OAKWOOD PARK, SOUTHEND-ON-SEA

BIODIVERSITY NET GAIN BASELINE ASSESSMENT

May 2024

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This report has been compiled in accordance with BS 42021:2013 Biodiversity – Code of practice for planning and development, as has the assessment to which it relates.

The information, data, advice and opinions which have been prepared and provided are true and have been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional *bona fide* opinions.

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OAKWOOD, SOUTHEND-ON-SEA
BIODIVERSITY NET GAIN BASELINE ASSESSMENT

1. EXECUTIVE SUMMARY

1.1 This report has been prepared by Essex Ecology Ltd., for Southend-on-Sea City Council. It comprises a Biodiversity Net Gain baseline assessment of land at Oakwood Park, Southend-on-Sea, Essex.

1.2 The assessment was required in order to calculate the number of Biodiversity Units the site currently represents in order to explore opportunities for offsetting.

1.3 As the surveys were undertaken out of the optimal surveying season, a new assessment should be carried out at the optimum time of year to identify with greater accuracy the baseline biodiversity value use of the site prior to its use as a Biodiversity Net Gain offsetting site.

1.4 The site covers approximately 6.22 hectares (ha) and comprises of a playing field, an area of ancient woodland, secondary woodland and lowland mixed deciduous woodland.

1.5 The baseline units for the site's area habitats have been calculated to be **14.01,** with linear habitats amounting to **2.47** units.

1.6 Enhancement of the site's modified grassland from poor to moderate condition could generate **1 habitat unit** per **0.0268 ha** enhanced (8.37% of the sites modified grassland).

1.7 Enhancement of the site's other broadleaved woodland with high strategic significance from moderate to good condition could generate **1 habitat unit** per **0.084 ha** enhanced (19.43% of the woodland parcel).

1.8 Enhancing another parcel of the site's other broadleaved woodland with medium strategic significance from moderate to good condition could generate **1 habitat unit** per **0.081 ha** enhanced (63.23% of the woodland parcel).

1.9 All linear habitats are at good condition and cannot be enhanced.

1.10 Habitat creation can also be used to gain habitat units. Creating **0.194 ha** of moderate condition other neutral grassland within the current area of modified grassland could generate **1 net habitat unit.**

1.11 Creating **0.194 ha** of moderate condition mixed scrub within the current area of modified grassland would also generate **1 net habitat unit.**

1.12 Planting **80** native trees that will reach small size, poor condition within the 30-year target time to condition will generate **1 habitat units.**

1.13 Hedgerow creation is not considered feasible for the site due to the boundary of the site already having hedgerow or woodland.

2. INTRODUCTION

2.1 General Introduction

This report has been prepared by Essex Ecology Ltd., for Southend-on-Sea City Council. It comprises a Biodiversity Net Gain baseline assessment of land at Oakwood Park, Leigh-on-Sea, Southend-on-Sea. The assessment was required in order to calculate the number of Biodiversity Units the site currently represents in order to explore opportunities for offsetting.

2.2 Site Location and Description

Oakwood Park is located at Stephenson Road, Leigh-on-Sea, Essex. The Ordnance Survey grid reference for the approximate site centre is TQ 83528 88530.

The site covers approximately 6.22 hectares (ha) and comprises of a playing field, an area of ancient woodland, secondary woodland and lowland mixed deciduous woodland.

North-west of the site is Progress Road industrial estate, with residential housing surrounding the rest of the site.

See Maps 1 a plan of the site and Appendix 1 for site photographs.

2.2.1 Designations

A large area of the site is a designated Local Wildlife Site (LoWS) So4 Oak Wood. This incorporates the area of ancient woodland, the adjoining secondary woodland and lowland mixed deciduous woodland. The rest of the site, including the amenity grassland, scrub hedgerows and line of trees are excluded from the LoWS. The site is selected because of the presence of ancient woodland, being one of only two sites in the borough that has ancient woodland and lowland mixed deciduous woodland.

2.3 Objective

The aim of the assessment was to assess the site's biodiversity baseline using the latest Statutory Metric (DEFRA, 2023) for potential future use as a site for habitat creation in relation to offsetting the ecological impacts of development projects elsewhere. Recommendations for habitat creation, enhancement and management are also included in this report.

2.4 Assessment Methodology

Habitats on the site were mapped in line with the UK Habitat Classification, using the methodology detailed in the UK Habitat Classification User Manual, Version 2.0 (UK Habitat Classification Working Group, July 2023) using data collected by Essex Ecology during site visits conducted on 31st October and 1st November 2023 during suitable weather conditions.

