

One Horton Heath

Secondary Infrastructure Road (SIR) Biodiversity Net Gain (BNG) Assessment

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NON-TECHNICAL SUMMARY

Purpose of the Report	To provide information baseline condition assessments of OHH Secondary Infrastructure Road segment and to provide the Metric 4.0 assessment results of the post-development habitat BNG.
Proposed Development Information	The Secondary Infrastructure Road full planning application comprises construction of a 1.4 km internal distributor road.
Surveys Undertaken	An extended Phase 1 habitat survey of the Site was conducted in 2018-2020. An updated UKHab habitat survey was conducted on 1 and 13 March 2023 to transpose the Phase 1 survey results into UKHab and to provide condition assessment results for the habitats present. A Metric 4.0 BNG assessment has then been conducted for the Secondary Infrastructure Road of OHH and a summary of the results is provided within this report. The Metric 4.0 spreadsheet calculator is provided separately to this report.
Summary of Results	• The baseline value of the area-based habitats within the development area (Phases 4A-4D) is 18.46 units. • An additional area from the southern GI parcel has been added to the BNG calculation to compensate for the losses which results in the on-site baseline units to equal 43.56 units. • The baseline value of the hedgerows is 5.55 units. • Following the assessment, it is anticipated that the value of the post-development area-based habitats within the development area will be 12.02 units. The trading rules are not satisfied. • The post-development value of the hedgerows is 9.90 units. The trading rules are satisfied. • In the absence of mitigation, the development will therefore result in a net loss of -34.86% for habitat units, and a net gain of +78.30% for hedgerow units. • In order to offset the anticipated loss in habitat units, some of the excess units at Phase 5 – Southern Green Infrastructure have been used to ensure a net gain and a satisfaction of the trading rules for the Secondary Infrastructure Road. • Using these additional units, the post-development result is the equivalent of an 10.01% net gain and a 4.36 habitat unit net gain. The trading rules are also satisfied.
Conclusions	Providing recommendations for the creation and management of new habitats are adhered to, it is considered likely that the development will meet the mandatory requirement for development to enhance the ecological value of a site by a minimum of 10% which is outlined within the Environment Act 2021 and will become a statutory requirement from January 2024.
Monitoring & Management	A 30 year Habitat Monitoring and Management Plans (HMMP) will be implemented on Years 1, 2, 3, 5, 7, 10, 15, 20, 25 and 30.
Data Valid Until	December 2024

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1 INTRODUCTION

1.1 BACKGROUND

Johns Associates Ltd was commissioned by the One Horton Heath team on behalf of Eastleigh Borough Council to provide a Metric 4.0 Biodiversity Net Gain (BNG) assessment of the Secondary Infrastructure Road development (hereafter referred to as the "Site"). The Site has a central Ordnance Survey (OS) grid reference of the Site is SU 4898 1690 and the Site location is shown in Figure 1. The BNG will supersede and update all previous BNGs conducted for the Site and will form the baseline from which all future monitoring the Site will be compared and assessed against.

The BNG has been informed by previous habitat surveys conducted at the Site in 2018, 2019 and 2020 conducted in season and by an updated UKHab assessment in early March 2023 and further walkover updates in July 2023 to ground truth the transposition of the previous Phase 1 Habitat survey into UKHab habitat survey results.

1.2 SUMMARY OF PROPOSALS

The proposals include a 'Secondary Infrastructure Road' which will include construction of 1.4 km internal distributor road pursuant to outline planning application O/20/89498 for the construction of major mixed-use development at One Horton Heath. The application includes associated footways, cycleways and SUDS basins.

1.3 PURPOSE OF THIS REPORT

This report has been produced to provide the Metric 4.0 BNG assessment for the Site based upon the previous Phase 1 Habitat survey baseline results conducted in July/August 2018, August 2019 and July/August 2020. The Site was re-surveyed in March 2023 using the UKHab system to convert the previous Phase 1 habitat survey results into the most current system for habitat survey and condition assessment.

The post-development landscape and ecological plans produced by Deacon Design have informed the post-development BNG calculations and the plans were designed with ecological advice and through consultation with the landscape team and Eastleigh Borough Council ecology team to avoid habitats of higher distinctiveness and to maximise the BNG through the proposed plans connecting habitats within the site to the wider landscape.

1.4 BIODIVERSITY METRIC 4.0

The Biodiversity Metric 4.0 uses habitat as a proxy for overall biodiversity within different habitat types. Habitats are assigned a value based on their intrinsic biodiversity value or 'distinctiveness', which is predefined for each habitat within the metric. This value is then multiplied based on the size, condition and geographical location of the habitat in order to ascertain its absolute value in 'biodiversity units'. Separate calculations are used within the metric for area-based habitats, linear habitats (such as hedgerows) and watercourses (including ditches and streams). These units are non-transferable and must therefore be considered individually for each project or development. Hereafter they will be referred to as "habitat units", "hedgerow units" and "river units" respectively. Collectively, they will be referred to as "biodiversity units".

Natural England (NE) provides a Calculation Tool with all calculations built in to aid in the assessment process. This report should be read in conjunction with the Calculation Tool provided for the assessment of this Site.

Underlying this assessment process are a key set of principles which explain the intended use of the Metric 4.0. They are as follows:

- Principle 1 - The metric does not change the protection afforded to biodiversity, statutory obligations, or policy requirements. The use of the metric does not override the ecological mitigation hierarchy;
- Principle 2 - The metric should be used in accordance with established good practice guidance and professional codes;
- Principle 3 - The metric is not a complex or comprehensive ecological model and is not a substitute for expert ecological advice;
- Principle 4 - The metric's biodiversity units are only a proxy for biodiversity and should be treated as relative values;
- Principle 5 - The metric is designed to inform decisions, in conjunction with locally relevant evidence, expert input;
- Principle 6 – Habitat interventions need to be realistic and deliverable within a relevant project timeframe;
- Principle 7 – Where practical and reasonable, created and enhanced habitats should seek to be local to the impact and deliver strategically important outcomes for nature conservation;
- Principle 8 - The metric does not enforce a mandatory minimum 1:1 habitat size ratio for losses and compensation but consideration should be given to maintaining habitat extent and habitat parcels of sufficient size for ecological function.

During the process of undertaking a biodiversity net gain assessment using the Metric 4.0, the following rules must be followed to ensure its proper use:

- Rule 1 – Competency requirements must be complied with;
- Rule 2 - Biodiversity unit values generated by biodiversity metric 4.0 are unique to this metric and cannot be compared to unit outputs from previous versions of the metric or any other biodiversity metric. Furthermore, the three types of biodiversity units generated by this metric (for area, hedgerow and watercourse) are unique and cannot be summed;
- Rule 3 – The trading rules of this metric must be followed. 'Trading down' must be avoided. Losses of habitat are to be compensated for on a "like for like" or "like for better" basis. New or restored habitats should aim to achieve a higher distinctiveness and/or condition than those lost. Losses of irreplaceable or very high distinctiveness habitat cannot adequately be accounted for through the metric;
- Rule 4 – Losses and deterioration of irreplaceable or very high distinctiveness habitat cannot be accounted for through this metric;
- Rule 5 - Deviations from the published methodology of biodiversity metric 4.0 need to be ecologically justified and agreed with relevant decision makers. While the methodology is expected to be suitable in the majority of circumstances it is recognised that there may be exceptions. Any local or project-specific adaptations of the metric must be transparent and fully justified.

