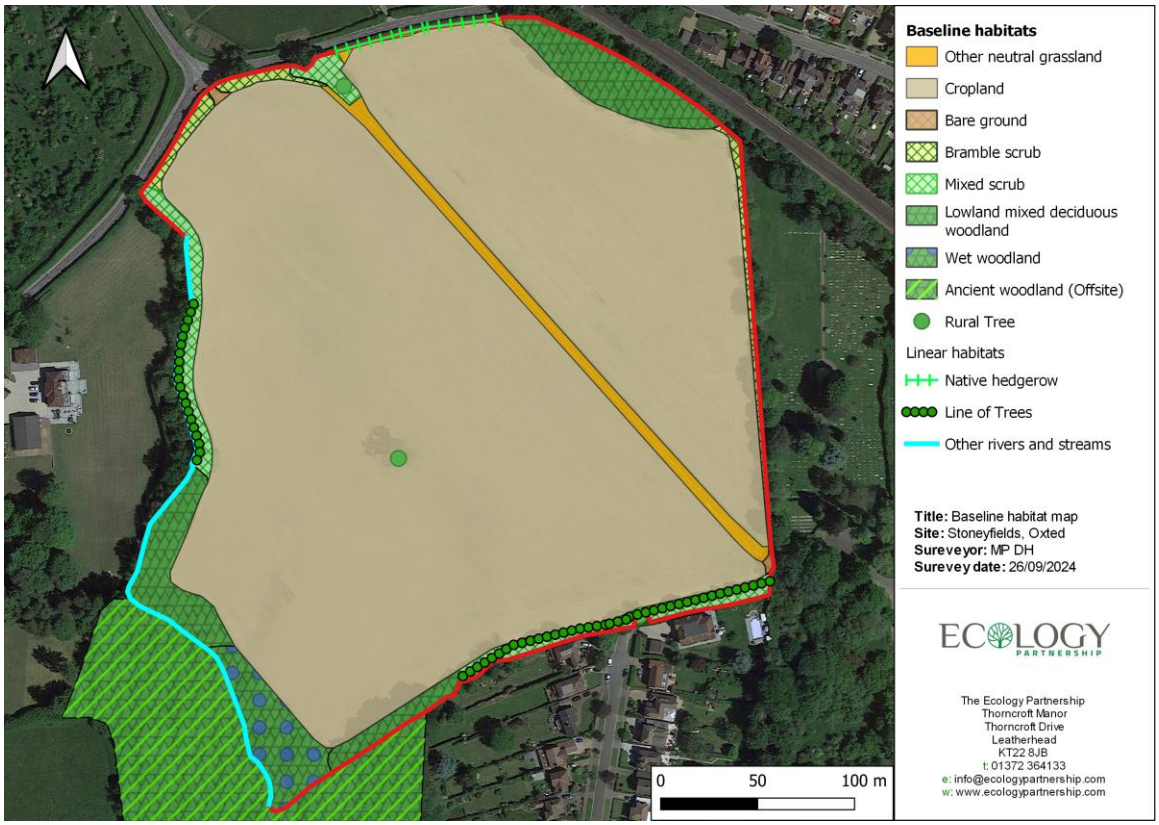

Figure 4: On-Site Habitat Baseline

Table 1. ***On-site habitat breakdown – Pre-Development***

Habitat	Area (ha)	Distinctiveness	Condition	Strategic significance	Total habitat units	Area retained	Area enhanced	Units lost	Comments
Cereal crops	8.33	Low	Condition Assessment N/A	Low	16.66			16.66	Arable land covering the majority of the site. Primarily used for Maize.
Bare ground	0.01	Low	Moderate	Low	0.04			0.04	Area of bare ground in the eastern corner of the field
Bramble scrub	0.12	Medium	Condition Assessment N/A	Low	0.48		0.12	0.00	Bramble dominated scrub along the northern and eastern boundary.
Lowland mixed deciduous woodland	0.23	High	Good	Low	4.14	0.23		0.00	Small area of elevated woodland in the north of the site.
Mixed scrub	0.28	Medium	Moderate	Low	2.24	0.27		0.08	Mature mixed scrub along the western and southern site boundaries
Other neutral grassland	0.2	Medium	Poor	Low	0.80			0.80	Species-poor grassland along the central footpath which runs through the middle of the site.
Wet woodland	0.21	High	Moderate	Low	2.52	0.21		0.00	Wet woodland located in the southern corner of the site.
Rural tree	0.077	Medium	Good	Low	0.92	0.077		0.00	Single very large ash tree in the west of the site.
Rural tree	0.016	Medium	Moderate	Low	0.13	0.016		0.00	Single medium sized oak tree in the north of the site.
Lowland mixed deciduous woodland	0.26	High	Moderate	Low	3.12		0.26	0.00	Small linear woodland blocks in the south and west of the site, that were not considered to be wet woodland.
Total area (excluding trees)	**9.64**			**Total units/area**	**31.05**	***0.8***	**0.38**	**17.58**	