Each habitat (referred to under this system as a Primary Habitat) was classified using an alphanumeric code, with reference to the UK Habitat Classification Version 2.0 (UKHab Ltd. 2023). This method is designed to enable the description of each habitat on a hierarchical basis up to a maximum of five levels, including the identification of Habitats of Principal Importance in England (HPIE) (formerly known as Biodiversity Action Plan (BAP) habitats) and those listed on Annex I of the Conservation of Habitats and Species Regulations 2017 (as amended).

The site was mapped using QGIS. Habitat data was then converted into Biodiversity Units, so that the Statutory Metric could be applied.

Target notes have been used to describe certain areas of habitat, the locations of which are indicated on the habitat maps by use of target note codes (G for grassland, S for scrub and W for woodland etc.).

Attributes that include extent, condition, distinctiveness and Biodiversity Units have been provided.

Habitat condition has been assessed according to the technical guidance provided with the Statutory Metric as well as the surveying ecologist's professional judgement.

Habitats are automatically assigned distinctiveness bands within the Statutory Metric. The distinctiveness bands and criterion thresholds are as follows:

Distinctiveness Band	Criterion Threshold
Very High Distinctiveness	Small amount of remaining habitat with a lot of it unprotected by designation. Endangered or Critical European red list habitats.
High Distinctiveness	Remaining Priority Habitats not in very high distinctiveness band and other red list habitats.
Medium Distinctiveness	Non-Priority Habitats with significant wildlife benefit and one replaceable Priority Habitat (arable field margins).
Low Distinctiveness	Agricultural and urban land use of lower biodiversity value.
Very Low Distinctiveness	Urban, with artificial structure, which are un-vegetated, unsealed surface or built linear features of very low biodiversity value.

2.5 Mapping

The site habitat maps were produced using QGIS computer software. The Minimum Mapping Unit (MMU) was employed for this survey where possible. Minimum mapped habitat areas were 25m^2 and minimum mapped linear features were five metres in length. Habitats mapped as areas were digitised using polygons and linear habitats were mapped as lines.

2.6 Competence

Charlotte Smith has been with the company since September 2020 after previously working with Essex Ecology as an intern. She has completed a BSc in Zoology and is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). She has undertaken numerous ecological site appraisals, habitat assessments and a wide range of protected species surveys, including Great Crested Newt, reptile, bat and Water Vole. She has caried out multiple Biodiversity Net Gain assessments using Natural England Metrics 2.0, 3.0 and 4.0. She has attended a course specific to the Metric and UK Habitat Classification.

2.7 Constraints and Limitations

The habitats present on any site are subject to change over time. All assessments of this kind are based upon the situation as it was at the time the fieldwork upon which the assessment was based was carried out.

The habitat assessment was undertaken during the winter, at a time when many plant species cannot be identified. Therefore, the degree to which certain habitat types could be identified or differentiated from others and the accuracy of habitat condition assessments was limited.

Therefore, a new assessment should be carried out at the optimum time of year to identify with greater accuracy the baseline biodiversity value use of the site prior to its use as a Biodiversity Net Gain offsetting site.

3. ASSESSMENT RESULTS

3.1 Summary

The following UK Habitat Classification habitats are currently present at the site:

Baseline Area Habitats	Area (hectares)
Grassland – Modified grassland	3.2
Scrub – Mixed scrub	0.035
Woodland and forest - Lowland mixed deciduous woodland	2.382
Woodland and forest – Other woodland; broadleaved	0.56
Urban – Developed land; sealed surface	0.045
Individual trees	0.037
Total Habitat Area*:	**6.26**

*Total Habitat Area is greater than the size of the site as a proxy for canopy biomass. It is based on the root protection formula derived from The British Standard "Trees in Relation to Design, Demolition and Construction - Recommendations" (BS 5837) (2012).

Baseline Linear Habitats	Length (kilometres)
Native hedgerow	0.324
Line of trees	0.076
Total Length:	**0.4**

See Map 1 for baseline habitats and Map 2 for habitat parcel reference locations and Map 3 for tree reference locations.

3.2 Strategic significance

The southern end of the site is a designated LoWS due to the ancient woodland and lowland mixed deciduous woodland. The whole of the site is a Protected Green Space under the Southend-on-Sea Local Plan, and is designated for its recreational and amenity value, in addition to its value to biodiversity. Therefore, all habitats outside of the LoWS are assigned a medium strategic significance while those within are assigned a high strategic significance. Urban habitats are assigned low strategic significance.

3.3 Baseline Area Habitat Conditions

3.3.1 Modified grassland

Vegetation dominated by a few fast-growing grasses on fertile, neutral soils. It is frequently characterised by an abundance of Rye-grass and White Clover.

The main amenity field is dominated by Perennial Rye grass, with some Ribwort Plantain, Common Daisy, White Clover, Dandelion and Yarrow. Some areas have Spear Thistle.

Towards the edge of the woodland there are some areas of longer grass that are dominated by Creeping Bent and have tree saplings throughout.

