EASTWOOD PARK, SOUTHEND-ON-SEA

BIODIVERSITY NET GAIN BASELINE ASSESSMENT

May 2024

Professional ecological services applying local knowledge and experience

ESSEX ECOLOGY Ltd.

Title of Report	Eastwood Park, Southend-on-Sea Biodiversity Net Gain Baseline Assessment
Client	Southend-on-Sea City Council Civic Centre Victoria Avenue Southend-on-Sea SS2 6ER
Client representative	Claire Victory, Principal Planner, Southend-on-Sea City Council
Assessment Completed By	Charlotte Smith BSc, Ecologist
Author	Charlotte Smith BSc, Ecologist
Reviewed By	Adele Devonshire BSc MCIEEM, Senior Ecologist
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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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EASTWOOD PARK, 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 Eastwood 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 6.23 hectares (ha) and comprises of amenity grassland playing field, an area of woodland, patches of scrub and introduced shrub.

1.5 The baseline units for the site's area habitats have been calculated to be **19.56 habitat units**, with linear habitats amounting to **1.26 habitat units.**

1.6 Enhancement of the site's modified grassland from poor to moderate condition could generate **1 habitat unit** per **0.0267 ha** enhanced (4.87% of the sites modified grassland).

1.7 Enhancement of the site's other broadleaved woodland from poor to moderate condition could generate **1 habitat unit** per **0.0134 ha** enhanced (99.55% of the sites broadleaved woodland).

1.8 Alternatively, enhancing the site's other broadleaved woodland from poor to good condition could generate **1 habitat** unit per **0.115 ha** enhanced (85.44% of the sites broadleaved woodland).

1.9 Enhancing all **0.073 ha** of the mixed scrub found onsite from poor condition to moderate condition would gain **0.59 habitat units.** Enhancing it to good condition would gain **0.77 habitat units.**

1.10 Enhancing the entire length (total **0.09 km**) of the poor condition line of trees to moderate condition would gain **0.23 and 0.07 habitat units.**

1.11 Habitat creation can also be used to gain habitat units. Creating **0.136 ha** of moderate condition other neutral grassland could generate **1 net habitat unit.**

1.12 Creating **0.136 ha** of moderate condition mixed scrub would also generate **1 net habitat unit.**

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

1.14 Creating **0.272 km** of moderate condition native hedgerow would provide **1 habitat unit**, while creating **0.136 km** of moderate species-rich native hedgerow would provide **1 habitat unit.**

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 Eastwood Park, 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

Eastwood Park is located at Mansell Cl, Leigh-on-Sea, Southend-on-Sea. The Ordnance Survey grid reference for the approximate site centre is TQ 84308 88556.

The site covers approximately 6.23 hectares (ha) and comprises of amenity grassland playing field, an area of woodland, patches of scrub and introduced shrub.

Completely surrounding the site is urban residential housing.

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

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 30th October 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).

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. <u>ASSESSMENT RESULTS</u>

3.1 <u>Summary</u>

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

Baseline Area Habitats	Area (hectares)
Grassland – Modified grassland	5.4773
Scrub – Bramble scrub	0.1065
Scrub – Mixed scrub	0.0728
Urban – Developed land; sealed surface	0.3645
Urban – Introduced shrub	0.0785
Woodland and forest – Other woodland; broadleaved	0.1346
Individual trees	0.517
Total Habitat Area*:	**6.7512**

*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)
Line of trees	0.289
Non-native and ornamental hedgerow	0.193
Total Length:	**0.482**

See Map 1 & 2 for baseline habitats and Maps 3 & 4 for habitat parcel reference locations and Maps 5 & 6 for tree reference locations.

3.2 <u>Strategic significance</u>

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 are assigned a medium 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 site largely comprises an area of amenity grassland, G1. This grassland is made up almost entirely of Perennial Rye grass and White Clover.
There are areas of longer grass along the edge of the woodland and bramble eastern edge.

The grassland G2 is Eastwood park bowling green, and G3 is a children playpark.

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
G1	Fail – less than 6-8 vascular plant species*	Fail – all short	Pass	Pass	Pass	Pass	Pass	5	**Poor**
G2	Fail – less than 6-8 vascular plant species*	Fail – all short	Pass	Pass	Pass	Pass	Pass	5	**Poor**
G3	Fail – less than 6-8 vascular plant species*	Fail – all short	Pass	Pass	Pass	Pass	Pass	5	**Poor**

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

3.3.2 Heathland and shrub - Bramble scrub

Dense scrub with dominant Bramble.

