

Biodiversity Net Gain Assessment

Access to Witney

Oxfordshire County Council

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Quality information

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1. Introduction

AECOM Ltd was commissioned by Oxfordshire County Council to undertake a Biodiversity Net Gain ('BNG') assessment for proposed west facing slip roads at Shores Green, Witney (referred to as the 'Site'). The proposal is for the provision of slip roads and highway improvements for access to the A40 to support increased proposed residential development in Witney (hereafter the 'Proposed Development').

The BNG assessment has been undertaken to quantify the overall effect of the Proposed Development upon the Site's biodiversity value. This is achieved by comparing the Site's baseline habitat value with that of the Proposed Development. Calculations consider the level of proposed habitat loss, retention, enhancement and/or creation delivered by the Proposed Development and are measured using Biodiversity Metric 3.0¹ in accordance with the accompanying guidance² and best practice principles³. The report sets out the results of the BNG assessment including the methodology in Section 2, the results in Section 3, and the conclusions in section 4.

This revision of the BNG assessment has been prepared as a result of changes since planning permission was granted for the Proposed Development in July 2023 (OCC ref: R3.0039/22). The revisions to the design are described in the Environmental Statement Addendum Report⁴, which has been prepared in support of a Section 73 application to regularise revisions to the approved scheme.

1.1 Site Description

The current design would provide two west facing slip roads at Shores Green, Witney located at the B4022 / A40 junction. The central Ordnance Survey (OS) grid references for the two slip roads are approximately OS Grid References SP 37776 09595 and SP 37684 09698. The central Ordnance Survey (OS) grid reference for the Site is SP 37504 09486.

The Site comprises mainly arable fields and improved grassland bordered by hedgerows with areas of scrub, semi-improved grassland, broadleaved woodland, mixed plantation woodland, dry ditches, bare ground, amenity grassland and hardstanding. The hedgerows on site are predominantly species rich intact hedgerows with some also supporting mature trees. Both hedgerows and mature trees are considered Habitats of Principal Importance.

1.2 Proposed Development

The Proposed Development (seen in Appendix B) comprises of slip road development and highways improvement with associated landscaping and ecological mitigation, which includes proposed ponds, native mix grassland planting and woodland planting. The Site is approximately 10.71 hectares (ha), and it is assumed that some habitats on the Site will be entirely lost or fragmented due to the construction and operation of the Proposed Development.

2. Policy context

2.1.1 National Legislation

It is government policy that *"planning decisions should minimise impacts on and provide net gain for biodiversity"*⁵. The Environment Act⁶, granted Royal Assent November 2021, includes provisions to make BNG a mandatory requirement within the planning system in England. Amendments to the Town and Country Planning Act 1990, anticipated to occur in November 2023, will require all relevant developments to achieve a minimum 10% net gain in biodiversity units relative to the site's baseline biodiversity value.

¹ Natural England (2022) [Biodiversity Metric 3.0](#)

² Natural England (2022). The Biodiversity Metric 3.0 – [User Guide](#) & [Technical Supplement](#)

³ CIEEM, IEMA & Ciria (2019). [Biodiversity Net Gain: Good Practice Principles for Development. A Practical Guide](#)

⁴ AECOM (2023). Environmental Statement Addendum Report

⁵ UK Government (2021). [National Planning Policy Framework](#)

⁶ UK Government (2021). [The Environment Act](#)

2.1.2 Local Planning Policy

The West Oxfordshire Local Plan⁷ states that all Local Plans within Oxfordshire contain policies that seek ‘to avoid a net loss in biodiversity and, where possible, achieve net gain, policies that seek developer contributions where these gains cannot be provided as part of the development’.

2.1.3 Minimum BNG Requirement

The Proposed Development will be seeking to achieve a +10% net gain in biodiversity to align with the guidance set out in the West Oxfordshire Local Plan⁷.

3. Methodology

3.1 Biodiversity Metric 3.0

The BNG assessment involves making a comparison between the biodiversity value of habitats present within the Site prior to development (i.e., the ‘baseline’) and the predicted biodiversity value of habitats following the completion of the development (i.e., ‘post-development’). The comparison is made in terms of ‘biodiversity units’, with a ‘biodiversity metric’ providing the mechanism to allow biodiversity values to be calculated and compared.