A group of newly planted trees are scattered throughout the northern end of the grassland.

Condition Criteria – Low Distinctiveness Grassland						
A	**B**	**C**	**D**	**E**	**F**	**G**
There are 6-8 vascular plant species per m2 present, including at least 2 forbs. **Note - this criterion is essential for achieving Moderate or Good condition.**	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 vertebrates and invertebrates to live and breed.	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present).	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	Cover of bracken *Pteridium aquilinum* is less than 20%.	There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA).

	Condition Assessment = – Low Distinctiveness Grassland								
	A	**B**	**C**	**D**	**E**	**F**	**G**	**Total Passes**	**Condition**
G3	Fail – less than 6-8 vascular plant species*	Fail – all short	Pass	Fail – use as a track has caused erosion	Fail – majority is bare ground	Pass	Pass	3	**Poor**

*passing this criterion is essential for achieving Moderate or Good condition.

3.3.2 Mixed scrub

Dense mixed scrub.

The area S1 is a thin band of scrub along the north-eastern boundary. It has a few scattered oaks within. Species include Bramble, Hawthorn and Elder.

Condition Criteria – Scrub				
A	**B**	**C**	**D**	**E**
The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range). - At least 80% of scrub is native, - There are at least three native woody species, - No single species comprises more than 75% of the cover (except hazel *Corylus avellana*, common juniper *Juniperus communis*, sea buckthorn *Hippophae rhamnoides* or box *Buxus sempervirens*, which can be up to 100% cover).	Seedlings, saplings, young shrubs and mature (or ancient or veteran) shrubs are all present.	There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA) and species indicative of sub-optimal condition make up less than 5% of ground cover.	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	There are clearings, glades or rides present within the scrub, providing sheltered edges.

	Condition Assessment – Blackthorn scrub						
	A	**B**	**C**	**D**	**E**	**Total Passes**	**Condition**
S1	Pass	Fail	Pass	Pass	Fail	3	**Moderate**

3.3.3 Lowland mixed deciduous woodland

There is a large area of ancient woodland, W1, within the main woodland block. This area is dominated by old Hornbeam coppice with Pedunculate and Sessile oak standards. There was very little ground flora at the time of the survey but some Common Cow-wheat leaves were found. Other species present include Hawthorn and Bramble.

The southern border strip of this woodland appears the same as W1, but is not recorded as ancient woodland within the Ancient woodland inventory. It is however included within the LoWS citation. As this area of woodland is indistinguishable from the listed Ancient woodland area, it is recorded as the same in this assessment.

Ancient woodland is an irreplaceable habitat, but can be enhanced.

The scattered shrub layer includes Holly and Hawthorn.

The woodland W3 is a linear extension of W1, but is dominated by large oaks instead of hornbeam coppice. The understorey is made up of Holly.

Condition Criteria – Lowland mixed deciduous and Other woodland; broadleaved						
	Features					
A	**Age Distribution of trees**					
	3 pts	3 age classes	**2 pts**	2 ages classes	**1 pt**	1 age class
B	**Wild, domestic and feral herbivore damage**					
	3 pts	none	**2 pts**	<40% of woodland	**1 pt**	>40% of woodland
C	**Invasive plant species**					
	3 pts	none	**2 pts**	<10% cover AND no Rhododendron or Cherry laurel	**1 pt**	>10% cover OR Rhododendron or Cherry Laurel
D	**Number of native tree species**					
	3 pts	five or more	**2 pts**	3-4 species	**1 pt**	0-2 species
E	**Cover of native tree and shrub species**					
	3 pts	>80% of canopy and understorey	**2 pts**	50-80% of canopy and understorey	**1 pt**	<50% of canopy and understorey
F	**Open space within woodland**					
	3 pts	10-20% temporary open space	**2 pts**	20-40% temporary open space	**1 pt**	>40% temporary open space
G	**Woodland regeneration**					
	3 pts	all three classes	**2 pts**	one or two classes	**1 pt**	no classes or coppice regrowth in woodland
H	**Tree health**					
	3 pts	<10% mortality and no pests/diseases/dieback	**2 pts**	10-25% mortality and/or dieback, low risk pests/disease present;	**1 pt**	>25% mortality or high risk pests/disease present
I	**Vegetation and ground flora**					
	3 pts	ancient woodland indicators	**2 pts**	recognisable NVC community	**1 pt**	no recognisable NVC community
J	**Woodland vertical structure**					
	3 pts	3+ storeys	**2 pts**	2 storeys	**1 pt**	0-1 storeys
K	**Veteran trees**					
	3 pts	2+/ha	**2 pts**	1/ha	**1 pt**	none
L	**Amount of deadwood**					
	3 pts	50%	**2 pts**	25-50%	**1 pt**	<25%
M	**Woodland disturbance**					
	3 pts	no enrichment/damage	**2 pts**	<1 ha enriched OR <20% area damaged ground	**1 pt**	>1 ha enriched OR >20% are damaged ground