Dense Bramble scrub was recorded in multiple locations. The scrub patches S1 lies along the eastern edge of the site, forming a band along the boundary before the area of woodland begins. The bramble scrub S2 is situated further south along the eastern boundary, as a dense band between the woodland strip W1 and the main grassland field, with some Bindweed present.

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.

Bramble scrub is automatically given a low condition score, 'poor', due to the dominance of that single species.

3.3.3 Heathland and shrub - Mixed scrub

Dense scrub comprising a mixture of species without a single species dominant.

The scrub patch S5 is an area of mixed scrub along the south-western edge of the site. The scrub is made up of Bramble, Hawthorn, Hazel, Dog Rose, Privet and Dogwood. There are areas of denser Blackthorn scrub amongst the scrub.

	Condition Criteria – Mixed scrub						
	A	**B**	**C**	**D**	**E**	**Total Passes**	**Condition**
S3	Fail – Single species comprises more than 75% of the cover	Fail- Missing very mature trees	Pass	Fail – No edge between scrub and grass field	Pass – gaps between areas of scrub	2	**Poor**

3.3.4 Urban – Developed land; sealed surface

Soil surface sealed with impervious materials as a result of urban development and infrastructure constructure.

There are multiple areas of the site that were given this classification, including the new car park area to the south of the site.

Condition assessments are not applicable to this urban feature.

3.3.5 Urban – Introduced shrub

Non-native tall phanerophytes, mid phanerophytes or low phanerophytes planted in a garden or park setting.

There are multiple areas of introduced shrub at the site, including a section along the eastern boundary, along the edge of the bowling green, and around the edges of the play equipment areas with non-native shrub species and ornamental planting.

Condition assessments are not applicable to this urban feature.

3.3.6 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%.

There is an area of woodland that runs along the eastern boundary of the site. The woodland is made up of Oak, Hornbeam, Sycamore, Hazel, Field Maple, Cherry with an Elder and Elm lower canopy and Bramble, Ivy and Nettle ground layer. There are some areas where Hops have dominated.

Condition Criteria – 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
	Cover of native tree and shrub species					

E	**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 - 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		
W1	1	3	3	3	3	3	2	1	1	1	1	1	2	25	Poor

3.3.7 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.

37 trees were recorded individually across the site, mostly along the north-eastern end of the site, including a group of large oak trees, T13-T17. The trees T34-T37 area group of Hornbeam.

16 trees were recorded as good condition and 21 as moderate 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:	Individual Trees - rural						TOTAL	Condition
	Criterion (P -Pass, F-Fail)							
Parcel Ref	**A**	**B**	**C**	**D**	**E**	**F**		
T1	P	P	F	P	F	P	4	Moderate
T2	F	P	F	P	P	P	4	Moderate
T3	F	P	F	P	F	P	3	Moderate
T4	F	P	F	P	F	P	3	Moderate
T5	P	P	P	P	F	P	5	Good
T6	P	P	P	P	P	P	6	Good
T7	P	P	P	P	P	P	6	Good
T8	P	P	F	P	P	P	5	Good
T9	P	P	F	P	P	P	5	Good
T10	P	P	F	P	F	P	4	Moderate
T11	F	P	F	P	F	P	3	Moderate
T12	P	P	P	P	P	P	6	Good
T13	P	P	P	P	F	P	5	Good
T14	P	P	P	P	F	P	6	Good
T15	P	P	P	P	F	P	5	Good
T16	P	P	P	P	P	P	6	Good
T17	P	P	P	P	P	P	6	Good
T18	P	P	P	P	P	P	6	Good

T19	P	P	F	P	F	P	4	Moderate
T20	F	P	F	P	F	P	4	Moderate
T21	F	P	P	P	F	P	4	Moderate
T22	P	P	F	P	P	P	5	Good
T23	P	P	F	P	P	P	5	Good
T24	F	P	P	P	F	P	4	Moderate
T25	P	P	F	P	F	P	4	Moderate
T26	P	P	F	P	F	P	4	Moderate
T27	P	P	F	P	F	P	4	Moderate
T28	P	P	F	P	F	P	4	Moderate
T29	P	P	P	P	F	P	5	Good
T30	P	P	F	P	F	P	4	Moderate
T31	F	P	F	P	F	P	3	Moderate
T32	P	P	F	P	F	P	4	Moderate
T33	F	P	F	P	F	P	3	Moderate
T34	P	P	F	P	F	P	4	Moderate
T35	P	P	F	P	F	P	4	Moderate
T36	P	P	F	P	F	P	4	Moderate
T37	P	P	F	P	F	P	4	Moderate

3.4 **Linear Habitats**

3.4.1 Non-native and ornamental hedgerow

A hedgerow with >20% canopy cover of UK non-native woody species.