Biodiversity Metric 3.0¹ calculates the overall loss or gain of biodiversity of development projects by assessing the distinctiveness (i.e., type of habitat and its value), condition, extent, and strategic significance of habitats on site pre- and post-development, including both permanent and temporary land-take areas. To achieve biodiversity net gain, the biodiversity unit score must have a post-development score higher than the baseline score.

When calculating the post-development biodiversity units, the Biodiversity Metric 3.0 includes a series of standard ‘risk multipliers’ to account for the inherent risk of creating and restoring habitats, the time taken to establish habitats and the location of the mitigation in relation to the habitats lost on site. The risk multipliers have the effect of reducing the value of the proposed habitats, which means larger areas, habitats of higher distinctiveness, and/or condition are required to mitigate for losses and achieve net gain.

The Biodiversity Metric 3.0 assesses and generates separate outputs for area-based habitats (measured in habitat units) and linear based habitats, including hedgerows (measured in hedgerow units) and rivers (measured in river units). To claim a net gain in biodiversity, there must be an increase across all habitats, hedgerow and river units, the units cannot be summed to give an overall biodiversity unit value i.e., an increase in habitat and hedgerow units cannot be used to offset a loss in river units.

The information required to undertake the calculation is described below.

3.1.1 Baseline Data

Phase 1 habitat data collected by AECOM in September 2020⁸ (hereafter referred to as ‘the baseline’) have been utilised to determine the Sites baseline area-based habitats. The Phase 1 habitat data collected also included linear habitats such as hedgerows on the Site. An additional survey was conducted in September 2022 to confirm the woodland classification type on Site and its corresponding condition. The baseline habitats were converted from standard Phase 1 Habitat types⁹ to UKHab Classification categories¹⁰ (Appendix C.1) before being digitised in Geographic Information System (GIS) to provide area and length measurements of each habitat type. This is provided in Appendix A.

All baseline habitats defined within the Site were assigned a condition using the condition assessment criteria outlined in the Biodiversity Metric 3.0 – User Guide and Technical Supplement² by a qualified ecologist. Further justifications of habitat condition scores are provided in Appendix D. The data was aggregated and entered into the Biodiversity Metric 3.0 to calculate the baseline biodiversity units.

⁷ West Oxfordshire District Council (2018). [West Oxfordshire Local plan 2031](#)

⁸ AECOM (2020). Witney Shores Green - Preliminary Ecological Appraisal

⁹ JNCC (2016). [Handbook for Phase 1 habitat survey - a technique for environmental audit.](#)