Habitat type:	Condition Assessment – lowland deciduous woodland														
Scores of '1' '2' or '3' are allocated against each criteria assessed.															
	Criterion													TOTAL	Condition
Parcel Ref	A	B	C	D	E	F	G	H	I	J	K	L	M		
W1	2	3	3	3	3	3	3	3	2	1	1	1	2	30	Moderate
W3	2	3	1	2	3	3	2	3	1	2	1	1	1	25	Poor

3.3.4 Woodland and forest – Other woodland; broadleaved

Vegetation dominated by trees that are more than 5 metres high when mature, which form distinct, although sometimes open canopy with a canopy cover greater than 25%.

The woodland W2 makes up the south-western corner of the site. Although this woodland is directly adjacent to the ancient woodland W1, it appears to be secondary woodland. There are still oaks and Hornbeams throughout, but also Ash, Norway Spruce, and a shrubby understorey made up of Holly, Bramble, Cherry Laurel, Elder and Hawthorn. Species making up the ground layer included Creeping Soft-grass, False Brome and Wood Millett. Within the woodland there are areas of mounded bare earth, which look to be used as bike ramps. The woodland section closest to the playpark and buildings appears younger, and is made up entirely of leggy Field Maple.

The dense woodland W4 is dominated by Hazel coppice with a Hawthorn understorey. Throughout there are some Hawthorn, Oak, Blackthorn, Wayfaring tree and Holly. There is an Ivy ground layer. The woodland is split by a footpath that runs through it's centre.

The woodland patch W5 is located at the northern entrance of the site. It is made up of large oak and Ash, with an Elder and Bramble understorey and Ivy ground layer.

Habitat type:	Condition Assessment - Other woodland; broadleaved														
Scores of '1' '2' or '3' are allocated against each criteria assessed.															
	Criterion													TOTAL	Condition
Parcel Ref	A	B	C	D	E	F	G	H	I	J	K	L	M		
W2	2	3	1	3	3	3	2	2	1	3	1	1	2	27	Moderate
W4	1	3	3	3	3	3	2	3	1	2	1	1	1	26	Moderate
W5	2	3	3	2	3	3	2	3	1	2	1	1	1	27	Moderate

3.3.5 Individual trees – rural trees

The broad habitat type 'Individual trees' may be used where a tree (or a group of trees) over 7.5cm in stem diameter at breast height (DBH) does not meet or contribute towards the definition of another broad habitat type, such as woodland.

A group of planted trees at the northern end of the site was not included in the assessment as they had a DBH of less than 7.5cm.

One tree was recorded individually within the main grassland. The tree, T1, is a large oak tree by the play park.

The tree was recorded as good condition.

Condition Criteria – Individual trees
A: The tree is a native species (or at least 70% within the block are native species).
B: 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).
C: The tree is mature (or more than 50% within the block are mature).
D: 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.
E: Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.
F: More than 20% of the tree canopy area is oversailing vegetation beneath.

Habitat type:	Condition Assessment - Individual Trees							
	Criterion (P -Pass, F-Fail)						TOTAL	Condition
Parcel Ref	A	B	C	D	E	F		
T1	P	P	P	P	F	P	5	Good

3.4 Linear Habitats

3.4.1 Native hedgerow

Two hedgerows were recorded at the site, H1 and H2. H1 is located at the north-eastern end of the site along the site boundary. It is made up of Blackthorn, Field Maple, Privet, Hawthorn and Bramble.

H2 is predominantly Hawthorn with some oaks and Ivy. Some parts of it are made up of taller spindly trees, with trees from the other side of the fence line over shadowing the hedgerow.

Habitat Type: Linear Features: Hedgerows		H1	H2
A1: Height	>1.5 m average along length	Pass	Pass
A2: Width	>1.5 m average along length	Pass	Pass
B1: Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	Pass	Pass
B2: Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	Pass	Pass
C1: Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	Fail – short amenity grass at base	Fail – short amenity grass at base
C2: Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	Pass	Pass
D1: Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA3) and recently introduced species.	Pass	Pass
D2: Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	Pass	Pass
	Total:	**7**	**7**
	Condition:	**Good**	**Good**

3.4.2 Line of trees

A line of trees, LT1, runs across the playing field at the northern end of the site. They are all large oak trees.

Habitat Type: Linear Features: Line of Trees		**LT1**
A	At least 70% of trees are native species.	Pass
B	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	Fail – One large gap
C	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
D	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.	Pass – but surrounded by short grassland
E	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.	Pass
	Total:	**4**
	Condition:	**Moderate**

4. BASELINE BIODIVERSITY UNIT CALCULATIONS

4.1 Baseline Biodiversity Units

The baseline Biodiversity Unit (BU) site values are presented in the following tables. Habitats that are of the same type and condition have been grouped together.