Table 2. ***On-site hedgerow habitat breakdown – Pre-Development***

Habitat	Length (km)	Distinctiveness	Condition	Strategic significance	Total units	Length retained	Units lost	Comments
Native hedgerow	0.12	Low	Moderate	Low	0.48	0.07	0.2	Hedgerow along northern site boundary
Line of trees	0.17	Low	Moderate	Low	0.68	0.16	0.04	Line of mature and semi-mature trees along the eastern boundary of the site
Line of trees	0.09	Low	Good	Low	0.54	0.09	0	Line of mature trees within the scrub along the western site boundary
Total length	**0.38**			**Total units/length**	**1.7**	***0.32***	**0.24**	

Table 3. ***On-site watercourse habitat breakdown – Pre-Development***

Habitat	Length (km)	Distinctiveness	Condition	Strategic significance	Extent of encroachment		Total units	Length retained	Length enhanced	Units lost	Comments
					Water-course	Riparian					
Other rivers and streams	0.25	High	Moderate	Low	None	Major/ Major	2.25	0	0.25	0	Upstream section of watercourse within the woodland and scrub along western site boundary
Other rivers and streams	0.09	High	Fairly Good	Low	None	None/ none	1.35	0.09	0	0	Downstream section of watercourse within the wet woodland to the south
Total length	**0.34**					**Total units/length**	**3.60**	***0.09***	**0.25**	**0**	

On-Site Habitat Creation

2.8 The proposed development is largely centred on the arable land, whilst retaining/enhancing most of the boundary habitats, as well as all areas of woodland. A wide green corridor will be established along the south-western and north-western part of the site acting as a buffer between the development and the woodland and stream. These will be primarily be made up of species-rich grassland, with scattered trees/scrub, and SUDS basins designed for wildlife. Extensive tree planting is proposed throughout the site and use of flowering lawns in areas which areas of grassland to be manged to a shorter sward. The proposed habitat areas are detailed in Tables 4, 5 & 6, and Figure 5 below.