A series of non-native hedgerows run along the northern edge of the site, between the modified grassland G17 and the road Marine Parade.

No assessment is required for Ornamental hedgerow, as condition is fixed at poor.

3.4.2 Line of trees

There is a line of large oak trees along the north-western border of the site, LT1, and a line of plane trees along the north-eastern border, LT2.

LT3 is another line of trees at the north-eastern end of the site, made up of two lines.

Habitat Type: Linear Features: Line of Trees		LT1	LT2	LT3	LT4
A	At least 70% of trees are native species.	Pass	Fail	Pass	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.	Pass	Fail	Pass	Fail
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 - Ivy	Fail	Pass	Pass - Ivy
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.	Fail	Pass	Fail	Fail – surrounded by non-native shrubbery
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	Pass	Pass	Pass
	Total:	4	2	4	3
	Condition:	Moderate	Poor	Moderate	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	12.05
Heathland and shrub – Bramble scrub	Medium	4	Condition Assessment N/A	1	0.47
Heathland and shrub - Mixed scrub	Medium	4	Poor	1	0.32
Urban – Developed land; sealed surface	Very low	0	Condition Assessment N/A	1	0
Urban – Introduced shrub	Low	2	Condition Assessment N/A	0	0.16
Other woodland; broadleaved	Medium	4	Poor	1	0.59
Individual trees – rural trees	Medium	4	Good	3	4.25
Individual trees – rural trees	Medium	4	Moderate	2	1.72
Total:					**19.56***

*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)
Line of trees	Low	2	Moderate	2	0.88
Line of trees	Low	2	Poor	1	0.19
Non-native and ornamental hedgerow	Low	2	Moderate	2	0.19
Total:					**1.26**

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 G1 to moderate condition.

The woodland areas are currently in poor condition. Enhancing them to moderate condition would 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	Condition			Habitat	Condition	
Modified grassland	Poor	**0.267**	→	Modified grassland	Moderate	**4.87**

Other broadleaved woodland	Poor	**0.134**		Other broadleaved woodland	Moderate	**99.55**
Other broadleaved woodland	Poor	**0.115**	→	Other broadleaved woodland	Good	**85.44**

Enhancing all 0.073 ha of the mixed scrub found onsite from poor condition to moderate condition would gain **0.59 habitat units**. Enhancing it to good condition would gain **0.77 habitat units**.

5.2.1 Linear habitats

The line of trees, LT1 and LT2, is currently poor condition and enhancement to moderate condition is considered possible. Enhancing the whole length of both to moderate condition would gain **0.23 and 0.07 habitat units.**

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 within the grassland G1, 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 site used

Other neutral grassland	Medium	Moderate	0.136	2.48
Mixed scrub	Medium	Moderate	0.136	2.48

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**

5.4 Linear Habitat Creation

5.4.1 Native hedgerow

There is the potential, subject to feasibility, that the site could be used to plant more hedgerows. Planting hedgerows along the boundaries of the site, such as the south-western corner or along the hard standing paths that cross the grassland would provide habitat corridors for wildlife.

- Planting **0.136 km** of moderate condition species rich native hedgerow would provide **1 habitat unit.**
- Planting **0.272 km** of moderate species-rich native hedgerow would provide **1 habitat unit.**

To be considered species rich, a hedgerow has to be planted with five or more native species.

5.5 Management

5.5.1 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).

5.5.2 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

5.5.3 Neutral grassland enhancement

Currently both areas of neutral grassland fails criteria A and F, with a pass of A required for moderate to good condition other neutral grassland, and a pass of F for good condition.

- Criteria A: "The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description)."
- Criteria F: "There are 10 or more vascular plant species per m2 present, including forbs that are characteristic of the habitat type."

To achieve moderate condition, an increase in species per m2 is required. The management suggestions given in section 5.5.2 above would also achieve this for other neutral grassland.

5.5.4 Line of trees enhancement

The line of trees currently fails most of the condition criteria, including having more than 70% native species, continuous tree canopy and having naturally vegetated habitat on both sides of the trees. To reach moderate condition, improving one of these features would be necessary. The best way to achieve this would be by planting more native trees in the larger gaps between trees – doing this will likely increase the native trees to over 70% while also reducing the gaps, leading to a pass of both features.