Area Habitat Type	Distinctiveness Score		Condition Score	Baseline Biodiversity Units (BU)	
Grassland – Modified grassland	Low	2	Poor	1	**7.04**
Heathland and shrub - Mixed scrub	Medium	4	Moderate	2	**0.31**
Lowland mixed deciduous woodland (Ancient Woodland)	High	6	Moderate	2	**0***
Lowland mixed deciduous woodland	High	6	Poor	1	**1.55**
Other woodland; broadleaved	Medium	4	Moderate	2	**3.98**
Urban – Developed land; sealed surface	Very low	0	Condition Assessment N/A	0	**1.13**
Individual trees – rural trees	Medium	4	Good	3	**0.48**
Total:				**14.01****	

* Irreplaceable habitats do not have a BNG requirement as they are too valuable to be compensated for. Therefore, any losses to irreplaceable habitats cannot be calculated by the biodiversity metric tool and they are removed from the baseline.

**Note the sum of columns may differ from the total units stated. This is due to rounding and is not considered significant. The totals stated reflect those calculated within the Biodiversity Metric Calculator Tool.

Linear Habitat Type	Distinctiveness Score		Condition Score		Baseline Biodiversity Units (BU)
Native hedgerow	Low	2	Moderate	2	0.33
Line of trees	Low	2	Good	3	2.14
Total:					**2.47***

*Note the sum of columns may differ from the total units stated. This is due to rounding and is not considered significant. The totals stated reflect those calculated within the Biodiversity Metric Calculator Tool.

All calculations were put through the Biodiversity Net Gain Metric ‘Off-site habitats’ tabs.

5. POTENTIAL HABITAT UNIT UPLIFT

5.1 Overview

Habitat units can be gained by enhancing the current habitats to higher condition or higher value habitat type or creating new habitats. The following habitat creation and enhancement measures are suggested. Recommendations are based on the site's current habitats and their condition, the relative feasibility of potential enhancement measures and the need to take other site use, including public use, into account.

5.1.1 Temporal Risk Multiplier

The temporal risk is the 'time to target condition' for any habitat and determines how long a particular habitat type is likely to take to reach the desired condition score.

If habitats are to be enhanced/created in advance, then the temporal risk will need to be changed accordingly which will impact the level of biodiversity units provided.

5.2 Habitat Enhancement

The best way to gain habitat units would be to enhance the current habitats to higher condition. As the majority of the site is currently poor condition modified grassland, improving this to a higher condition is considered to be the easiest way to gain habitat units from the site. This would involve enhancing the current poor condition modified grassland to moderate condition.

Enhancing areas of broadleaved woodland areas will also gain habitat units.

Below is a table showing various enhancement options. The areas given are what is required to achieve 1 habitat unit.

Current habitat		**Size of area to be enhanced (ha)**		**Proposed Habitat**		**% of habitat used**
Habitat	**Current Condition**			**Habitat**	**Condition**	
Modified grassland	Poor	**0.268**	→	Modified grassland	Moderate	**8.37**

Other woodland; broadleaved (W4)*	Moderate	0.084	→	Other woodland; broadleaved	Good	**19.43**
Other woodland; broadleaved (W2)	Moderate	0.081	→	Other woodland; broadleaved	Good	**63.23**

*The broadleaved woodland parcels have been split as they have two different Strategic Significance scores.

The following habitat was too small to gain 1 habitat unit from enhancement.

- Enhancing all 0.035 ha of moderate condition mixed scrub to good condition would gain 0.45 habitat units

5.2.1 Linear habitats

As the hedgerows and line of trees are already good condition, there is no option to achieve additional habitat units by enhancement, instead they should be maintained at good condition.

5.3 Habitat Creation

5.3.1 Grassland and scrub

Another way to gain habitat units would be to create a habitat of higher distinctiveness, and therefore value. Creating moderate condition neutral grassland and/or mixed scrub would be the easiest way to achieve habitat units. Either would add greater habitat diversity to the site, but consideration will need to be given to public opinion as scrub while extremely valuable for wildlife, is often not favoured by the public.

Creation of moderate condition neutral grassland and/or mixed scrub would entail the loss of an area of modified grassland, but, as the new habitats are of higher distinctiveness and condition, its creation would achieve a higher number of habitat units once it has reached target condition, so creating a net gain.

The area given in the table below is that required to achieve **1 net habitat unit** (accounting for the loss of units from the modified grassland to be lost to make way for the habitat creation) at this site with the creation of higher distinctiveness, moderate condition grassland and/or mixed scrub.