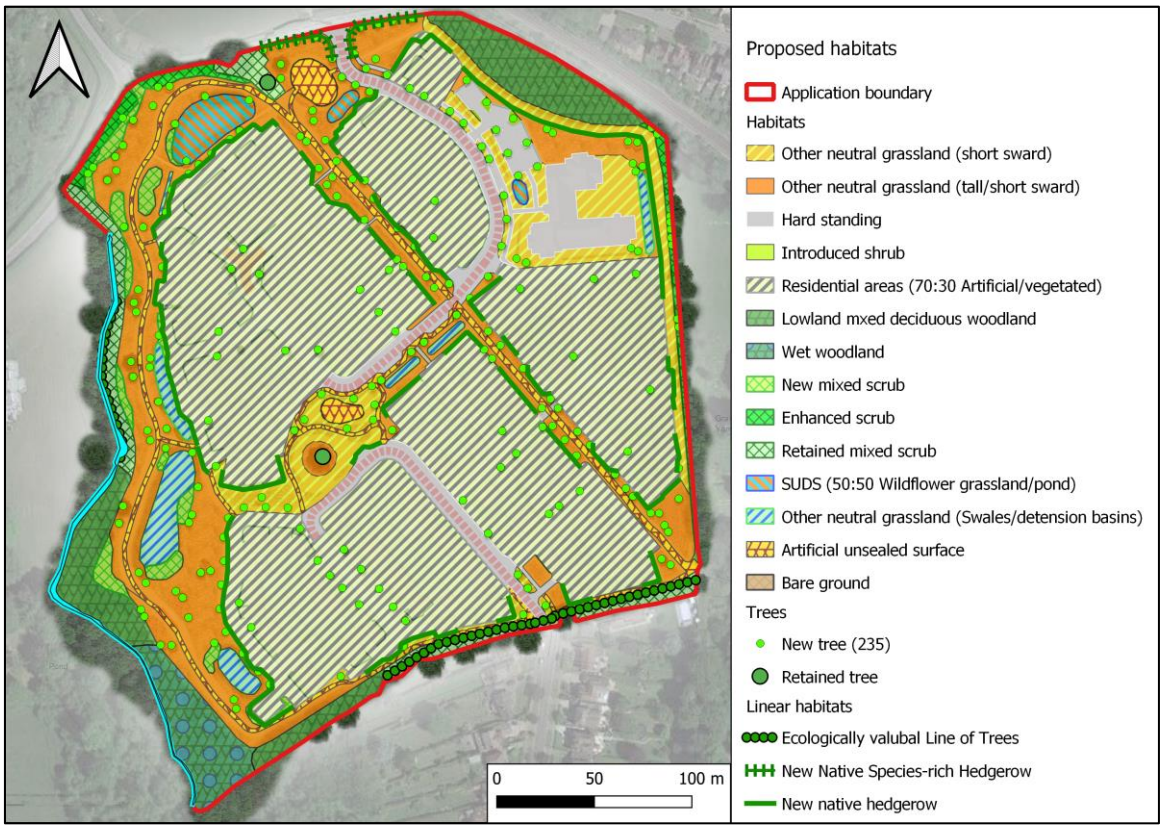

Figure 5. Proposed habitats

Table 4. ***On-site habitat breakdown – Post-Development Creation***

Habitat	Area (ha)	Distinctiveness	Target Condition	Strategic significance	Years to target condition	Difficulty	Total habitat units	Comments
Developed land; sealed surface	3.38	V.Low	N/A - Other	Low	0	Low	0.00	Residential areas (70% buildings/hardstanding)
Vegetated garden	1.45	Low	Condition Assessment N/A	Low	1	Low	2.8	Residential areas (30% gardens/soft landscaping)
Mixed scrub	0.17	Medium	Moderate	Low	5	Low	1.14	Areas of new mixed native shrubs bordering existing habitats along the western edge of the site.
Other neutral grassland	0.62	Medium	Poor	Low	2	Low	2.31	New areas of flowering lawn to be manged to a shorter sward height in the central area of greenspace and that around the care home.
Developed land; sealed surface	0.65	V.Low	N/A - Other	Low	0	Low	0.00	Areas of hardstanding and buildings outside of the residential areas.
Other neutral grassland	1.59	Medium	Moderate	Low	5	Low	10.64	New areas of wildflower-rich grassland of variable sward height outside of the residential areas.
Artificial unvegetated, unsealed surface	0.37	V.Low	N/A - Other	Low	0	Low	0.00	Gravel footpaths and play spaces
Urban tree	0.95	Medium	Poor	Low	10	Low	2.66	210 new small trees
Introduced shrub	0.01	Low	Condition Assessment N/A	Low	1	Low	0.02	Area of introduced shrub around care home carpark
Other neutral grassland	0.19	Medium	Moderate	Low	5	Low	1.27	Detention basins and swales seeded with wildflower grassland and managed for biodiversity.
Ponds (non-priority habitat)	0.06	Medium	Moderate	Low	3	Low	0.43	Attenuation basins designed to hold water and planted and managed as wildlife. Assumed 50% water/50% grassland

Other neutral grassland	0.06	Medium	Moderate	Low	5	Low	0.40	Attenuation basins seeded with wildflower grassland and managed for biodiversity. Assumed 50% water/50% grassland
Total area	**9.5**	**Total units**					**21.68**	

Table 5. ***On-site habitat breakdown – Post-Development Enhancement***

Habitat	Area (ha)	Distinctiveness	Target Condition	Strategic significance	Years to target condition	Difficulty	Total habitat units	Comments
Bramble to Mixed scrub	0.12	Medium	Poor to Moderate	Low	5	Low	0.88	Area of bramble to be partially cut back and plated with a diverse mix of native scrub species.
Lowland mixed deciduous woodland	0.26	High	Moderate to Good	Low	20	High	3.37	Areas of woodland in the south-west and south-east of the site to be managed to a good condition through removal of invasive cherry laurel.

Table 6. ***On-site hedgerow habitat breakdown – Post-Development Creation***

Habitat	Length (km)	Distinctiveness	Condition	Strategic significance	Years to target condition	Difficulty	Total habitat units	Comments
Species-rich native hedgerow	0.1	Medium	Moderate	Low	5	Low	0.67	Areas of new native species-rich hedges to be created along the north-eastern site boundary, extending out from the retained hedge.
Native hedgerow	1.25	Low	Moderate	Low	5	Low	4.18	Areas of new native hedgerows to be planted around the edges of the residential areas.
Total length	**1.35**					**Total units**	**4.85**	

Table 7. ***On-site watercourse habitat breakdown – Post-Development Enhancement***

Habitat	Length (km)	Distinctiveness	Condition	Strategic significance	Extent of encroachment		Total units	Comments
					Water-course	Riparian		
Other rivers and streams	0.25	High	Moderate to good	Low	None	Major/ Major to Major/ none	3.02	Watercourse section along western boundary to be enhanced through removal of invasive species and cease of agricultural operations

2.9 The final results are shown in table 7 below.

Table 7. Final results

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	4.75
	Hedgerow units	4.61
	Watercourse units	0.77
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	15.30%
	Hedgerow units	271.39%
	Watercourse units	21.31%
Trading rules satisfied?	Yes ✓	

2.10 The calculations confirm that the development has the potential to result in a **+15.3% net gain** in habitat units and a **+271.39% net gain** in hedgerow units, and **+21.31% net-gain** in watercourse units, based on the current proposal and all trading rules have been satisfied.