5.5.5 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

5.5.6 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. Eastwood Park,
Southend-on-Sea,
Baseline Habitats

Red Line Boundary

Habitats Baseline
Bramble scrub
Mixed scrub
Developed land; sealed surface
Introduced shrub
Modified grassland
Other woodland; broadleaved

Hedgerow Baseline
Non-native and ornamental
hedgerow
Line of trees

Individual tree Baseline
Existing Large Rural Tree
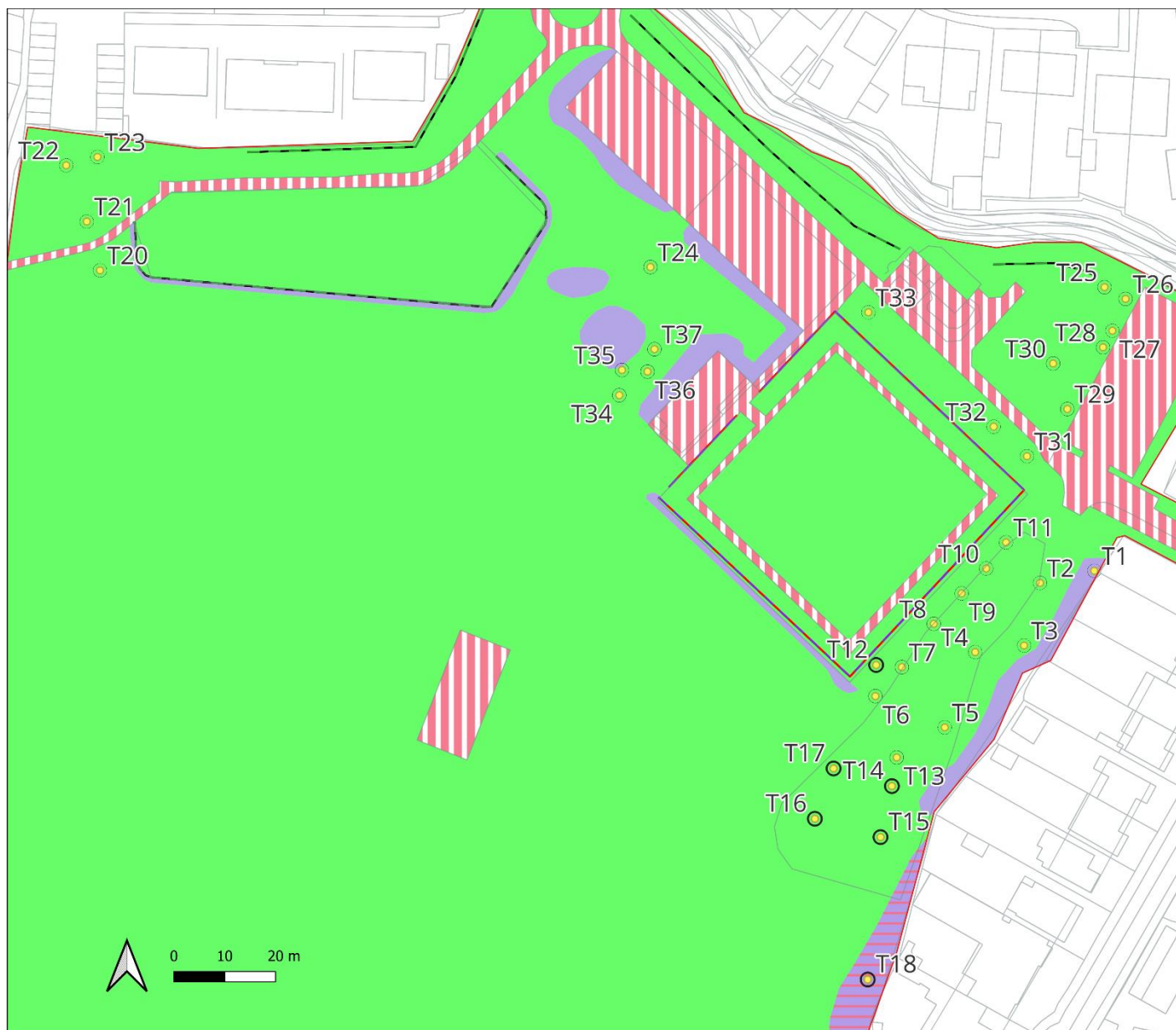Existing Medium Rural Tree
Existing Small Rural Tree