Habitat	Distinctiveness	Condition	Size of habitat creation area (ha)	% of habitat used
Other neutral grassland	Medium	Moderate	0.194	6.06
Mixed scrub	Medium	Moderate	0.194	6.06

5.3.2 Tree planting

If considered appropriate for the site, tree planting can be used to attain further habitat units. The table below shows the number of native trees that could be planted to achieve **1 habitat units**. This is with the assumption that new whips would be planted instead of more mature trees.

Tree Planting						
Habitat	**Tree size within 30 years**	**Native/non-native**	**Condition**	**No. of trees**	**Metric area equivalent (ha)**	**Habitat units achieved**
Individual tree – rural	Small (greater than 7cm and less than or equal to 30cm diameter at breast height)	Native	Poor	80	0.3257	**1**

5.3.3 Linear habitats

Hedgerow creation is not considered feasible for the site due to the boundary of the site already having hedgerow or woodland.

5.4 Management

5.4.1 Overview

In order to achieve the habitat enhancements and creations within the 30-year timeframe, the habitats will have to be managed to achieve the condition targets. Management advice is listed below for each suggested scenario (see section 5.2 – 5.4).

5.4.2 Modified grassland enhancement

To achieve the target enhancement of the current poor condition modified grassland to moderate condition, certain criteria in the condition assessments will have to be achieved by changing the management and mowing regime.

Currently the grassland fails criteria A and B, with a pass of A required for moderate to good condition modified grassland.

- Criteria A: "There are 6-8 vascular plant species per m2 present, including at least 2 forbs."
- Criteria B: "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 vertebrates and invertebrates to live and breed."

To achieve moderate condition, an increase in species per m2 is required. Examples of ways to increase the biodiversity of plants in a grassland include:

- Less frequent cutting
- Cutting in early spring to knock back dominant grasses, and an autumn cut
- Reducing nutrients by removing grass cuttings
- Consider native seeding to add species
- Varying the sward height

5.4.3 Mixed scrub enhancement

To enhance moderate condition mixed scrub to good condition, the following management prescriptions can be used:

- Creating more open space to encourage greater structural diversity and sheltered edges
    - Clearing areas to create glades, clearings and rides within areas of dense scrub
    - Trimming of scrub edges to develop a graded margin down to field layer
- Encouraging a varied age structure throughout the scrub patches by selective thinning and coppicing to promote regeneration of seedlings and saplings

- Preventing dominance of one species (>75%) to create more biodiversity
- Clearing areas of scrub to allow other species to regenerate
- Planting of different native species

5.4.4 Grassland creation

Other neutral grassland is defined as a grassland where 'Perennial Rye-grass *Lolium perenne* is likely to be present at <30% with between 9 and 15 further species (m2) also present.'

To create other neutral grassland, it is crucial that nutrients are removed from the soil to encourage the growth of a greater variety of plant species. The same recommendations mentioned above in 5.5.2 are recommended here, with the addition of greater measures to reduce the nutrient levels, such as:

- Removing the nutrient rich topsoil layer by turf stripping or, for a gentler approach, scarification.
- Planting Yellow Rattle to control dominant grasses.

To reach the target condition of moderate, it is essential that the grassland passes Criteria A of the medium-high distinctiveness grassland condition assessment:

"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. "

Other management needed to maintain condition includes:

- Preventing scrub encroachment
- Preventing bare ground from exceeding 5 % cover
- Preventing species indicative of sub-optimal condition from exceeding 5% cover, such as Creeping Thistle, White Clover and Greater Plantain

5.4.5 Scrub creation

There are multiple ways to create areas of scrub within the grassland. Scrub will grow in unmanaged areas close to areas of trees and shrubs, where there is an existing seed source. This can be alongside hedgerows or alongside a wood edge, to create a transition between wood and open ground.

The simplest way would be to allow for natural regeneration, but some planting may be needed and will help increase the diversity of species. The scrub should be planted in clumps instead of lines to recreate a more natural establishment, with unplanted gaps left to create open ground as part of the mosaic. Cuttings or the use of Layering from nearby mature scrub could be used.

Species to use should include:

- Hawthorn
- Blackthorn
- Hazel
- Dog Rose
- Field Rose

Further management should include rotational cutting – the best scrub is when there is a mosaic of different heights and ages, and therefore it should not all be cut at once when established.