1.5 PERSONNEL

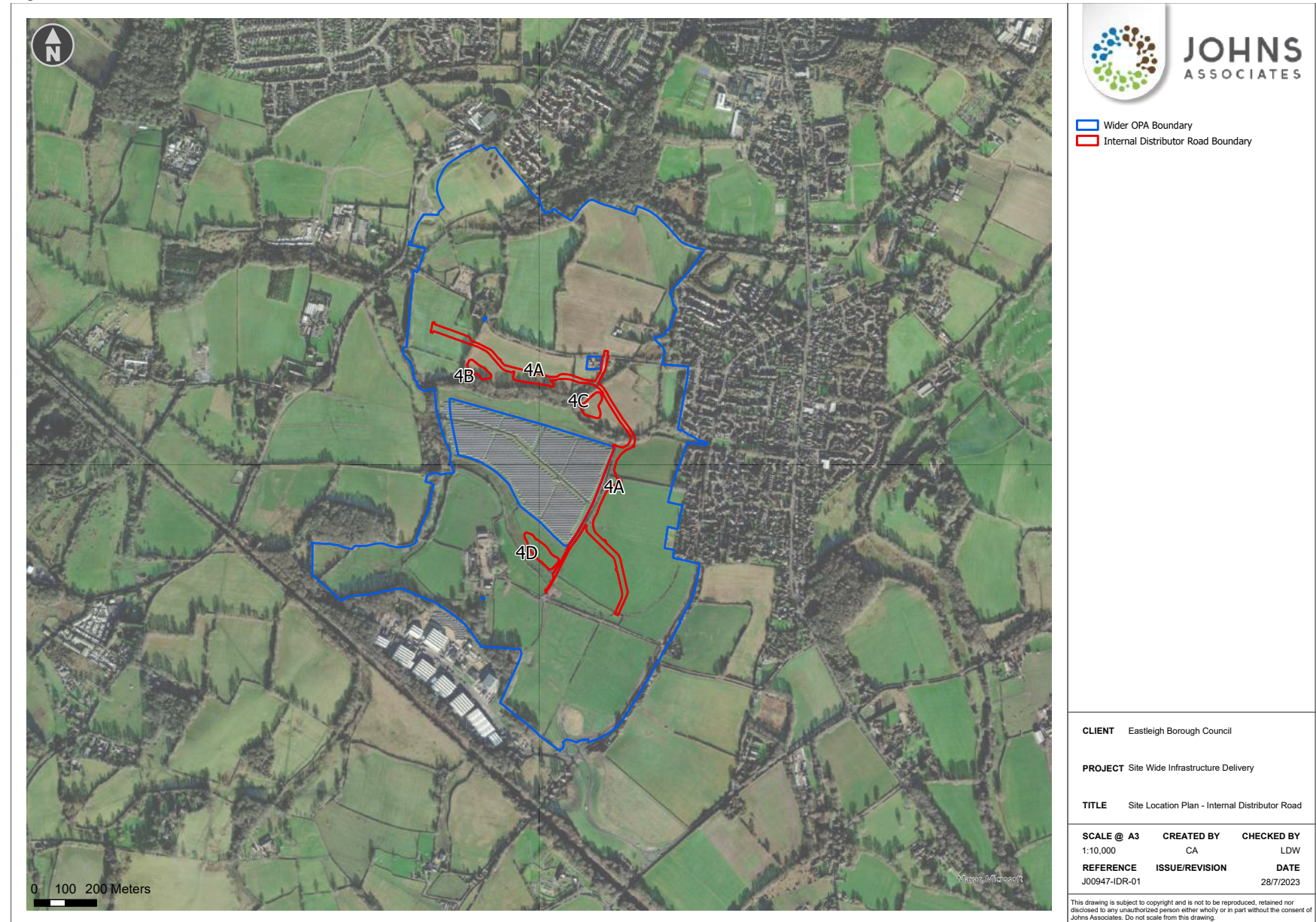
The updated Condition Assessments and BNG calculations were led by Lexi Dowson Wallace BSc (Hons) MSc ACIEEM supported by Tessa Pepler BSc (Hons) MSc MCIEEM. Lexi is a Senior Consultant at Johns Associates who has worked as an ecological consultant since 2015. Lexi is highly experienced in conducting BNG assessments and is the BNG Lead at Johns Associates.

Tessa is a Principal Ecologist at Johns Associates who has worked as an ecological consultant since 2005 and has a BSc (Hons) in Environmental Studies and an MSc in Ecology and Management of the Natural Environment. Tessa is a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and holds Natural England Class 1 survey licences for bats, great crested newts and dormice.

1.6 LEGISLATION AND POLICY

The relevant legislation and national and local planning policies which are relevant to this assessment are provided in Appendix A to this report.

Figure 1: Site Location



2 METHODOLOGY

2.1 STRATEGIC SIGNIFICANCE

As part of the BNG assessment, habitats are afforded different levels of strategic significance, which describes the local significance of the habitat based on its location and the habitat type. Habitats were assigned a strategic significance value using the Biodiversity Action Plan (BAP) for Eastleigh Borough 2012-2022 and the Hampshire Ecological Network Mapping document provided as part of the data search by HBIC. The strategic significance is assigned to be high, moderate and low.

2.2 DISTINCTIVENESS

For the purpose of the metric assessment, distinctiveness refers to the relative scarcity of the habitat and its importance for nature conservation. The actual values assigned to each habitat type used in the metric are given in the Technical Supplement. These are automatically applied by the calculator tool based on the habitat type.

2.3 HABITAT CLASSIFICATION AND CONDITION ASSESSMENT

2.3.1 UKHab Field Survey

A UKHab survey of the Site was undertaken on 1 and 13 March 2023 by experienced ecologists Tessa Pepler BSc (Hons) MSc MCIEEM and Lexi Dowson-Wallace BSc (Hons) MSc ACIEEM from Johns Associates Ltd. The weather was dry and sunny with good visibility. This survey was completed in accordance with the UK Habitat Classification (UKHab) (2020) guidelines, Preliminary Ecological Appraisal (CIEEM, 2017) and BS 42020:2013 Biodiversity - Code of practice for planning and development (British Standards Institute, 2013).

The previous Phase 1 Habitats surveyed in July/August 2018, August 2019 and July/August 2020 by Katherine Newbert BSc (Hons) MSc, Wiltshire County Botanical Recorder were reviewed and transposed into UKHab habitats (Appendix B) with an updated condition assessment where this information was not available within the previous Phase 1 Habitat Report (OHH, Environment Statement Chapter 10: Ecology - Appendix 10.2).

2.3.2 Habitat Classification

The on-Site habitats were classified following UK Habitat Classification (UKHab) (2020) guidelines, which provides a more detailed interpretation of baseline habitat survey data than previous habitat classifications systems, such as Phase 1 Habitat Assessments. The professional edition of UKHab "UK Habitat Classification –Professional Edition¹" (UKHab-P) was used which includes Priority Habitat Types, all Annex 1 Habitats and the habitats listed in EUNIS.

The classification of primary habitats is hierarchical with five levels, which include terrestrial/freshwater/marine, ecosystem types, broad habitats, priority habitats and Annex 1 habitats. Habitat types were assigned a primary code to a hierarchical level of at least three, and secondary codes were used to further clarify the habitat and record additional information linked to the primary habitat such as habitat management. The full range of secondary codes following UKHab-P were used, which are grouped under the following headings of which the first three listed are considered mandatory sections.