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Essex Ecology Ltd.
01621 862986
eecos@essexwt.org.uk

Registered Office:
Abbotts Hall Farm,
Great Wigborough,
Colchester,
CO5 7RZ
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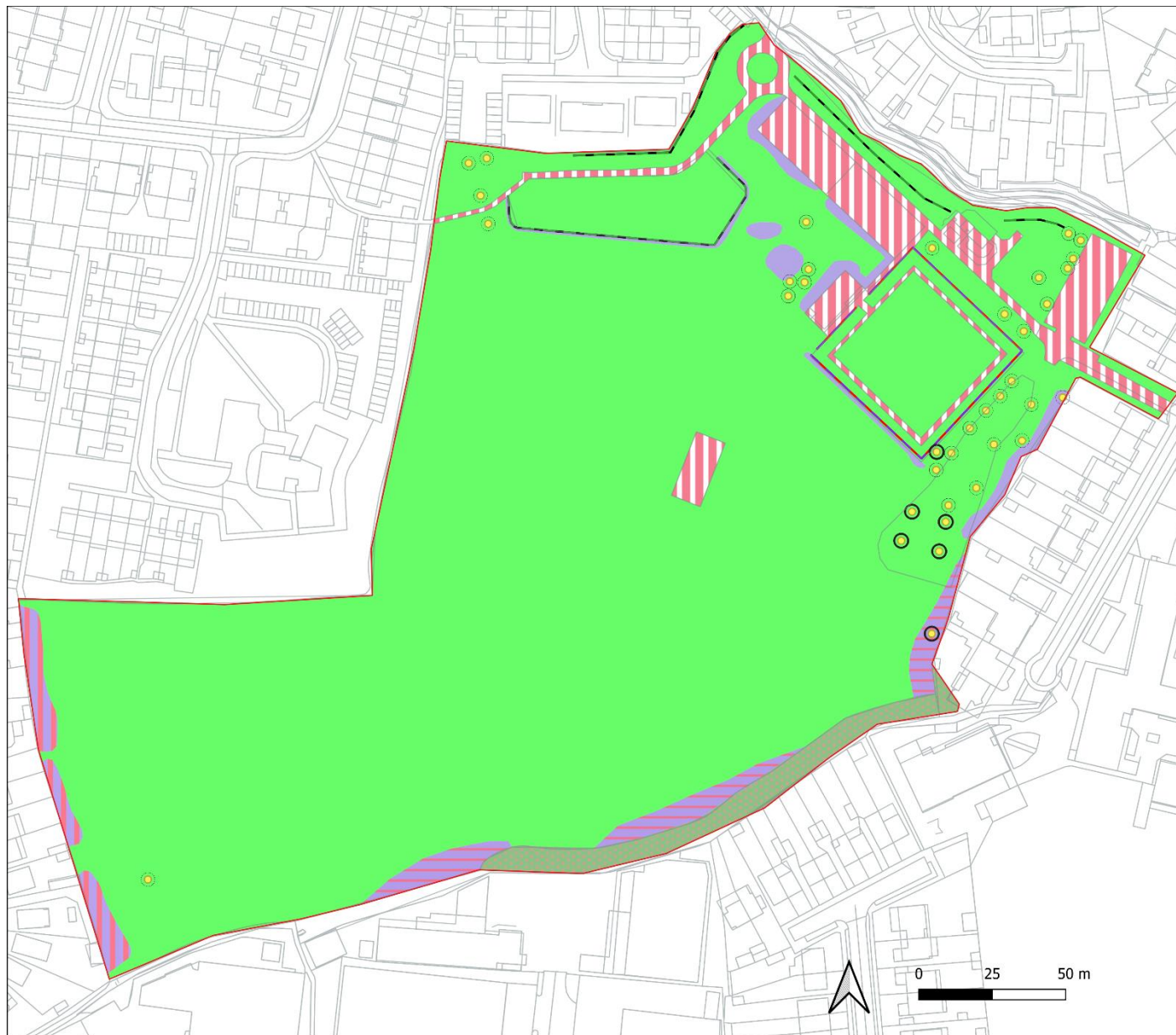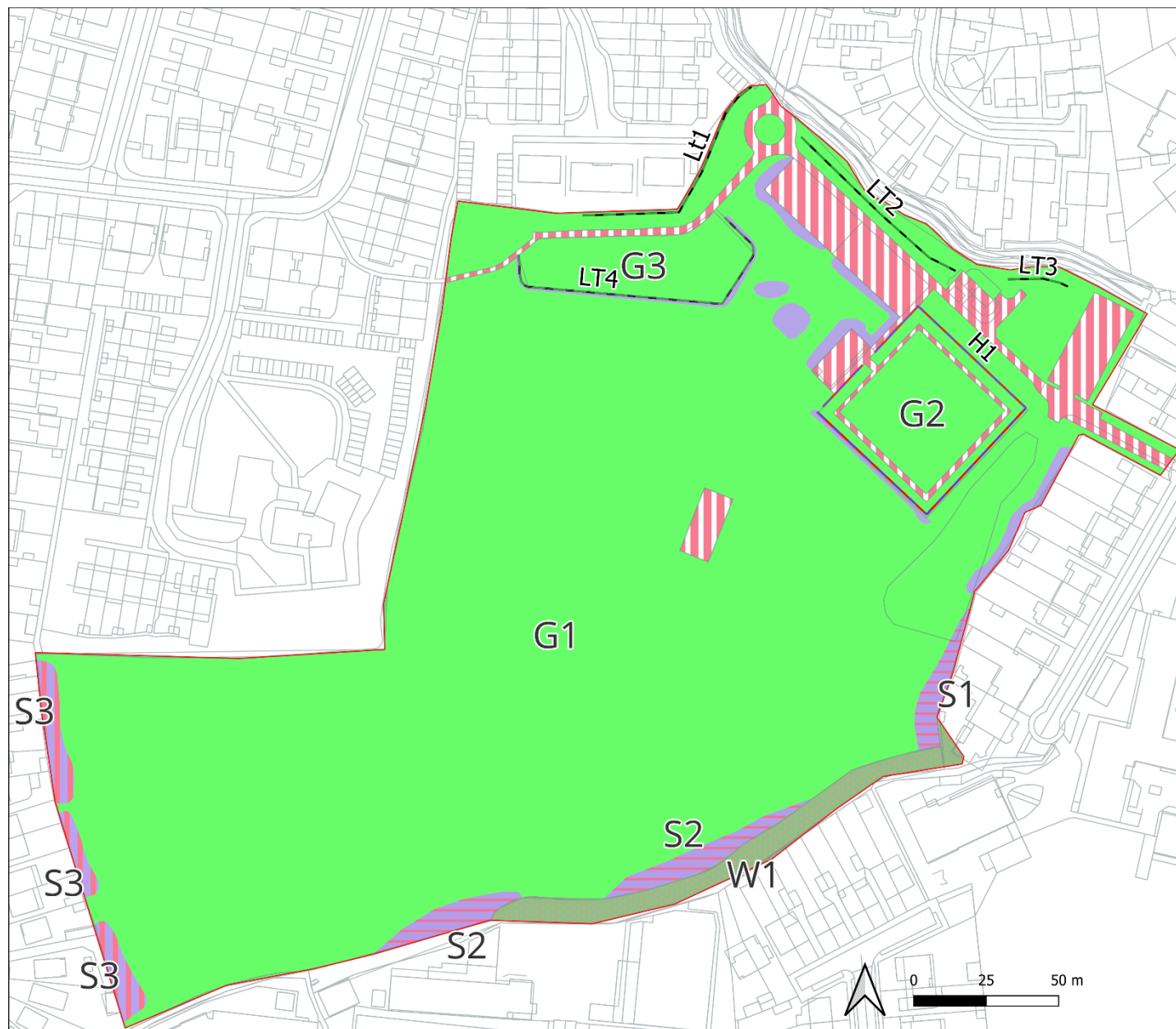
Map 2. Eastwood Park,
Southend-on-Sea,
Habitat Reference Locations