2.11 It should be noted that the application is Outline only, and detailed landscaping will be developed at the reserved matters stage. As such, this assessment would need to be revised once landscaping has been finalised.

2.12 A detailed Habitat Management & Maintenance Plan will be developed at the detailed design stage to detail the long-term management of the proposed habitats to achieve the targeted habitat conditions, over a 30 year timespan.

3.0 Conclusions

3.1 The baseline value of the site is **31.05 area units**, **1.7 hedgerow units**, and **3.6 watercourse units**.

3.2 Post-development the proposed value of the site is currently predicted to be **35.8 area units, 6.31 hedgerow units,** and **4.37 watercouse units**, equating to a change of **+15.3%, +271.39%** and **+21.31%** respectively.

3.3 All trading rules have been satisfied.

3.4 To achieve this net-gain the development will seek to retain/enhanced all existing areas of woodland, as well as the adjacent stream, and much of the existing boundary treelines, scrub, and hedgerow habitat and create new habitats including wildflower-rich grassland, species-rich hedgerows, SUDS ponds, and mixed native shrub and tree planting.

3.5 As a condition of planning approval an update BNG assessment will be required based on the detailed landscape plans to be produced at reserved matters stage. A Habitat Management and Maintenance Plan (HMMP) will also likely be required to detail the necessary management required to achieve the targeted net gain, over a 30 year timespan.

Appendix 1: Habitat Condition Assessments

Condition Sheet: GRASSLAND Habitat Type (medium, high & very high distinctiveness)		
UKHab Habitat Type(s): All other grassland types and tall ruderal (ie. not amenity/modified)		
Condition Assessment Criteria		**Other neutral grassland**
1	The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present. **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	**Fail** Considered poor example of its type owing to dominance of grasses and indicators of high nutrients
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	**Fail** All greater than 7cm
3	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens (**Footnote 1**)	**Fail** Bare ground <5%
4	Cover of bracken is less than 20% and cover of scrub (including bramble) is less than 5%.	**Pass**
5	Combined cover of species indicative of sub-optimal condition (**Footnote 2**) and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species (as listed on Schedule 9 of WCA) are present, this criterion is automatically failed.	**Fail** > 5% cover of thistles, cow parsley, nettles, docks and white clover
Additional Criterion - must be assessed for all non-acid grassland types		
6	There are 10 or more vascular plant species per m* present, including forbs that are characteristic of the habitat type (species referenced in Footnote 2 and 4 cannot contribute towards this count). *Note - ths criterion is essential for achieving Good condition for non-acid grassland types only.*	**Fail** *c.5* species per m^2
	Condition	**Poor**

Condition Assessment Result	
Good	Passes 5 of 6 criteria, including essential criterion 1 and 6
Moderate	Passes 3 or 4 of 6 criteria, including essential criterion 1
Poor	Passes 0, 1, 2 criteria of 6 criteria; OR Passes 3 or 4 criteria excluding criterion 1 and 6

Footnote 1. For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover.
Footnote 2. Species indicative of sub-optimal condition for this habitat type include: Creeping thistle, spear thistle, curled dock, broad-leaved dock, common nettle, creeping buttercup, greater plantain, white clover, cow parsley.

Condition Sheet: SCRUB Habitat Type		
UKHab Habitat Type(s): All forms of scrub		
Condition Assessment Criteria		**Mixed scrub**
1	The scrub is a good representation of the habitat type it has been identified as, based on its UKHab description (where in its natural range). The appearance and composition of the vegetation closely matches the characteristics of the specific scrub type. At least 80% of scrub is native, and there are at least three native woody species[1], with no single species comprising more than 75% of the cover (except hazel, common juniper, sea buckthorn or box, which can be up to 100% cover).	**Pass**
2	Seedlings, saplings, young shrubs and mature (or ancient or veteran[2]) shrubs are all present.	**Pass**
3	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]) and species indicative of sub-optimal condition[5] make up less than 5% of ground cover.	**Pass**
4	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	**Pass**
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.	**Fail**
	Condition	**Moderate**