¹ Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020). The UK Habitat Classification User Manual Version 1.1 at <http://www.ukhab.org/>

- Habitat Mosaics (10 - 18)
- Habitat Complexes (19 – 32)
- Origin (33 – 49)
- Management (51 – 85)
- Land Use (86 – 116)
- Environmental Qualifier (117 – 138)

2.3.3 Condition Assessment

An annotated habitat map together with descriptions of the recorded habitat types was produced, which was subsequently digitised using a geographical information system (ArcGIS). The survey also included identification of any non-native invasive plant species. Flora taxonomy follows the nomenclature detailed in New Flora of the British Isles (4th Edition) (Stace C. , 2019). Flora, where appropriate, are given a descriptive score of abundance using the DAFOR scale, as follows:

1. D – Dominant
2. A – Abundant
3. F – Frequent
4. O – Occasional
5. R – Rare
6. L – Locally (to be used as a prefix for any of the above)
7. V – Very (to be used as a prefix for any of the above)

Each habitat parcel is assessed on its condition via a series of relevant criteria as per The Biodiversity Metric 4.0 User Guide (Natural England, 2023a) and The Biodiversity Metric 4.0 – Technical Annex 1: Condition Assessment Sheets and Methodology (Natural England, 2023b).

Information recorded including species abundance, presence of non-native species, undesirable species, management, habitat structure, human impacts and age of habitats were recorded using the Metric 4.0 Habitat Condition sheets in the field which are appended to this report.

2.4 BIODIVERSITY METRIC 4.0 METHODOLOGY

The Biodiversity Metric 4.0 provides a nationally measurable structured calculation methodology to account for biodiversity losses and gains resulting from development or land management change. The Biodiversity metric 4.0 uses habitat, the places in which species live, as a proxy to describe biodiversity. These habitats are converted into measurable 'biodiversity units'. These biodiversity units are the 'currency' of the metric.

Biodiversity units are calculated using the size of a parcel of habitat and its quality. The metric uses habitat area as its core measurement, except for linear habitats where habitat length is used. To assess the quality of a habitat the metric scores habitats of different types, such as woodland or grassland, according to their relative biodiversity value. Habitats that are scarce or declining typically score highly relative to habitats that are more common and widespread. The metric also takes account of the condition of a habitat. The metric accounts for the location of the habitat relative to other similar habitats to measure its connectedness in the landscape. Being 'better' and 'more joined-up' are important facets

of habitats that can contribute to halting and reversing biodiversity declines. Lastly, the metric also accounts for whether or not the habitat is sited in an area identified locally, typically in a relevant policy of plan, as being of significance for nature.

Where new habitat is created, or existing habitat is enhanced the difficulty and associated risks of doing so are taken into account by the metric. If habitat is created to compensate for losses elsewhere, then the metric also takes account of its proximity to the impact site. The metric incentivises delivery that is on or close to the impact site.

The Metric 4.0 Biodiversity score has been calculated for the existing habitats at the Site and for the habitats proposed within the masterplan. The site was split into distinct habitat parcels and linear habitats based on the UKHab system, which were then mapped and measured using the ArcGIS mapping tool. Baseline habitats are shown in Appendix B with the condition assessments of the habitats provided in Appendix C.

The area or length of each habitat type was entered into the Calculation Tool along with the condition and strategic significance (informed by the desk study) in order to obtain the baseline (i.e. existing) value of each in biodiversity units. This process was repeated for the post-development habitats to be retained, enhanced and/or newly created. The post-development habitat plan is shown in Appendix D.

BNG is an approach to development that seeks to halt the current loss of biodiversity through development and through the planning system; restore ecological networks through early masterplanning and increase the natural habitat resource and ecological features. This has been included within the Environment Act 2021, and a mandatory requirement for development to enhance the ecological value of a site by a minimum of 10% will come into force in January 2024.

2.5 LIMITATIONS, CONSTRAINTS AND ASSUMPTIONS

The findings of this report are valid at the time of reporting. Should there be delays to the project timetable and/or implementation of the proposed development, updated desk study and/or site survey work may be required. In this instance, advice should be sought to ensure the data, recommendations and conclusions set out in this report remain valid.

The original extended Phase 1 Habitat Survey was undertaken in early March, which is outside of the JNCC's optimum field survey season for the south of England (from late March to Mid-October), wherein the most accurate picture of the vegetation communities present can be gained. The results of the previously recorded species from botanical surveys conducted in July/August 2018, 2019 and 2020 and updated walkover inspection in July 2023 have been used to inform the condition assessments. Where these are not present for a parcel; a precautionary condition has been applied e.g. a condition level higher than that surveyed in March 2023.

No other limitations or constraints with regard to the field survey or desk study were encountered and therefore the BNG calculations are considered valid.

3 BIODIVERSITY NET GAIN RESULTS

3.1 STRATEGIC SIGNIFICANCE

The site is adjacent to strategic locations identified in the Eastleigh Borough Council Biodiversity Action Plan 2012-22. This assessment concluded that the habitats on site are well connected to the wider landscape via suitable, high value connective habitats and have the potential to for valuable connective habitats as part of the wider Hampshire biodiversity network. This level of strategic significance is applied consistently to both lost and enhanced/created habitats. The results of the strategic significance assessment are as follows:

High

- All areas included within the HBIC Ecological Network Map. This includes biodiversity opportunity areas, core statutory sites, core non-statutory sites and network opportunity areas.
- Priority habitats as identified within the Biodiversity Action Plan (BAP) for Eastleigh Borough 2012-2022. Priority habitats relevant to this application include: lowland mixed deciduous woodlands, pond, lowland fens, reedbeds and hedgerows.

Medium

- Areas located adjacent to 'high' strategic significance areas which are considered to provide ecological connectivity to the wider landscape such as woodland and grassland were categorised as having 'medium' strategic significance.

Low

- Areas that are not included in or are adjacent to the HBIC Ecological Network Map were categorised as having 'low' strategic significance. Areas adjacent to areas of high strategic significance that do not provide ecological connectivity to the wider landscape such as cereal crops, were also categorised as having a 'low' strategic significance.

3.2 BASELINE

3.2.1 Cropland – Cereal Crops c1c

Maize *Zea* sp. crops were grown in the central section of the Site (C2, C3). The fields had narrow margins which were retained un-ploughed, up to a width of 1m at the base of hedges.

3.2.2 Grassland - Modified Grassland g4 – Poor Condition

The modified grassland in poor condition within the Site (F22) was either heavily cattle-grazed or subject to regular topping; and fertiliser or manure were regularly applied. The sward was dominated by common and competitive grass species, with a small diversity of forb species which are tolerant of nutrient-enriched and disturbed soils. Typical species within this community included perennial rye-grass *Lolium perenne*, creeping bent *Agrostis stolonifera* and Yorkshire fog *Holcus lanatus*. Forb species present at low frequency and abundance included curled dock *Rumex crispus*, creeping thistle *Cirsium arvense*, ribwort plantain *Plantago lanceolata* and white clover *Trifolium repens*.

3.2.3 Grassland - Modified Grassland g4 – Moderate Condition

This area of grassland (F26) had a varied sward height at the time of survey. Species recorded included hard rush *Juncus inflexus*, hairy sedge *Carex hirta*, common nettle *Urtica dioica*, dandelion *Taraxacum officinale* agg., marsh thistle *Cirsium palustre* and tufted hair-grass *Deschampsia cespitosa*.

F33 comprised moderate grassland/species poor semi-improved grassland in 2020 which is transposed into moderate condition modified grassland. In general, the grassland was dominated by common and competitive grass species, with a small diversity of forb species which are tolerant of nutrient enriched and disturbed soils. Abundant grass species comprised perennial rye-grass, creeping bent and Yorkshire fog. Forb species present included locally frequent hairy sedge *Carex hirta*, curled dock *Rumex crispus* and creeping thistle *Cirsium arvense*, and occasional ribwort plantain *Plantago lanceolata*, yarrow *Achillea millefolium*, common fleabane *Pulicaria dysenterica* and white clover *Trifolium repens*.