Red Line Boundary

Area Habitats
- Bramble scrub
- Mixed scrub
- Developed land; sealed surface
- Introduced shrub
- Modified grassland
- Other woodland; broadleaved

Linear Habitats
- Non-native and ornamental hedgerow
- Line of trees

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

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01621 862986
eecos@essexwt.org.uk

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Map 3. Eastwood Park ,
Southend-on-Sea,
Tree Reference Locations

Red Line Boundary

T1 - T18, T20- T37 - Tree
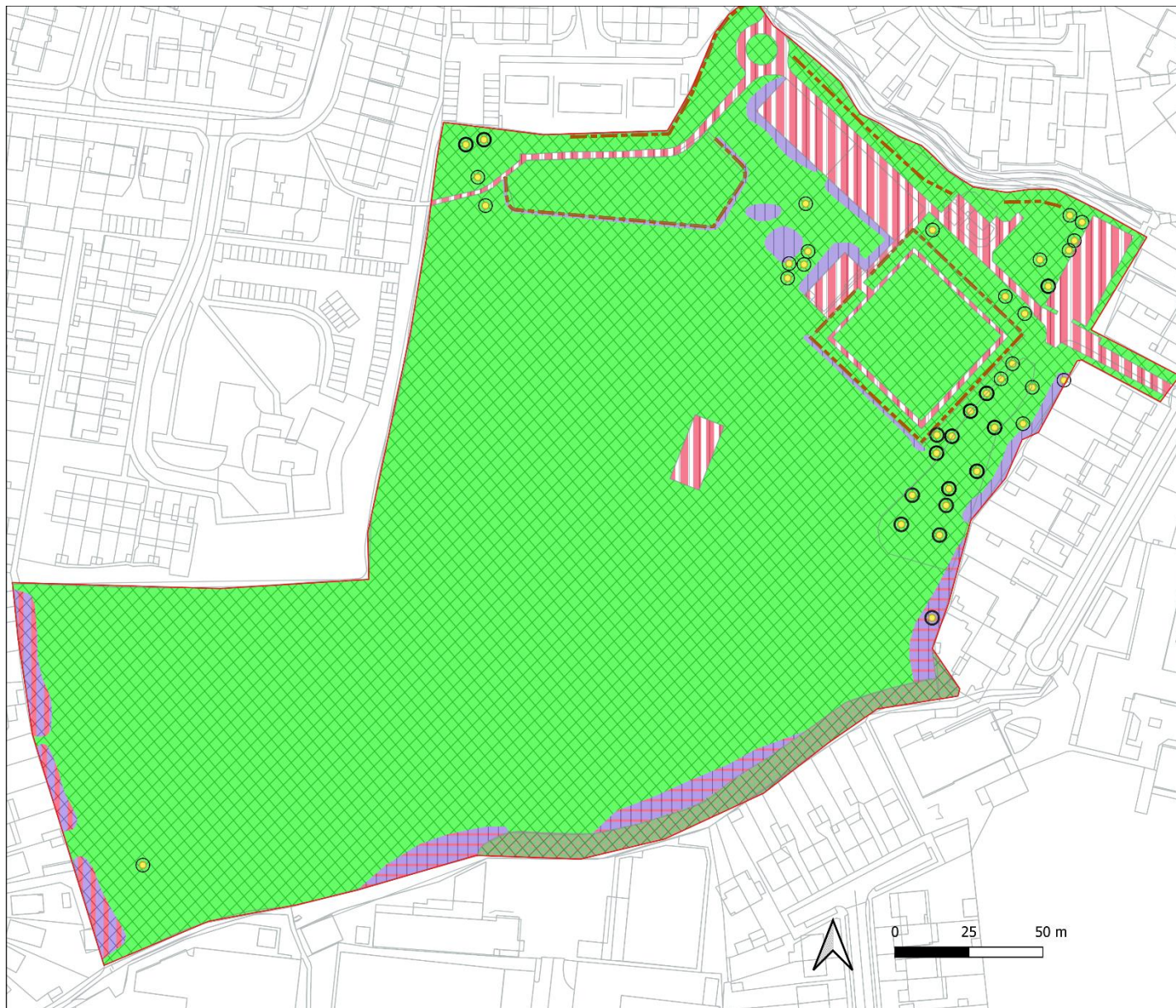Target Notes

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01621 862986
eecos@essexwt.org.uk

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T22
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T21
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T24
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T34
T31

T11
T10
T2
T1
T8
T9
T3
T12
T7
T4

T6
T5

T17
T14
T13
T16
T15

T18

Map 4. Eastwood Park ,
Southend-on-Sea,
Tree Reference Locations

☐ Red Line Boundary

T19 - Tree Target Notes

T19

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Map 5. Eastwood Park,
Southend-on-Sea,
Habitat Conditions