Condition Assessment Result	
Good	Passes 5 of 5 criteria
Moderate	Passes 3 or 4 of 5 criteria
Poor	Passes 2 or fewer criteria

Footnote 1 - Native woody species as d efined and listed in the Hedgerow Survey Handbook: DEFRA (2007) Hedgerow Survey Handbook: A standard procedure for local surveys in the UK. 2nd ed. [online]. Defra, London. PB1195. Available from: Hedgerow Survey Handbook (publishing.service.gov.uk).
Footnote 2 - See gov.uk standing advice on ancient and veteran species. Available from:
Keepers of time: ancient and native woodland and trees policy in England (publishing.service.gov.uk)
Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk)
Footnote 3 - Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement.
Footnote 4 - Wildlife and Countryside Act 1981 (as amended).
Footnote 5 - Species indicative of sub-optimal condition for this habitat type may include: non-native conifers, tree-of-heaven, holm oak, European turkey oak, cherry laurel, snowberry, shallon, American skunk cabbage, buddleia, cotoneaster, Spanish bluebell and hybrid bluebells. There may be additional relevant species local to the region and or site.

Condition Sheet: INDIVIDUAL TREES Habitat Type			
UKHab Habitat Type(s): Urban tree: Covers the following topographical formations most commonly found in urban areas[1]: **Individual Trees (urban or rural):** Young trees over 75mm in diameter at breast height whose canopies are not touching. **Urban Perimeter / Linear Blocks and Groups (description applied to the urban environment only):** Groups or stands of trees (size requirement as defined above) within and around the perimeter of urban land. This includes those along urban streets, highways, railways and canals, and also former field boundary trees incorporated into developments. Canopies must overlap continuously. Groups of urban trees that don't match the descriptions for woodland may be assessed within this category.			
Condition Assessment Criteria		**T16**	**T25**
1	The tree is a native species (or at least 70% within the block are native species).	Pass	Pass
2	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Pass	Pass
3	The tree is mature (or more than 50% within the block are mature).	Fail	Pass
4	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain > 75% of expected canopy for their age range and height.	Pass	Pass
5	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	Fail	Pass
6	More than 20% of the tree canopy area is oversailing vegetation beneath.	Pass	Pass
	Condition	**Moderate**	**Good**

	Condition Assessment Result
Good	Passes 5 or 6 criteria
Moderate	Passes 3 or 4 criteria
Poor	Passes 2 or fewer criteria

Condition Assessment Criteria	Criteria achieved?
Hedgerows	**Northern hedge**
Height >1.5 m average along length	**Fail**
Width >1.5 m average along length	**Fail**
Gap – hedge base Gap between ground and base of canopy <0.5 m for >90% of length	**Pass**
Gap – hedge canopy continuity Gaps make up <10% of total length and No canopy gaps >5 m	**Pass**
Undisturbed perennial vegetation >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length (on one side of the hedge (at least))	**Pass**
Undesirable species Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground. The indicator species used are nettles, cleavers and docks.	**Fail**
Invasive species >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	**Pass**
Current Damage >90% of the hedgerow or undisturbed ground is free of damage caused by human activities - This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g., excessive hedgerow cutting).	**Fail**
Criteria failed	**3**
Condition	**Moderate**

Condition Assessment Result	
	Hedgerow without trees
Good	No more than 2 failures in total; AND No more than 1 in any functional group.
Moderate	No more than 4 failures in total; AND Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition).
Poor	Fails a total of more than 4 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).

Condition Sheet: LINE OF TREES Habitat Type			
Condition Assessment Criteria		**Southern treeline**	**Western treeline**
1	More than 70% of trees are native species.	**Pass**	**Pass**
2	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	**Pass**	**Pass**
3	One or more trees has veteran features and or natural ecological niches for vertebrates and invertebrates, such as presence of standing and attached deadwood, cavities, ivy or loose bark.	**Pass**	**Pass**
4	There is an undisturbed naturally-vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other human activities (excluding grazing). Where veteran trees are present, root protection areas should follow standing advice[2]	**Fail**	**Pass**
5	At least 95% of the trees are in a healthy condition (deadwood or veteran features valuable for wildlife are excluded from this. There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	**Fail**	**Pass**
	Condition	**Moderate**	**Good**
Condition Assessment Result			
Good	Passes 5 of 5 criteria		
Moderate	Passes 3 or 4 of 5 criteria		
Poor	Passes 0, 1 or 2 of 5 criteria		

Footnote 2 -Veteran trees can be classified if they have four out of the five following features:

1. Rot sites associated with wounds which are decaying >400 cm^2;
2. Holes and water pockets in the trunk and mature crown >5 cm diameter;
3. Dead branches or stems >15 cm diameter;
4. Any hollowing in the trunk or major limbs;
5. Fruit bodies of fungi known to cause wood decay.