¹⁰ <https://ukhab.org/>

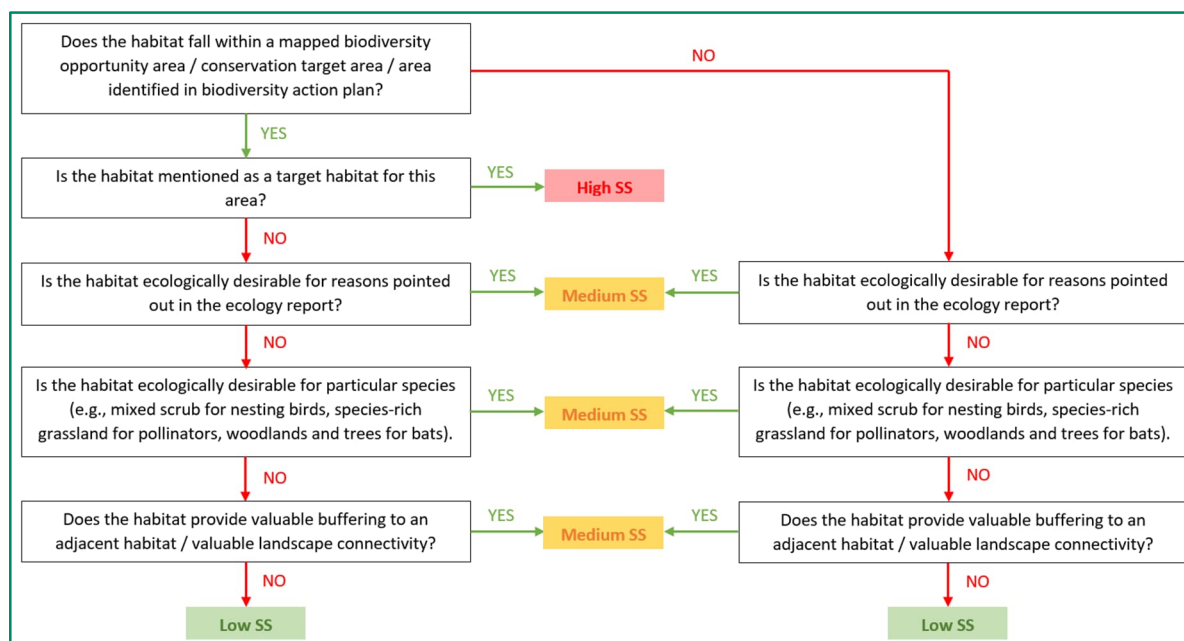
3.1.2 Post-Development Data

The Landscape Plan¹¹ has been used to determine the extent and type of habitats to be lost, retained, created and/or enhanced post-development. Habitats in the Landscape Plan¹¹ were converted to UKHab Classification categories (Appendix C.2) before being digitised into GIS to produce the 'Post-Development' Plan (Appendix B). Target condition scores for the proposed habitats were selected in accordance with Biodiversity Metric 3.0 User Guide and Technical Supplement² using professional judgement to ensure the condition scores selected were realistic. The data was utilised to predict the post development biodiversity units.

3.1.3 Strategic Significance

Biodiversity Metric 3.0 requires that the strategic significance (hereafter referred to as 'SS') of all baseline and post-development habitats be defined. SS refers to strategic locations for local biodiversity and nature improvements, identified within local planning policies. The process of how the SS of a habitat is assessed is shown in Figure 1.

Figure 1. Strategic Significance Guidance



As part of this assessment, the following relevant documents were reviewed to determine the SS of the habitats on the Site:

- Biodiversity and Planning in Oxfordshire¹².
- Oxfordshire Biodiversity Action Plan and Conservation Target Areas¹³.
- Oxfordshire Plan 2050 – Securing Nature's Benefits¹⁴.
- Natural Conservation Area (NCA) profiled 108 Upper Thames Clay Vales¹⁵.
- West Oxfordshire Local Plan⁷.
- Whitney Shores Green Preliminary Ecological Appraisal⁸
- MAGIC Maps¹⁶
- Bat Conservation Trust (BCT)- Core Sustenance Zones and habitats of importance for designing Biodiversity Net Gain for bats¹⁷

¹¹ AECOM (2023) A40 Access to Witney Landscaping. 60611611-ACM-XX-XX-DR-LV-000001 - 000003

¹² Oxfordshire County Council (2014). [Biodiversity and Planning in Oxfordshire](#)

¹³ Oxfordshire County Council (2014). [Biodiversity Action Plan and Conservation Target Areas](#)

¹⁴ <https://oxfordshireplan.org/wp-content/uploads/2019/02/Topic-Paper-6-Securing-Natures-Benefits-Feb-2019.pdf>

¹⁵ <http://publications.naturalengland.org.uk/publication/5865554770395136?category=587130>

¹⁶ Natural England (2023). Multi-Agency Geographic Information for the Countryside - [Magic Map Application \(defra.gov.uk\)](#)

¹⁷ Bat Conservation Trust (2016). [Core Sustenance Zones Explained 04.02.16.pdf \(bats.org.uk\)](#)

Please see detailed information in Appendix E on how strategic significance has been assigned.

3.1.4 BNG Best Practice Principals

Justification for how the BNG Principles have been applied during this net gain assessment is provided in Appendix F.