Red Line Boundary

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

Baseline Hedgerow Condition
Moderate
Poor

Baseline Individual tree
Condition
Moderate
Good

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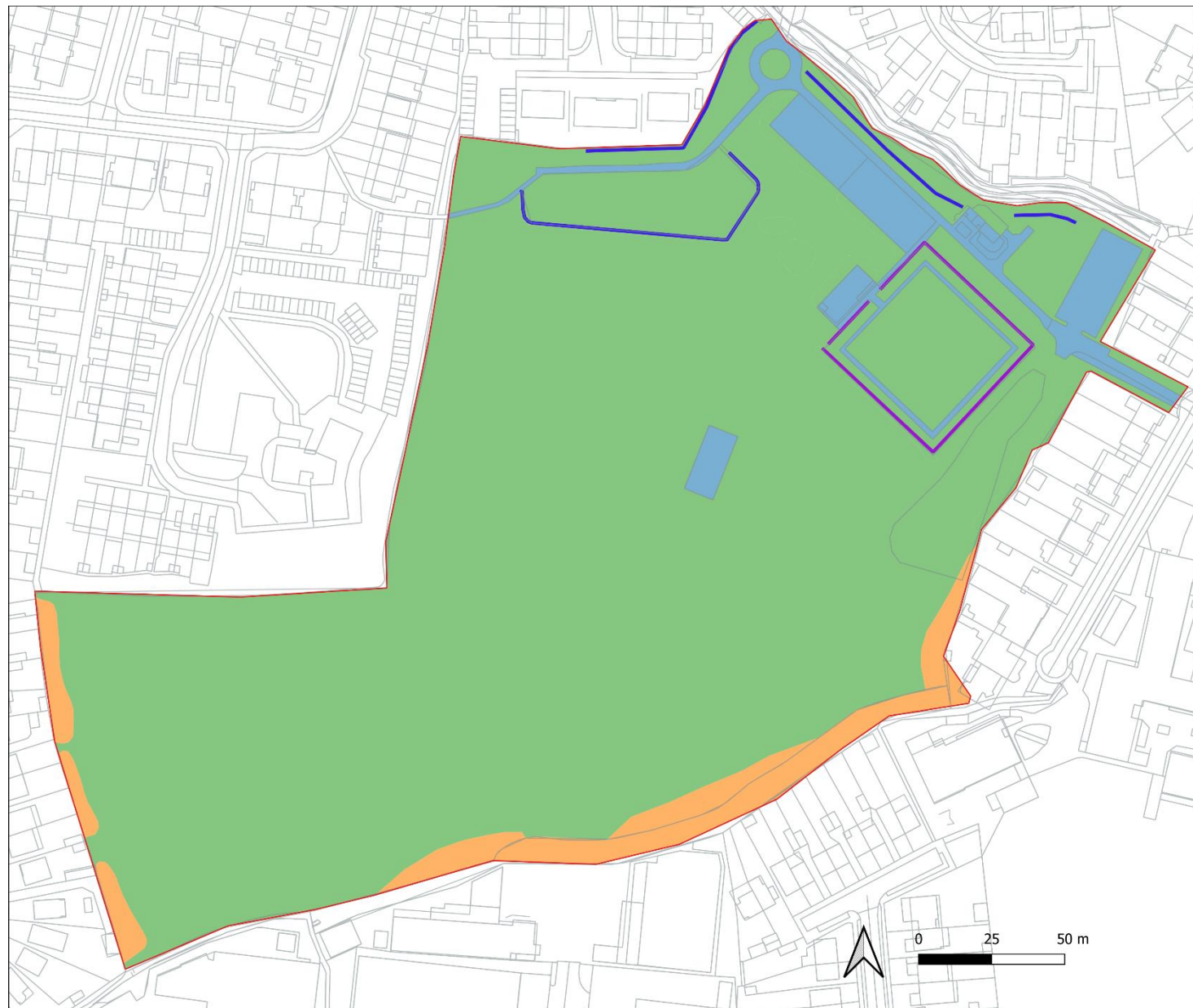Essex Ecology Ltd.
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Map 6. Eastwood Park,
Southend-on-Sea,
Habitat Distinctiveness

Red Line Boundary

Baseline Habitat
Distinctiveness
Medium
Low
V.Low

Baseline Hedgerow
Distinctiveness
Low
V.Low

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eecos@essexwt.org.uk

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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. The amenity grassland field G1.

Photograph 2. Area of trees within the grassland near the entrance to the site.

Photograph 3. The woodland W1.

Photograph 4. The scrub S3.

Photograph 5. The line of trees LT1.

Photograph 6. The scrub S2.

Photograph 7. One of the areas of introduced shrub.

Photograph 8. The hedgerow H1.

Photograph 9. An area of introduced shrub with trees.

Photograph 10. The carpark.