F13, F30 and F31 were dominated with perennial rye grass with frequent dandelion and white clover, occasional cock's foot *Dactylis glomerata* and broadleaved dock *Rumex obtusifolius* rare in abundance. The sward height was not varied.

3.2.4 Grassland – Other Neutral Grassland g3c – Moderate Condition

Land within F27 comprised a dry shallow ditch within species poor marshy grassland where management had been abandoned and the sward was becoming tall and rank with species such as hemlock-water dropwort *Oenanthe crocata* becoming dominant. The ditch was deemed likely to hold water at wetter times of year. Species recorded included common sorrel *Rumex acetosa*, marsh bedstraw *Galium palustre*, creeping buttercup *Ranunculus repens*, soft rush *Juncus effusus*, Yorkshire fog and common nettle.

3.2.5 Heathland and Scrub – Mixed Scrub h3h

A wet ditch/depression was situated beneath dense willow *Salix* sp. scrub growth. The dense scrub (S1) supported a number of fallen willows with growth from the horizontal trunks and fallen dead trees.

3.2.6 Other Woodland; Broadleaved – w1g7

Broadleaved semi-natural woodland (W3) included a woodbank at the northern boundary. The canopy was dominated by oak *Quercus robur* with frequent ash *Fraxinus excelsior*. The woodland was unmanaged, with a sparse understorey of grey willow *Salix cinerea* and hazel *Corylus avellana* in places and in others dominated by bramble *Rubus fruticosus* agg.. Ground flora was largely species-poor and dominated by nettle but included locally frequent remote sedge in places.

The woodland sloped down to a shallow depression running through the centre of the habitat approximately 20cm depth and 1m width. This was largely dry at the time of survey with the exception of isolated pools but is thought likely to hold running water at times of high rainfall. The stream bed was largely free of vegetation with an orange iron precipitate on the surface and heavily shaded by the canopy. Lesser pond sedge *Carex acutiformis* was present at low abundance.

3.2.7 Hedgerows

Table 1 Hedgerow number, classification and description

Hedgerow Number	Classification	Description
H25	Species-rich native hedgerow – associated with bank or ditch	An outgrown hedge, with the most abundant woody species comprising hazel, English elm and hawthorn. Oak, rose, dogwood, ash, field maple and blackthorn were also present. Ground flora was species poor with locally abundant stands of bracken. The hedgerow reached 5m height, and 1m width.
H26	Line of trees – associated with bank or ditch	This hedgerow was similar in character to H25 in species composition, although supported a greater proportion of standard mature oak and ash trees. The hedgerow reached approximately 5m height in general.
H28	Line of trees – associated with bank or ditch (defunct)	A lack of management had resulted in an outgrown hedge of mostly mature standard trees and large shrubs. Woody species included oak, ash, blackthorn, bramble, broom <i>Cytisus scoparius</i> and holly <i>Ilex aquifolium</i> . The hedgerow was

		situated upon a small bank with an associated small ditch. The ground flora was species poor. Evidence of management in the past by hedge laying was evident.
H35	Species-rich native hedgerow – associated with bank or ditch (defunct)	Woody species present included rose, hawthorn, bramble, wild plum, blackthorn, oak, holly and hazel. Although a range of woody species were present, this hedgerow was heavily defunct through disturbance from cattle. Thickly grown limbs were indicative of likely significant age of the hedge, despite its poor condition. The hedgerow was flailed to a height of 3m and a width of 1m. Bracken dominated patches were present on the road-side of the hedgerow at its eastern end.
H36a	Species-rich native hedgerow – associated with bank or ditch (defunct)	The most frequent woody species included blackthorn, hawthorn and willow. Additional species included bramble, ash, hazel, rose and field maple. The hedgerows were flailed to a height of 3m and a width of 1m and were situated upon a small bank.
H36b	Species-rich native hedgerow – associated with bank or ditch	
H36c	Species-rich native hedgerow – associated with bank or ditch	
H52a	Species-poor native hedgerow (defunct)	Remnant hedge which is defunct and outgrown at the base. The hedgerow was flailed to a width of 1m. Species present included bramble, blackthorn and dog rose.
H53	Species-poor native hedgerow (defunct)	Hedgerow contained both mature and recently planted sections. The recently planted section was approximately 20m in length and adjacent to the solar farm. Tree guards were present, and shrubs were growing to a height of 1.5m. The mature hedgerow was composed of dog rose, hazel and hawthorn. The hedgerow was flailed to a height of 2m and was gappy at the base.
H61	Species-rich native hedgerow with trees – associated with bank or ditch (defunct)	Hedgerow with woody species including bramble, blackthorn, rose, hawthorn, ash and hazel. The hedgerow was situated upon a small bank and was managed by flailing to a height of 3m and a width of 1m. The hedgerow was dense but gappy at the base in places

Tables 2 and 3 below detail the specific area-based and linear habitat types respectively (Appendix B), with their relative conditions and baseline area unit values. Condition assessment sheets, where applicable, are provided in Appendix C.

Table 2: Summary of baseline assessment for area-based habitats

Broad Habitat	Habitat	Distinctiveness	Area (Ha)	Condition	Units
Urban	Sealed surface/ hardstanding	V. Low	0.0170	N/A	0.00
	Bare ground	Low	0.3742	Poor	0.75
Cropland	Cereal crops	Low	1.0037	N/A	2.00
Grassland	Modified grassland	Low	0.2822	Poor	0.61
			1.9759	Moderate	7.95
	Other neutral grassland	Medium	0.5458	Moderate	5.02
			0.0900	Good	1.19
Heathland and Shrub	Mixed scrub	Medium	0.0114	Moderate	0.10
Woodland and Forest	Other woodland; broadleaved	Medium	0.0253	Good	0.35
Totals			4.3255		18.46

Table 3: Summary of baseline assessment for linear habitats

Linear Habitat	Distinctiveness	Length (km)	Condition	Units
Lines of trees – associated with bank or ditch	Low	0.029	Moderate	0.13
Species-rich native hedgerow - associated with bank or ditch	High	0.260	Poor	1.62
		0.199	Moderate	2.63
Species-rich native hedgerow with trees – associated with bank or ditch	V. high	0.035	Moderate	0.62
Species-rich native hedgerow	Medium	0.023	Poor	0.10
Native hedgerow	Low	0.219	Poor	0.46
Totals		0.765		5.55

3.3 POST-DEVELOPMENT

The post-development proposals for the Site comprise hard standing (road) with grass verges, SuDS and tree planting. The following calculations are based on the following drawings: Secondary Road Landscape Proposals Sheets 1-5 of 6 (dwg. DD579L40-R3, DD579L41-R3, DD579L42-R3, DD579L43-R3, and DD579L44-R3 by Deacon Design, 08/12/2023). The landscape and ecological plan comprises retainment of existing area-based habitats, enhancement of existing habitats and also newly created habitats.

3.3.1 Area-based Habitats

Table 4 below details the specific habitat types, their proposed conditions and unit values.

Table 4: Summary of post-development assessment for area-based habitats

Broad Habitat Type	Habitat	Distinctiveness	Area (Ha)	Condition	Units
Urban	Sealed surface/ hardstanding	V. low	2.0638	N/A	0.00
Grassland	Modified grassland	Low	0.6165	Moderate	2.18
	Other neutral grassland	Medium	0.0597	Moderate	0.40
			0.3884	Good	3.55
Heathland and shrub	Mixed scrub	Medium	0.0300	Moderate	0.22
Lakes	SuDS	Medium	0.2001	Moderate	1.61
Wetland	Fens	V. high	0.9605	Good	3.00
Woodland	Other woodland; broadleaved	Medium	0.0065	Good	0.09
Individual trees	Urban trees (equivalent of 78 small trees along the Secondary Infrastructure Road)	Medium	0.3176	Moderate	0.97
Totals			4.3255*		12.02

* Total shown excludes additional area of individual trees.