3.1.5 Assumptions

In undertaking the calculation, the following assumptions have been made:

- Habitats created as part of the proposed development will be subject to appropriate ongoing management and monitored to ensure correct establishment and growth, and that remedial action will be taken if this does not proceed as expected, otherwise the target conditions used in the calculations may not be met and the biodiversity units will not be achieved. The Phase 1 habitat survey was carried out prior to the instruction for a BNG assessment to be undertaken to support the application, therefore baseline condition scores have been assigned retrospectively based on the Phase 1 habitat survey data⁸, confirmed by another visit in 2022 and judgement by the ecologist. Further justification of the baseline condition scores is provided in Appendix D of this report);
- The dry ditch on site has been included within the adjacent habitat for this assessment and excluded from the river metric assessment as it fails to meet the definition for a wet ditch with the Biodiversity Metric 3.0¹; and
- All habitats within construction areas have been assumed to be removed, due to likely impacts via the storage of spoil piles or construction-phase compounds, and reinstated to their original state post-development.
- 'Lakes - Temporary lakes, ponds, and pools' habitat areas when rounded to two decimal places are 0.00 ha. Despite the area of 0.00ha, these areas have been included within the report as habitat units have been generated from these small areas.
- All Post-development 'Urban - Urban tree' are medium sized. Biodiversity Metric 3.0 guidance records medium sized trees as having greater than 30cm diameter at breast height (DBH). Tree species that are planted should be able to reach this value.

3.1.6 Constraints or limitations

The following limitations also apply:

- All habitat areas and lengths have been measured manually using ArcGIS based on the Phase 1 Habitat Plan and the Landscape Plan¹¹, as such habitat areas have been measured as accurately as possible.
- The Local Planning Authority (LPA) have requested that only habitats within the Conservation Target Areas (CTA) are categorised as 'High' Strategic Significance (SS). On-site and Off-site habitats do not occur within the CTA, therefore all habitats that would usually be categorised as 'High' SS have been downgraded to 'Medium' SS.

3.1.7 Proposed Off-site Enhancement

Several off-site mitigation sites were considered for any required offsetting for the proposed development. Table 1 shows the potential sites and their appraisal against published BNG Best Practice Principles³, as requested by the OCC Environment & Heritage Group Manager. 'Pass' indicates that the BNG principle has been met and 'fail' indicates that the BNG principle has not been met.

Table 1 Off-site Mitigation Sites and Appraisals

Site name	Owned by	Size	Appropriate opportunities for the proposed development?	BNG Principle 3	BNG Principle 4	BNG Principle 5	BNG Principle 6	BNG Principle 7	BNG Principle 8	BNG Principle 9	BNG Principle 10	Total No. of passes
Land south of Eynsham	Private land owner	Parcel 1 = c.7.8ha Parcel 2 = c.8.5ha	Pass - Woodland, grassland and hedgerow opportunities	Pass	Fail	Pass	Pass	Pass	Pass	Pass	Pass	9
Worton Farms	Worton Farms	Awaiting confirmation	Pass - woodland creation - (planting following felling)	Pass	Fail - woodland creation high distinctiveness long time to target condition	Pass	Pass	Fail - Maybe issues with additionality as some areas recently felled	Pass	Fail	Pass	6
Foxburrow Wood	The Wychwood Forest Trust	9.2 ha	Pass - offsetting of hedgerows, ditches and area-based habitats (woodland, grassland, wetland and scrub)	Pass	Fail	Pass	Pass	Pass	Pass	Pass	Pass	9
Land south of Farm Mill Lane	OCC	1.25 ha	Fail- Would be good for running water mitigation which is not required	Pass	Fail	Pass	Pass	Fail	Pass	Pass	Pass	6

3.1.8 Foxburrow Wood

Foxburrow Community Wood (hereafter referred to as 'Foxburrow Wood') and 'Land south of Eynsham' scored the highest across the measured BNG Principles as seen in Appendix F compared to the sites in Table 1.

Foxburrow Wood has been selected as the preferred solution to providing Off-site enhancement as the potential offsetting site due to its role within the local community. The woodland which was planted in 2010 is currently owned and managed by the Wychwood Forest Trust¹⁸. It is a community woodland that provides the public with access to green space. The woodland is popular with dog walkers and also hosts the annual "Wychwood Forest Fair".