Map 1. Oakwood Park, Southend-on-Sea, Baseline Habitats

Red Line Boundary

Habitats Baseline
- Mixed scrub
- Developed land; sealed surface
- Lowland mixed deciduous woodland
- Modified grassland
- Other woodland; broadleaved

Hedgerow Baseline
- Line of trees
- Native hedgerow

Individual tree Baseline
- Existing Large Rural Tree

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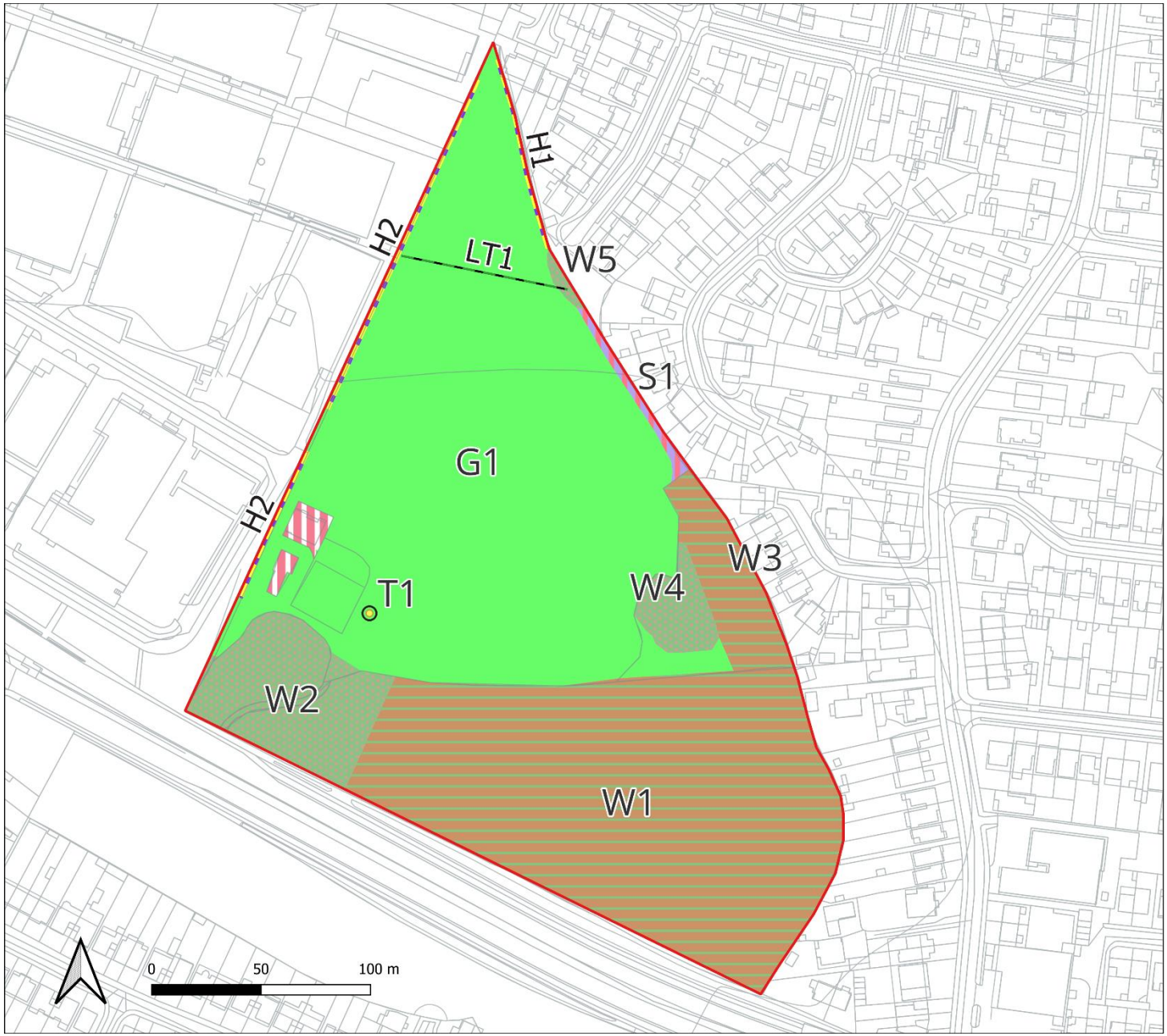

Map 2. Oakwood Park,
Southend-on-Sea,
Habitat Reference Locations

Red Line Boundary

Area Habitats
- Mixed scrub
- Developed land; sealed surface
- Lowland mixed deciduous woodland
- Modified grassland
- Other woodland; broadleaved

Linear Habitats
- Line of trees
- Native hedgerow

Habitat Reference
G - Grassland
S - Scrub
W - Woodland
H - Hedgerow
LT - Line of trees
T - Trees