3.3.2 Hedgerow Habitats

Table 5 below details the specific hedgerow types, their proposed conditions and unit values.

Table 5: Summary of post-development assessment for linear habitats

Linear Habitat Type	Retained/ Enhanced/ Created?	Distinctiveness	Length (km)	Condition	Units
Species-rich native hedgerow – associated with bank or ditch	Enhanced	High	0.428	Good	7.83
Native hedgerow		Low	0.219	Moderate	0.88
Species-rich native hedgerow	Created	Medium	0.177	Moderate	1.18
		Totals	0.827		9.90

3.3.3 Headline Results

As demonstrated in Table 6, the biodiversity net gain results show an overall net gain in hedgerows, and a net loss in habitats. The trading rules have been satisfied for hedgerows but not for habitats.

Table 6: Summary of biodiversity net gain assessment before offsetting

Unit Type	Baseline Units	Post-development Units	Net Unit Change	% Change	Trading Rules Satisfied?
Habitat	18.46	12.02	-6.43	-34.86	No
Hedgerow	5.55	9.90	4.35	78.30	Yes

3.3.4 Off-Setting

Due to the nature of this phase of the development, a net loss in habitats is expected, however, utilising units from Phase 5 – Southern Green Infrastructure (GI), which achieves a net gain of 47.92 (habitat) units using Metric 4.0, a net gain on Site is possible, without compromising the net gain or trading rules in Phase 5. Table 7 details the habitats taken from Phase 5 to offset the loss in Phase 4 and address the trading rules. As the development as a whole (One Horton Heath) is considered to be a single site, the habitat parcels 'taken' from Phase 5 have been input into the Phase 4 calculator as 'on-site' rather than as an 'off-site' contribution.

Table 7: Summary of baseline habitats from Phase 5 – Southern GI used to offset Phase 4 losses

Broad Habitat	Habitat	Distinctiveness	Area (Ha)	Condition	Units
Grassland	Modified grassland	Low	0.1301	Poor	0.29
			0.5087	Moderate	2.23
	Other neutral grassland	Medium	2.4559	Moderate	22.6
		Totals	3.0947		25.12

Table 8 details the post-development habitats delivered by the habitat parcels from Phase 5 via enhancement of the existing habitats therein.

Table 8: Summary of post-development habitats from Phase 5 – Southern GI used to offset Phase 4 losses

Broad Habitat Type	Habitat	Distinctiveness	Area (Ha)	Condition	Units
Grassland	Other neutral grassland	Medium	0.2784	Moderate	2.00
			2.8113	Good	33.91
		Totals	3.0897		35.91

* Total shown excludes additional area of individual trees.

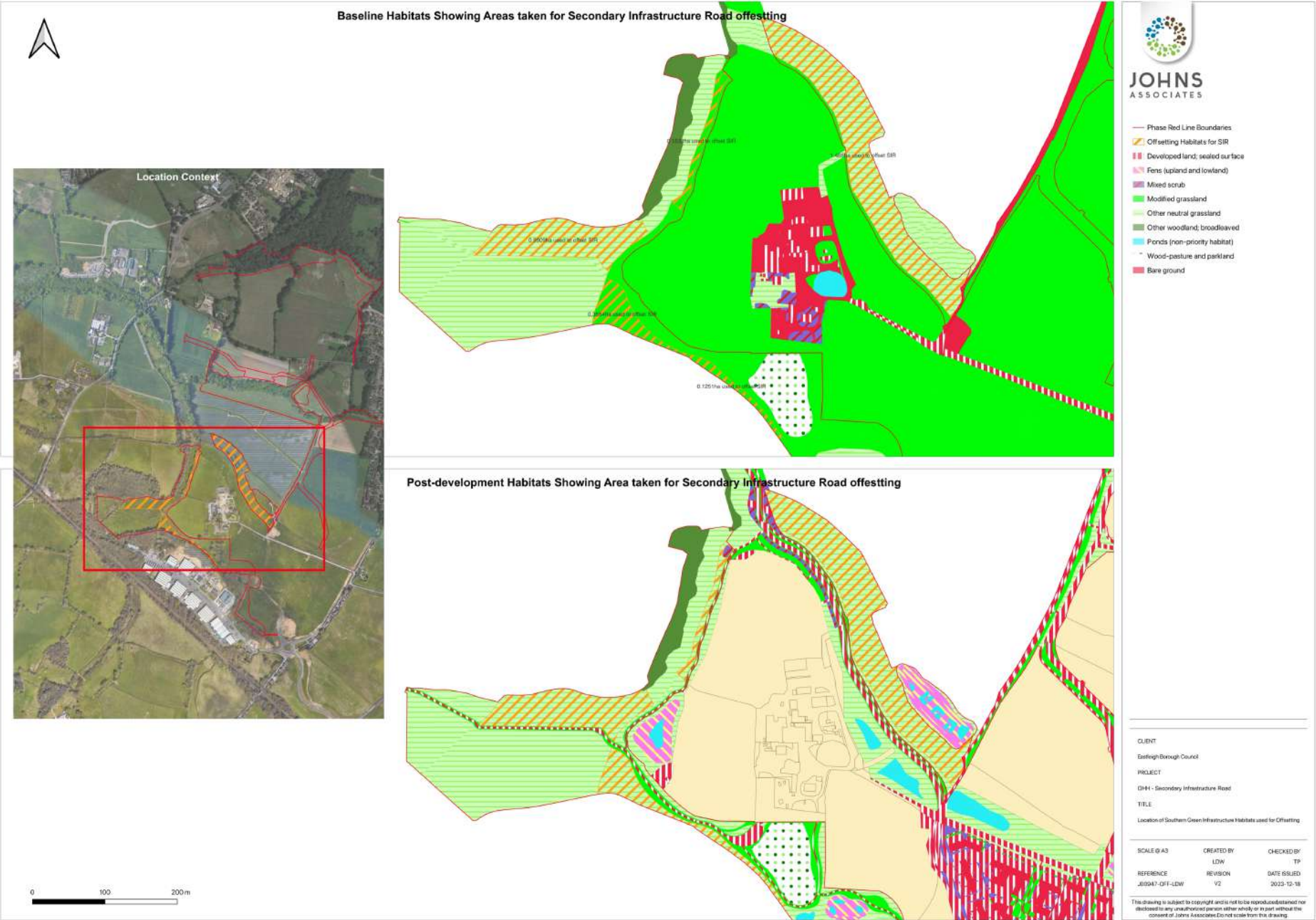
The specific habitat parcels taken from Phase 5 to offset the Phase 4 losses are highlighted in Figure 2.

Following the offsetting, the Site can be expected to achieve an overall net gain, as demonstrated in Table 8 below.

Table 8: Summary of biodiversity net gain assessment after offsetting

Unit Type	Baseline Units	Post-development Units	Net Unit Change	% Change	Trading Rules Satisfied?
Habitat	43.56	47.92	4.36	+10.01%	Yes

Figure 2: Location of Habitats in Phase 5 – Southern GI used to Offset Losses in Phase 4 - Secondary Infrastructure Road



3.3.5 Application of the Mitigation Hierarchy

Because some area-based habitats and hedgerows are being lost in order to facilitate the proposed development, compensation and enhancement has been incorporated into the design in order to ensure compliance with Rule 3 and Principle 7 of the Metric User Guide. Table 9 demonstrates how the mitigation hierarchy has been applied to all habitats on Site in accordance with Principle 2 of the Metric User Guide.