The vision for Foxburrow Wood focuses around the Wychwood Forest Trust's priorities to enhance biodiversity value whilst maintaining current access by the public. There are opportunities with multiple benefits alongside BNG to utilise the landscape and habitats across Foxburrow Wood, primarily to the south. One of these enhancement opportunities includes enhancing grassland into wetland areas with waterbodies, to provide a secondary flooding defence to adjacent arable land. Woodland management has also been suggested to diversify canopy and vegetation structure, whilst introducing deadwood for biodiversity enhancement. Hedgerows within Foxburrow Wood can also be enhanced to uplift their biodiversity value.

Implementing the suggested enhancements at Foxburrow Wood should provide 'additionality' and deliver over and above the current management plan for Foxburrow Wood in line with the Best Practice Principles for BNG³ seen in Appendix F.

AECOM have been in discussion with the Wychwood Forest Trust, on behalf of the Applicant, regarding their preferred habitat enhancement and creation proposals at Foxburrow Wood. A survey on the 17 February 2022 was undertaken by AECOM to establish the baseline habitat classifications and condition scores before habitat enhancement/creation principles were discussed with the Trust (details of the baseline are provided in Section 3.1.7). Details of the correspondence undertaken with the Wychwood Forest Trust and the OCC Environment & Heritage Group Manager on the BNG proposals are detailed below:

- 16th September 2021: One hour virtual meeting with representatives for the OCC to discuss the biodiversity impact offsetting approach, where the approach for offsetting was agreed to include Off-site land to deliver BNG;
- 17th December 2021: One hour virtual meeting with representatives from the Wychwood Forest Trust and the OCC Environment & Heritage Group Manager to discuss Foxburrow Wood as a potential offsetting site. It was agreed that Foxburrow Wood was a good option for offsetting the proposed development and further work was required to undertake a visit to establish the baseline habitats present. It was suggested that AECOM undertake the BNG calculation and report back to the Wychwood Forest Trust to determine whether the proposals meet their vision for enhancements at Foxburrow Wood;
- 16th February 2022: Email communication to share the proposed BNG Strategy with the OCC Environment & Heritage Group Manager for agreement and confirm the format of a suitable Agreement in Principle for submission with the planning application. It was agreed that at this preliminary stage that a PDF of a letter would seem acceptable;
- 1st March 2022: 30-minute virtual meeting with the Wychwood project to determine whether the proposals assumed in the Biodiversity Metric 3.0 meet their vision for enhancements at the site. It was agreed that the vision was represented within the Biodiversity Metric 3.0 and an Agreement in Principle letter would be provided;
- 6th September 2022: 30-minute virtual meeting with the Wychwood project to determine whether further habitat enhancement proposals could be incorporated at Foxburrow wood.

In order to secure the opportunity for Off-site biodiversity enhancement, an Agreement in Principle has been drafted and signed by the Wychwood Forest Trust in order to demonstrate their formal willingness to enter into an agreement to deliver and main the scheme as described, as requested by the OCC Environment & Heritage Group Manager. This is provided in Appendix J.

¹⁸ <https://www.wychwoodforesttrust.co.uk/>

4. Results

4.1 Biodiversity Metric 3.0 Calculation Tool Output

4.1.1 Baseline Habitats

The Site covers a total area of 10.71 ha (not including the area of water). The habitats identified on Site vary in ecological value, ranging from 'Very Low' to 'High' distinctiveness. The most dominant habitats on site include 'Urban – Developed land; sealed surface', 'Grassland – Modified grassland', 'Cropland – Cereal crops' and 'Woodland and forest – Other woodland; mixed'. There are also linear habitats present on site in the form of Hedgerows and Rivers. The Baseline Plan is provided in Appendix A.

As outlined in Section 2.1.3, SS has been assigned to all baseline habitats present within the Site. Medium SS has been assigned to the following habitats 'Native Species Rich Hedgerow', 'Woodland and forest – Other woodland; broadleaved', 'Urban – Urban Tree', 'Woodland And Forest - Other Woodland; Mixed', 'Native Species Rich hedgerow with trees', 'Line Of Trees', 'Lakes - Temporary lakes, ponds and pools', 'Native Hedgerow - Associated with bank or ditch', 'Native Hedgerow with trees', and 'Native Hedgerow' because they are mentioned as priority habitats within the local biodiversity action plan¹² and in the PEA⁸. Low SS has been assigned to the following habitats 'Grassland - Modified Grassland', 'Cropland - Cereal Crops', 'Urban - Developed Land; Sealed Surface', 'Sparsely Vegetated Land - Ruderal/Ephemeral', 'Urban - Vacant/derelict land/ bareground', 'Culvert', 'Heathland and Shrub - Mixed Scrub' because they have limited ecological importance on this Site.