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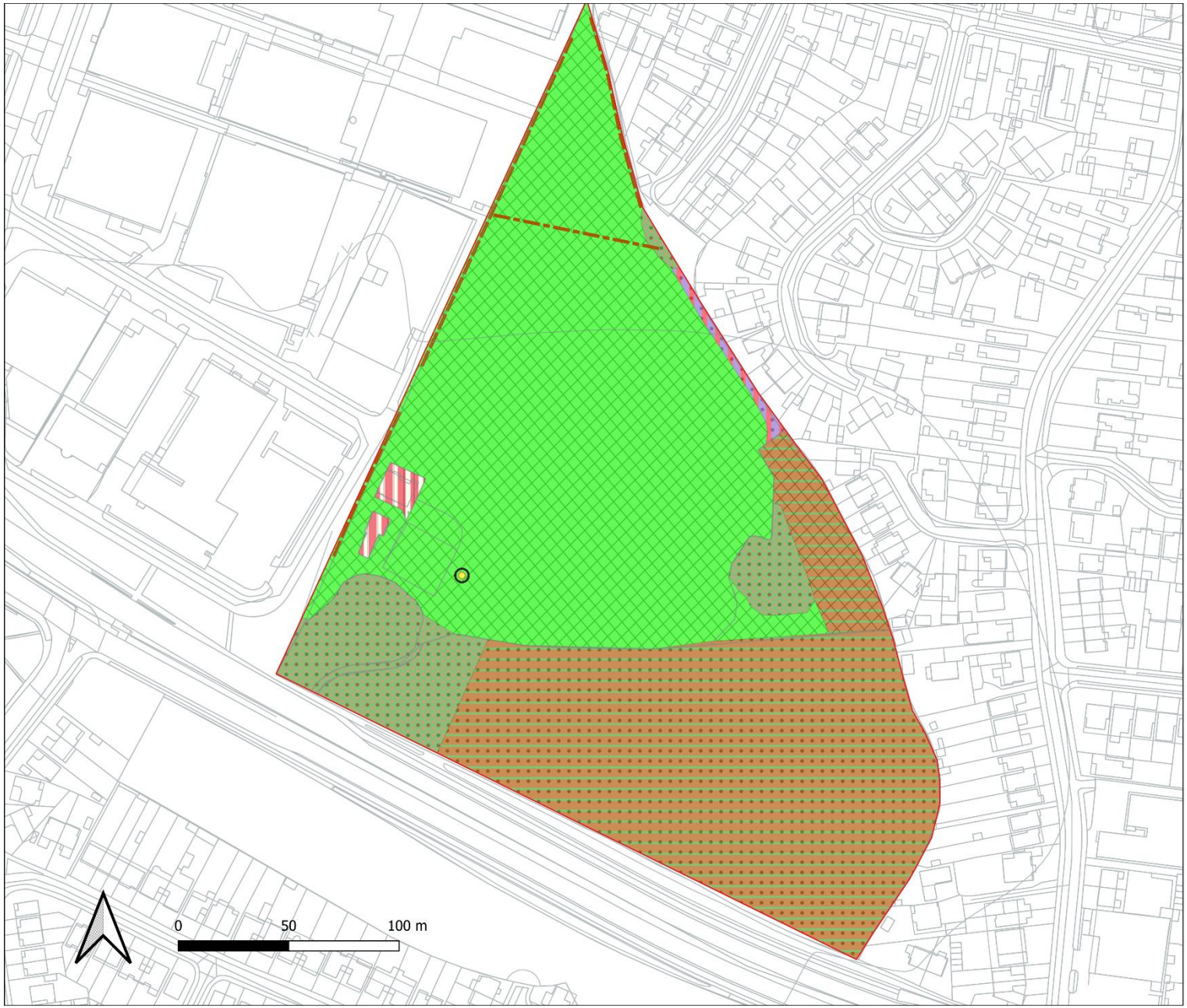

Map 3. OakwoodPark, Southend-on-Sea, Habitat Conditions

Red Line Boundary

Habitats Master EDIT ME

Baseline Habitat Condition
- Moderate
- Poor
- N/A - Other

Baseline Hedgerow Condition
- Good
- Moderate

Baseline Individual tree Condition
- Good

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Map 4. Oakwood Park, Southend-on-Sea, Habitat Distinctiveness

Red Line Boundary

Baseline Habitat Distinctiveness
- High
- Medium
- Low
- V.Low

Baseline Hedgerow Distinctiveness
- Low

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Bibliography and References

The Statutory Biodiversity Metric (DEFRA) November 2023

UKHab Ltd (July 2023). UK Habitat Classification 2.0 (at https://www.ukhab.org)

Appendix 1: Photographs

Photograph 1. Ancient woodland W1.

Photograph 2. Secondary woodland W2.

Photograph 3. Area of long grass at edge of amenity grassland G1.

Photograph 4. View of Woodland W4.

Photograph 5. Hedgerow H1.

Photograph 6. Hedgerow H2.

Photograph 7. Woodland W5.

Photograph 8. Grassland G1.

Photograph 9. Woodland W3.

Photograph 10. Scrub patch and trees, S1.