Biodiversity units are more easily achievable when habitats are retained and protected during construction and thereafter enhanced through improved management practices or additional planting (Principle 5 of the Metric User Guide). Therefore, as per the mitigation hierarchy, the improvement of the distinctiveness or condition (or both) of the retained habitats should always be a high priority. In this case, the enhancement of retained tree lines is not practicable, therefore new habitat creation is proposed in order to compensate for losses and provide sufficient enhancement to the Site overall.

Table 9: Application of the mitigation hierarchy (including offsetting from Phase 5)

Broad Habitat Type		Impacts Avoided?	Habitat Lost	Compensation to Meet Trading Rules	Details/ Recommendations
Urban		No	0.3742 ha of bare ground	Same distinctiveness or better habitat required ($\geq$)	- Creation of 0.6165 ha of modified grassland; - Enhancement of 0.7882 ha of modified grassland to other neutral grassland; - Creation of 0.2937 ha of other neutral grassland
Cropland		No	1.0037 ha of cropland		
Grassland		No	2.1037 ha of modified grassland		
			0.6358 ha of other neutral grassland	Same broad habitat or a higher distinctiveness habitat required ($\geq$)	- Creation of 0.03 ha of mixed scrub; - Creation of 0.2001 ha of SuDS; - Creation of 0.9605 ha of fens; - Planting of 78 small urban trees
Heathland and Shrub		No	0.0114 ha of mixed scrub	Same broad habitat or a higher distinctiveness habitat required ($\geq$)	
Woodland and Forest		No	0.0188 ha of broadleaved woodland		
Hedgerows	Species-poor Hedgerows	Yes	N/A	Same distinctiveness band or better	- Creation of 0.177 km species-rich native hedgerow; - Enhancement of 0.219 km native hedgerow from poor to moderate condition
	Lines of trees	No	0.052 km lost		
	Species-rich Hedgerows				
	Species-rich hedgerows with banks or ditches		0.031 km lost	Like for like or better	Enhancement of 0.358 km of species-rich hedgerow with banks or ditches to good condition
	Species-rich Hedgerows with Trees		0.035 km lost	Like for like	Enhancement of 0.07 km of species-rich hedgerow with banks or ditches to species-rich hedgerows with trees

3.3.6 Compensation and Enhancements

Table 10 below details the compensation and enhancement measures which will be implemented in order to achieve the net gain in area and linear units stated in Table 8 above. These should be read in conjunction with the LEMP.

Table 10: Summary of proposed habitat compensation and enhancements

Habitat Type	Proposed Compensation or Enhancement Measure	Target Condition	Delivery Details
Grassland	Creation of 0.6165 ha of modified grassland	Moderate	Although there are no specific criteria requirements to achieve moderate condition in this habitat, to maximise the benefits to wildlife, the following should apply: - There should be 6-8 species per m²; - The sward height must be varied with at least 20% of the sward >7cm in height, and 20% <7cm; - No bracken or scrub encroachment should be allowed to establish; - No invasive non-native species should be present.
	Creation and enhancement of 1.0819 ha of other neutral grassland	Moderate	In order to satisfy the criteria for moderate condition as per the Metric 4.0, the following must apply: - The appearance and composition must fit the UKHab definition of other neutral grassland; - The sward height must be varied with at least 20% of the sward >7cm in height, and 20% <7cm; - No bracken or scrub encroachment should be allowed to establish; - No invasive non-native species should be present.
		Good	In order to achieve good condition, the following must apply: - The appearance and composition must fit the UKHab definition of other neutral grassland; - At least 10 vascular plant species per m² should be present, including forbs that are characteristic of the habitat type; - The sward height must be varied with at least 20% of the sward >7cm in height, and 20% <7cm; - No bracken or scrub encroachment should be allowed to establish; - No invasive non-native species should be present.
Heathland and Scrub	Creation of 0.03 ha of mixed scrub	Moderate	In order to achieve moderate condition, <u>at least three</u> of the following must apply: - The appearance and composition must fit the UKHab definition of mixed scrub; - No invasive non-native species should be present; - The scrub should have a well-developed edge with scattered scrub and tall grassland and/or forbs present between the scrub and adjacent habitat; - Clearings, glades or rides should be present within the scrub.
Wetland	Creation of 0.9605 ha of fens	Good	In order to achieve good condition, the following must apply: - The water table is at, or near the surface throughout the year; - No more than 25% of the habitat area should have continuous litter cover preventing regeneration. In addition, <u>at least four</u> of the following criteria should be met: - The appearance and composition must fit the UKHab definition of fen; - Water should be clear with no obvious signs of pollution; - No scrub or scattered trees should be allowed to establish; - Less than 5% of ground should be bare; - No invasive non-native species should be present.
Lakes	Creation of 0.2001 ha of SuDS	Moderate	In order to achieve moderate condition for ponds (non-priority habitats), <u>at least six</u> of the following must apply: - Water should be clear with no obvious signs of pollution; - Semi-natural habitat of at least moderate distinctiveness should completely surround the pond for its entire perimeter, for at least 10 m from the pond edge;

			- Duckweed <i>Lemna spp.</i> or filamentous algae should be cleared from the water surface; - No invasive non-native species should be present; - Fish should not be artificially introduced.
Trees	Planting of 78 small urban trees	Moderate	In order to achieve moderate condition, <u>at least two</u> of following must apply: - Tree species should be native; - Trees should not be unnecessarily pruned or subjected to detrimental activities; - Deadwood, cavities, ivy and loose bark should be preserved; - At least 20% of the tree canopy should oversail vegetation beneath.
Hedgerows	Creation of 0.177 km species-rich native hedgerow	Moderate	In order to achieve at least moderate condition, the following must apply: - The hedgerow should be >1.5m in height on average; - The hedgerows should be >1.5m in width on average; - Gap between ground and base of canopy should be <0.5m for at least 90% of the length; - Canopy gaps make up <10% of total length and no gaps are >5m wide; - Plant species indicative of nutrient enrichment should account for <20% of ground flora at the hedge base OR >1m of undisturbed ground with herbaceous perennial vegetation is present on at least one side of the hedgerow (this should be left largely unmanaged, especially over winter, to maximise the value for wildlife); - >90% of the hedgerow is free of undesirable species OR >90% of the hedgerow is free of damage from human activities.
	Enhancement of 0.219 km native hedgerows	Moderate	In order to achieve at least moderate condition, the following must apply: - The hedgerow should be >1.5m in height on average; - The hedgerows should be >1.5m in width on average; - Gap between ground and base of canopy should be <0.5m for at least 90% of the length; - Canopy gaps make up <10% of total length and no gaps are >5m wide; - Plant species indicative of nutrient enrichment should account for <20% of ground flora at the hedge base OR >1m of undisturbed ground with herbaceous perennial vegetation is present on at least one side of the hedgerow (this should be left largely unmanaged, especially over winter, to maximise the value for wildlife); - >90% of the hedgerow is free of undesirable species OR >90% of the hedgerow is free of damage from human activities.
	Enhancement of 0.358 km of species-rich hedgerow with banks or ditches	Good	In order to achieve good condition, the following must apply: - The hedgerow should be >1.5m in height on average; - The hedgerows should be >1.5m in width on average; - Gap between ground and base of canopy should be <0.5m for at least 90% of the length; - Canopy gaps make up <10% of total length and no gaps are >5m wide; - Plant species indicative of nutrient enrichment should account for <20% of ground flora at the hedge base OR >1m of undisturbed ground with herbaceous perennial vegetation is present on at least one side of the hedgerow (this should be left largely unmanaged, especially over winter, to maximise the value for wildlife); - >90% of the hedgerow is free of undesirable species OR >90% of the hedgerow is free of damage from human activities
	Enhancement of 0.07 km species-rich native hedgerow with trees	Good	In order to achieve good condition, the following must apply: - The hedgerow should be >1.5m in height on average; - The hedgerows should be >1.5m in width on average; - Gap between ground and base of canopy should be <0.5m for at least 90% of the length;

			- Canopy gaps make up <10% of total length and no gaps are >5m wide; - Plant species indicative of nutrient enrichment should account for <20% of ground flora at the hedge base OR >1m of undisturbed ground with herbaceous perennial vegetation is present on at least one side of the hedgerow (this should be left largely unmanaged, especially over winter, to maximise the value for wildlife); - >90% of the hedgerow is free of undesirable species OR >90% of the hedgerow is free of damage from human activities; - At least two age-classes of tree are present, including at least one mature tree per 20 – 50m of hedgerow OR at least 95% of trees are healthy and undamaged, excluding veteran features.
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4 CONCLUSIONS

Provided that the recommendations for creation and management of habitats can be adhered to, it is predicted that the development will achieve a net gain of **10.01%** in area-based habitats and **78.30%** in hedgerows.