Condition Sheet: WOODLAND Habitat Type

UKHab Habitat Type(s): All woodlands (except wood pasture)

Condition Assessment Criteria

	Indicator	Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator			
					Southwest woodland	Wet woodland	Southeast woodland	Northern woodland
A	**Age distribution of trees Footnote 1**	Three age-classes[1] present	Two age-classes[1] present	One age-class[1] present	3	3	2	2
B	**Wild, domestic and feral herbivore damage Footnote 2**	No significant browsing damage evident in woodland[2]	Evidence of significant browsing pressure is present in 40% or less of whole woodland[2]	Evidence of significant browsing pressure is present in 40% or more of whole woodland[2]	2	2	2	3
C	**Invasive plant species Footnote 3**	No invasive species[3] present in woodland	Rhododendron *Rhododendron ponticum* or cherry laurel *Prunus laurocerasus* not present, other invasive species[3] < 10% cover	Rhododendron or cherry laurel present, or other invasive species[3] > 10% cover	1	1	1	3
D	**Number of native tree species Footnote 4**	Five or more native tree or shrub species[4] found across woodland parcel	Three to four native tree or shrub species[4] found across woodland parcel	None to two native tree or shrub species[4] across woodland parcel	3	3	3	3
E	**Cover of native tree and shrub species Footnote 5**	> 80% of canopy trees and > 80% of understory shrubs are native[5]	50-80% of canopy trees and 50-80% of understory shrubs are native[5]	< 50% of canopy trees and < 50% of understory shrubs are native[5]	3	3	3	3
F	**Open space within woodland Footnote 6 and 7**	10 - 20% of woodland has areas of temporary open space[6]. Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted[7]	21- 40% of woodland has areas of temporary open space[6]	<10% or >40% of woodland has areas of temporary open space[6]. But if woodland <10ha has <10% temporary open space, please see Good category[7].	3	3	3	3
G	**Woodland regeneration Footnote 8**	All three classes present in woodland[8]; trees 4-7cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland[8]	No classes or coppice regrowth present in woodland[8]	2	3	2	2

H	**Tree health Footnote 9**	Tree mortality less than 10%, no pests or diseases and no crown dieback[9]	11% to 25% mortality and/or crown dieback or low risk pest or disease present[9]	Greater than 25% tree mortality and or any high risk pest or disease present[9]	2	2	3	2
I	**Vegetation and ground flora Footnote 10**	Recognisable NVC plant community[10] at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community[10] present at ground layer present	No recognisable woodland NVC plant community[10] at ground layer present	2	2	2	3
J	**Woodland vertical structure Footnote 11**	Three or more storeys across all survey plots or a complex woodland[11]	Two storeys across all survey plots[11]	One or less storey across all survey plots[11]	2	2	2	2
K	**Veteran trees Footnote 12**	Two or more veteran trees[12] per hectare	One veteran tree[12] per hectare	No veteran trees[12] present in woodland	3	3	1	3
L	**Amount of deadwood Footnote 13**	50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities[13].	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	3	3	3	3
M	**Woodland disturbance Footnote 14**	No nutrient enrichment or damaged ground evident[14]	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground[14]	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground[14]	1	1	1	2
				Total score (out of a possible 39)	**30 Mod**	**31 Mod**	**28 Mod**	**34 Good**

Condition Assessment Score	
Good	Total score >32 (33 to 39)
Moderate	Total score 26 to 32
Poor	Total score <26 (13 to 25)

Footnotes below refer to the EWBG woodland condition assessment details: EWBG (No date). *Assessing your Woodland's Condition* [online]. Available from: Woodland Wildlife Toolkit (sylva.org.uk)

The woodland condition assessment survey methodology is outlined in the EWBG toolkit. However the criteria on this sheet are those specific to the Statutory Biodiversity Metric and must be used when assessing woodland condition.

Footnote 1 - See EWBG method INDICATOR 1 for more information. If tree species is not a birch *Betula* sp., cherry *Prunus* sp. or *Sorbus* sp.: 0 - 20 years (Young); 21 - 150 years (Intermediate); and >150 years (Old). For birch, cherry or *Sorbus* species; 0 - 20 years = Young; 21 - 60 years =Intermediate; >60 years = Old. A recognisable age-class should be a consistent recognisable layer across the woodland or stand being assessed. Presence of a few saplings would not indicate that the woodland has an 'age-class' of young trees.