It is recommended that a CEMP be produced in order to set out avoidance and mitigation measures during construction.

If any significant changes to the proposals shown in Appendix D occur, a reassessment of the potential impacts may be required.

APPENDIX A – LEGISLATION AND PLANNING POLICY

LEGISLATION

Many species of animal and plant receive some degree of legal protection. For the purposes of this report, legal protection refers to: species included on Annex II of the Habitats Directive 1992 (Council of European Communities, 22/07/1992) , Schedules 2 and 5 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended) , excluding species that are only protected in relation to their sale (see Section 9[5] and 13[2]) reflecting the fact that the proposed development does not include any proposals relating to the sale of species.

Legal offences associated with species listed on Schedule 2 of the Conservation of Habitats and Species Regulations and Schedule 5 of the Wildlife and Countryside Act in England and Wales include inter alia:

- Deliberate capture, injury or killing of animals or taking or destroying their eggs;
- Deliberately disturb animals in a way that would significantly affect their local distribution or abundance, or affect their ability to survive, breed or rear young;
- Intentional or reckless disturbance of an animal in its place of shelter or protection;
- Damaging or destroying a resting place or breeding site;
- Intentionally or recklessly obstructing access to a place of shelter or protection; and
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead animal or any part of an animal.

Relevant species listed on these Schedules that are potentially associated with this Site include bats and reptile species (e.g. slow worm). All species of bat receive full protection from all legal offences listed above. Common reptile species receive partial protection under the Wildlife and Countryside Act in that they are protected from killing and injury only.

All species of wild bird are protected under the Wildlife and Countryside Act (1981) (as amended) from killing or injury. In addition, it is an offence to take or damage/ destroy their eggs and to damage or destroy a nest whilst it is in use. Species listed on Schedule 1 (such as barn owl) receive additional protection in that it is illegal to disturb birds or their young whilst occupying, or near to, an active nest.

A number of wild plants, habitats and animals (including reptiles, hedgehog and most species of bat) are also included within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 which lists flora, fauna and habitats considered by the Secretary of State to be of principal importance for conserving biodiversity. The publication of the "England Biodiversity List" satisfies the requirements of Section 41 of the NERC Act 2006 for the conservation of biodiversity. Section 40 of the NERC Act 2006 requires public bodies, including local planning authorities, to have regard for the conservation of biodiversity in England, when carrying out their normal functions.

Badgers are protected under the Protection of Badgers Act 1992 (UK Government, 1992) which makes it an offence to willfully kill, injure or take (or attempt to kill, injure or take) a badger; or to disturb badgers whilst occupying their setts.

NATIONAL PLANNING POLICY

There are numerous national and local planning policies associated with flora and fauna (also referred to as biodiversity) that need to be addressed as part of the planning process. The Government has issued its National Planning Policy Framework (NPPF) 2021, which requires impacts to biodiversity to be minimised. Paragraph 181 of the NPPF applies the same protection to Ramsar sites as that conferred by the Habitats Regulations to SACs and SPAs. The NPPF requires development to apply the following principles (Paragraphs 179-180):

- Minimise impacts on and provide net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressure;
- Identify and pursue opportunities for securing measurable net gains for biodiversity;
- Ensure that there will be no adverse impacts to SSSIs (such development would not normally be permitted);
- Ensure that there will be no loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees), unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- Where significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts) adequate mitigation, or as a last resort compensation, must be provided.
- The NPPF and associated Planning Practice Guidance also emphasise the requirement for ecological networks and wildlife corridors to be created throughout the wider landscape (paragraph 179).

Planning authorities should follow key principles to ensure that the potential impacts of planning decisions on biodiversity conservation are considered. Circular 06/05: Biodiversity and Geological Conservation provides guidance on the application of the law relating to planning and nature conservation and complements the NPPF.

The Natural Environment Paper

“The Natural Choice: Securing the Value of Nature” outlines the Government’s approach and vision for nature in the UK including protecting and improving our natural environment, growing a green economy and reconnecting people and nature.

Biodiversity 2020

A strategy for England’s wildlife and ecosystem services, are the country level strategies for England and builds on the natural Environment White Paper. It sets out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea. The priorities for action include a more integrated large-scale approach to conservation, putting people at the heart of biodiversity policy, reducing environmental pressure and improving knowledge.

LOCAL PLANNING POLICY

Eastleigh Borough Council’s Local Plan 2016 to 2032 (dated April 2022) contains Policies relating to the natural environment which are reproduced below:

Policy DM11, Nature Conservation

1. The Council will work with statutory and voluntary agencies and developers, and will determine planning applications, to:
 - a. protect, conserve, enhance and facilitate adaption to climate change:
 - i. international, national and local nature conservation designations; and
 - ii. networks of natural habitats and features, including the Local Ecological Network, Priority Biodiversity Areas and Priority Biodiversity Links, watercourses, wetland complexes, woodland trees, and trees and hedgerows important to biodiversity and local character.
 - b. assist in achieving national, county and local biodiversity targets as set out in Biodiversity Action Plans (BAPs);

- c. seek a net gain of biodiversity on all development sites (including sites for redevelopment) through the protection, enhancement and connection of existing and provision of new habitats and features of nature conservation interest compatible with the native biodiversity characteristics of the Borough, having regard to local geodiversity and soils; and
 - d. contribute to major elements of the PfSH Green Infrastructure Strategy and other strategies for the provision and enhancement of multifunctional green infrastructure including green routes, ecological networks and biodiversity enhancements (see strategic policy S9).
- 2. Development which is likely (either individually or in combination with other developments) to adversely affect the integrity of an international or European nature conservation site will not be permitted subject only to imperative reasons of overriding public interest and securing any necessary compensatory measures in the absence of alternative solutions. A 'project level' Habitat Regulations Assessment will be required where there are likely significant effects or uncertainty. Any mitigation measures required to ensure no adverse impact must be implemented at the appropriate time.
- 3. The Council will work with PfSH, Natural England, the Environment Agency and other wildlife organisations to develop and implement with developers a strategic approach to the protection and enhancement of international and European sites from the direct and indirect effects of development. Within Eastleigh Borough this will include:
 - a. implementing:
 - i. the Solent Recreation Mitigation Strategy (requiring contributions from residential developments within 5.6 kilometres of the Solent Special Protection Area to the Strategy); and
 - ii. the interim and any future New Forest Recreation Mitigation Strategy if required;
 or alternative agreed site specific measures to address recreational disturbance;
 - b. preserving the water quality and flows within the Itchen and Hamble, Southampton Water and Solent;
 - c. protecting the River Itchen SAC, in particular the maintenance and where appropriate restoration of habitats and qualifying species to favourable conservation status (as defined by article 1 of the Habitats Directive); and
 - d. seek contributions towards measures set out in the Southern Damsely Conservation Strategy (or other strategy) specifically to deliver biodiversity net gain.
- 4. Development will not be permitted if it is likely (either individually or in combination with other developments) to have a direct or indirect adverse effect on a Site of Special Scientific Interest (SSSI), Site of Importance for Nature Conservation (SINC) or Local Nature Reserve (LNR) as shown on the policies map (or on a more recent plan provided by the Hampshire Biodiversity Information Centre) unless it can be demonstrated that:
 - a. there are no alternative solutions;
 - b. the adverse effects are unavoidable;
 - c. measures are taken to mitigate or, as a last resort, compensate for the adverse effects;
 - d. there is an overall biodiversity net gain; and
 - e. if there are any residual adverse effects which cannot be avoided, mitigated or compensated, the benefits of the development must clearly outweigh the adverse effects on the nature conservation value of the site and any broader impacts on national and local designations.

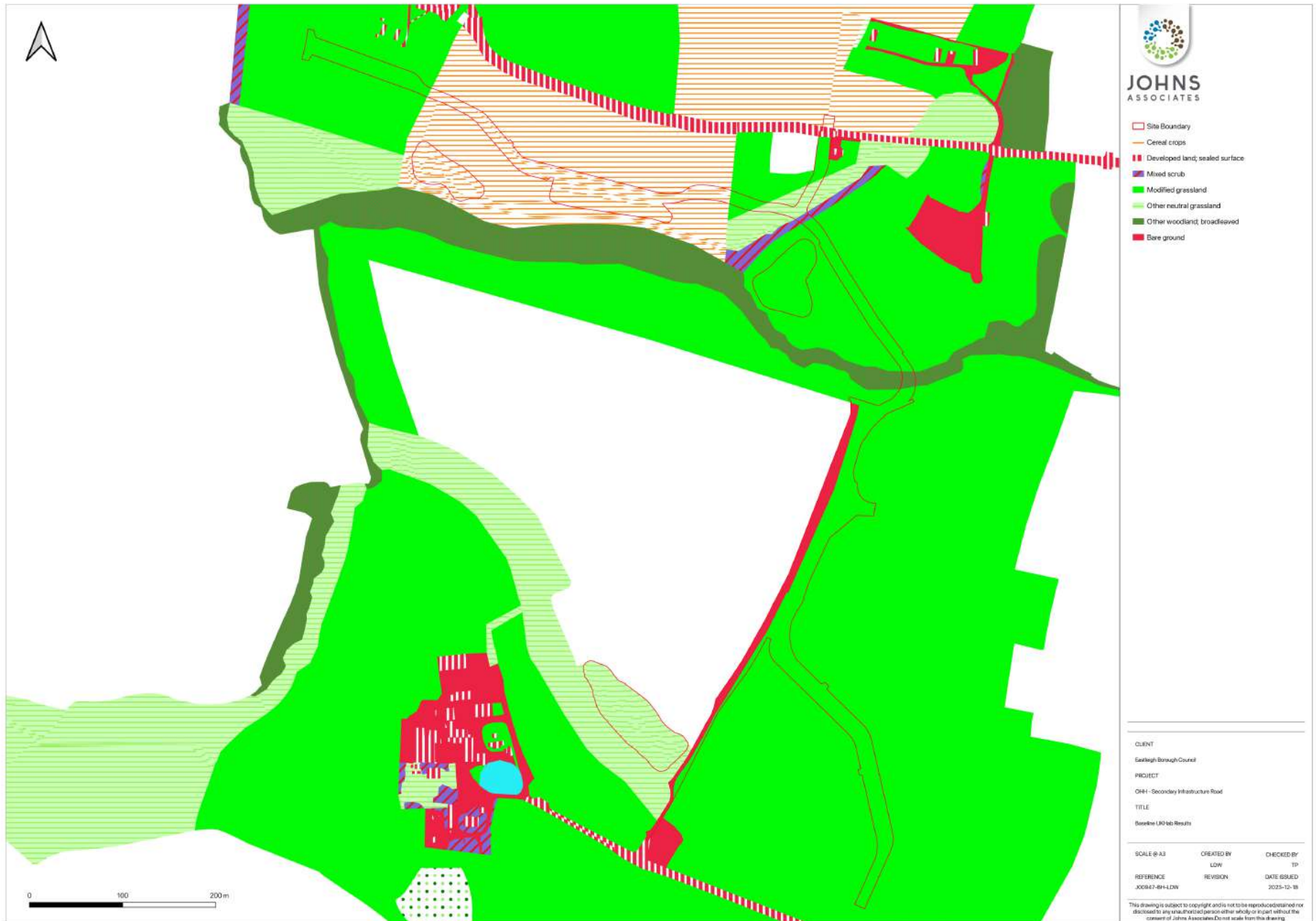
5. Development will not be permitted if it is likely (either individually or in combination with other developments) to have a direct or indirect adverse effect on **priority habitats, protected priority species, or on the local exological network** unless it can be demonstrated that:
 - a. there are no alternative solutions;
 - b. the adverse effects are unavoidable;
 - c. measures are taken to mitigate or, as a last resort, compensate for the adverse effects;
 - d. there is an overall biodiversity net gain; and
 - e. if there are any residual adverse effects, the benefits of the development clearly outweigh the adverse effects on priority habitats, priority and protected species, and the local ecological network.
6. Development will not be permitted if it results in the loss or deterioration of **irreplaceable habitats** (such as ancient woodland and ancient or veteran trees), unless there are wholly exceptional reasons and a suitable compensation strategy exists.
7. **Buffers** free from development will be provided to designated sites to avoid/mitigate impacts, including recreational impact and impacts on edge habitats, and to maintain dark skies.
8. Development will not be permitted unless it can be demonstrated that:
 - a. there have been thorough habitat and species **surveys**;
 - b. the great crested newt strategic survey and strategy have been considered in all developments within 500m of a great crested newt pond; and
 - c. the strategic bat trapping survey has been considered in all developments within the locality of a woodland or connected habitat networks.

Strategic Policy S9, Green Infrastructure

1. Through new development and other initiatives and the Borough Council will seek to achieve the provision, retention and/or enhancement of the following forms of multi-functional green infrastructure, including provision of:
 - a. landscape scale strategic links across the Borough boundary, to and between the Borough's settlements, the countryside, the coast, and the major areas of open space including the country parks (see strategic policy S12);
 - b. interlinked publicly accessible open space through new and existing development including for example formal sports facilities and informal amenity spaces and cemeteries (see policies DM32-DM34, Chapter 5 and detailed proposals in Chapter 6);
 - c. green infrastructure incorporated into all new development with multifunctional spaces connected by primary, secondary and tertiary green links;
 - d. interconnected urban green infrastructure within the fine grain of existing and new development including green, cycle ways, paths and linkages between community facilities and open spaces to link community facilities;
 - e. green stepping stones such as street trees, green roofs and walls, pocket parks and urban copses (see policy DM1, Chapter 5);
 - f. connected habitats linking the network of designated sites and existing priority habitats, taking account of the Hampshire ecological network map (see policy DM11, Chapter 5);

- g. incorporation of historic buildings and landscapes, including historic parks and gardens within the wider Green Infrastructure to protect their setting (see policy DM12, Chapter 5); and
- h. opportunities for local food growing including allotments, community orchards and farms (see policies DM32 to DM34, Chapter 5 and detailed proposals in Chapter 6).

APPENDIX B – UKHAB BASELINE HABITATS



APPENDIX C – UKHAB POST-DEVELOPMENT HABITATS