Footnote 2 - See EWBG method INDICATOR 2 for more information. Browsing pressure is considered to be significant where >20% of vegetation visible within each survey plot shows damage from any type of browsing pressure listed.

Footnote 3 - See EWBG method INDICATOR 3 for more information. Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly. Check for the presence of all plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), particularly the following invasive non-native species: American skunk cabbage *Lysichiton americanus*; Himalayan balsam *Impatiens glandulifera*; Japanese knotweed *Reynoutria japonica*; cherry laurel *Prunus laurocerasus*; shallon *Gaultheria shallon*; snowberry *Symphoricarpos albus*; variegated yellow archangel *Lamiastrum galeobdolon subsp. argentatum*; rhododendron *Rhododendron ponticum*; and tree-of-heaven *Alianthus altissima*.

Footnote 4 - See EWBG method INDICATOR 4 and Table 2 for more information. The number of different native tree or shrub species including young trees and shrubs. A list of commonly found native tree and shrub species is provided in Table 2. Not all species listed are native to all parts of the UK. Note a list of commonly found non-native tree species are also included and should be recorded if present.

Footnote 5 - See EWBG method INDICATOR 5 and for more information. The abundance of native tree species in upper (>5 m) and understorey (up to 5 m) layers including young trees and shrubs.

Footnote 6 - See EWBG method INDICATOR 6 for more information. Open space within woodland in this context is temporary open space in which trees can be expected to regenerate (for example, glades, rides, footpaths, areas of clear-fell). This differs from permanent open space where tree regeneration is not possible or desirable (for example, tarmac, buildings, rivers). Area is at least 10 m wide with less than 20% covered by shrubs or trees.

Footnote 7 – Given the increased ratio of edge habitat to woodland where the woodland is <10ha.

Footnote 8 - See EWBG method INDICATOR 8 for more information. This indicator measures regeneration potential of the woodland by considering three classes: seedlings; saplings; and young trees of 4-7 cm DBH. All three classes would fall in the 'young' category of the 'age distribution of trees' indicator, but the regeneration indicator gathers additional information by considering regeneration potential - if seedlings, saplings and young trees are all present that means natural regeneration processes are happening.

Footnote 9 - See EWBG method INDICATOR 9 for more information and Table 3 for a list of diseases and pests and their risk level.

Footnote 10 - See EWBG method INDICATOR 10 directing to NVC key for more information. The 'UKHab to NVC translation table' in the UK Habitat Classification resources may also be useful to assess this.

Footnote 11 – This criterion looks at structural diversity and is useful to understand in conjunction with the age of trees in a woodland. Vertical structure is defined as the number of canopy storeys present. Possible storey values are: 1) Upper; 2) Complex: recorded when the stand is composed of multiple tree heights that cannot easily be stratified into broad height bands (such as upper, middle or lower); 3) Middle; 4) Lower; and 5) Shrub layer. There might be no storeys where the woodland has been felled. See EWBG INDICATOR 11 for more information.

Footnote 12 - See gov.uk standing advice on ancient and veteran trees. Available from: Keepers of time: ancient and native woodland and trees policy in England (publishing.service.gov.uk) and:Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk) EWBG INDICATOR 12 is the relevant indicator.

Footnote 13 – See EWBG method INDICATOR 13 for more information. This includes logs, large dead branches on the forest floor and stumps (<1 m tall) >20 cm diameter at narrowest point and >50 cm long. Also includes standing dead trees (>1 m tall) and also deadwood on standing live trees. Diameter is measured at the narrowest point on the stem. Minimum diameter of 20 cm.

Footnote 14 - See EWBG method INDICATOR 15 for more information. Examples of disturbance are: significant nutrient enrichment; soil compaction from trampling, machinery, animal poaching or litter.

Appendix 2: River Condition Assessment

Data collected in the field was analysed through the Cartographer App and a condition score applied to each criterion based on the results. Positive criteria are scored between 0 and 4 and negative criteria between 0 and -4. The total positive and negative scores were added together to provide the overall condition score. These are summarised in the Table 1 below

RCA Results – Upstream Sub-reach (Woodland/scrub)

Code	Name	Baseline Score	Post development score	Change
B1	Bank top vegetation structure	4	4	
B2	Bank top tree feature richness	3	3	
B3	Bank top water related features	0	0	
B4	Bank top non-native invasive species	-3	-1	+2
B5	Bank top managed ground cover	-2	-2	
C1	Bank face riparian vegetation structure	2	2	
C2	Bank face tree feature richness	3	3	
C3	Bank face natural bank profile extent	2	2	
C4	Bank face natural bank profile richness	4	4	
C5	Bank face natural bank material richness	2	2	
C6	Bank face bare sediment extent	1	1	
C7	Bank face artificial bank profile extent	0	0	
C8	Bank face reinforcement extent	0	0	
C9	Bank face reinforcement material severity	0	0	
C10	Bank face non-native invasive species cover	-3	-1	+2
D1	Channel margin aquatic vegetation extent	1	1	
D2	Channel margin aquatic morphotype richness	1	1	
D3	Channel margin physical feature extent	3	3	
D4	Channel margin physical feature richness	3	3	
D5	Channel margin artificial features	0	0	
E1	Channel aquatic morphotype richness	0	0	
E2	Channel bed tree feature richness	4	4	
E3	Channel bed hydraulic features richness	2	2	
E4	Channel bed natural features extent	0	0	
E5	Channel bed natural features richness	0	0	
E6	Channel bed materials richness	3	3	
E7	Channel bed siltation	-2	-2	
E8	Channel bed reinforcement extent	0	0	
E9	Channel bed reinforcement severity	0	0	
E10	Channel bed artificial features severity	-2	-2	
E11	Channel bed non-native invasive species extent	0	0	
E12	Channel bed filamentous algae extent	0	0	
Positive Index Average		2.0	2.0	0
Negative Index Average		-0.923	-0.615	+0.308
Condition Score		1.077 *Moderate*	1.385 *Fairly good*	

RCA Results – Downstream Sub-reach (Wet woodland)

Code	Name	Baseline Score	Post development score	Change
B1	Bank top vegetation structure	2	2	
B2	Bank top tree feature richness	3	3	
B3	Bank top water related features	4	4	
B4	Bank top non-native invasive species	-1	0	+1
B5	Bank top managed ground cover	0	0	
C1	Bank face riparian vegetation structure	1	1	
C2	Bank face tree feature richness	1	1	
C3	Bank face natural bank profile extent	3	3	
C4	Bank face natural bank profile richness	1	1	
C5	Bank face natural bank material richness	1	1	
C6	Bank face bare sediment extent	1	1	
C7	Bank face artificial bank profile extent	0	0	
C8	Bank face reinforcement extent	0	0	
C9	Bank face reinforcement material severity	0	0	
C10	Bank face non-native invasive species cover	0	0	
D1	Channel margin aquatic vegetation extent	2	2	
D2	Channel margin aquatic morphotype richness	1	1	
D3	Channel margin physical feature extent	1	1	
D4	Channel margin physical feature richness	1	1	
D5	Channel margin artificial features	0	-1	-1
E1	Channel aquatic morphotype richness	2	2	
E2	Channel bed tree feature richness	2	2	
E3	Channel bed hydraulic features richness	2	2	
E4	Channel bed natural features extent	1	1	
E5	Channel bed natural features richness	0	0	
E6	Channel bed materials richness	2	2	
E7	Channel bed siltation	0	0	
E8	Channel bed reinforcement extent	0	0	
E9	Channel bed reinforcement severity	0	0	
E10	Channel bed artificial features severity	0	0	
E11	Channel bed non-native invasive species extent	0	0	
E12	Channel bed filamentous algae extent	0	0	
Positive Index Average		1.632	1.632	0
Negative Index Average		-0.077	-0.077	0
Condition Score		1.555 *Fairly good*	1.555 *Fairly good*	

For the upstream sub reach, the average positive indicator score was **+2** and average negative indicator score **-0.923,** with an overall preliminary condition score of **+1.077**. For the downstream sub reach, the average positive indicator score was **+1.632** and average negative indicator score **-0.077,** with an overall preliminary condition score of **+1.555**. Based on the river morphology and desktop data entered into Cartographer, the watercourse was assessed as being River Type K. Based on this river type, the final condition score is determined to be '**Moderate'** for the upstream section and '**Fairly good'** for the downstream section, as shown in the table below.

River Type K Conditions scores

Preliminary Condition Score	Final Condition
>1.9	Good
>1.2	Fairly good
>0.2	Moderate
>-1.0	Fairly poor
<-1.0	Poor

Post development the only changes to the river comprise:

- Removal of invasive species (improves both sub-reaches)
- Addition of single outflow pipe from SUDS (reduces score of downstream sub reach)

Following these proposed changes the preliminary condition score for the upstream sub reach improved from **+1.077** to **+1.385**, and therefore improves from a '**moderate'** condition to a '**fairly good'** condition. For the downstream sub reach, the positive impact of removal of invasive species cancels out the negative impact of the addition of a single pipe, resulting in no change in the overall preliminary condition score and therefore it remains in '**fairly good'** condition.

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