Detailed descriptions of each baseline habitat is present in Appendix E.

4.1.2 On-site Baseline Habitat Units

The respective baseline biodiversity value for on-site area-based and linear habitats are provided in Table 2, 3 and 4. In total, the baseline biodiversity value of the area-based habitats present was calculated as 44.94 habitat units. In total, the baseline biodiversity value of the hedgerow habitats present was calculated as 20.20 hedgerow units. In total, the baseline biodiversity value of the river habitats present was calculated as 0.63 river units.

Table 2. On-site Baseline Area-Based Habitats

Habitat type (UKHab)	Area (ha)	Distinctiveness	Condition	Strategic significance	Habitat Units
Cropland - Cereal Crops	1.23	Low	N/A - Agricultural	Low	2.46
Cropland - Cereal Crops	0.54	Low	N/A - Agricultural	Low	1.08
Grassland - Modified Grassland	0.02	Low	Moderate	Low	0.08
Grassland - Modified Grassland	2.00	Low	Poor	Medium	4.40
Grassland - Modified Grassland	0.28	Low	Poor	Low	0.56
Heathland And Shrub - Mixed Scrub	0.59	Medium	Poor	Low	2.36
Sparsely Vegetated Land - Ruderal/Ephemeral	0.32	Low	Good	Low	1.92
Urban - Developed Land; Sealed Surface	2.04	V.Low	N/A - Other	Low	0.00
Woodland And Forest – Other Woodland; Broadleaved	1.20	Medium	Moderate	Medium	10.56
Woodland And Forest - Other Woodland; Mixed	1.91	Medium	Moderate	Medium	16.81
Woodland And Forest - Other Woodland; Mixed	0.58	Medium	Moderate	Medium	5.10
Urban – Urban Tree	0.00	Medium	Moderate	Medium	0.01
Total	10.71*	-	-	-	45.34

*'Urban - Urban Tree' areas are excluded from total area to prevent double counting of area; however, the unit contributions are included within the habitat unit total.

Table 3. On-site Baseline Hedgerow Habitats

Habitat type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	Hedgerow Units
Line Of Trees (Ecologically Valuable)	0.03	Medium	Good	Medium	0.40
Line Of Trees (Ecologically Valuable)	0.05	Medium	Good	Medium	0.66
Native Species Rich Hedgerow	0.18	Medium	Good	Medium	2.38
Native Species Rich Hedgerow	0.16	Medium	Good	Medium	2.11
Native Species Rich Hedgerow With Trees	0.30	High	Good	Medium	5.94
Native Species Rich Hedgerow With Trees	0.44	High	Good	Medium	8.71
Total	1.16	-	-	-	20.20

Table 4. On-site Baseline River Habitats

Habitat type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	River Units
Ditches	0.01	Medium	Poor	Low	0.04
Other Rivers and Streams	0.13	High	Poor	High	0.67
Total	0.14	-	-	-	0.71

4.1.3 Off-site Baseline Habitat Units

The respective baseline biodiversity value for Off-site area-based and linear habitats are provided in Table 5, 6 and 7. In total, the baseline biodiversity value of the area-based habitats present was calculated as 36.79 habitat units. In total, the baseline biodiversity value of the hedgerow habitats present was calculated as 7.35 hedgerow units. In total, the baseline biodiversity value of the river habitats present was calculated as 7.70 river units. All Off-site habitats refer to habitat at Foxburrow Wood, except the 0.19 km of culvert in Table 7. This section of stream within a culvert was classed as 'Culvert' within the Metric 3.0 assessment and assigned 'poor' condition.

Table 5. Off-site Baseline Area-Based Habitats

Habitat type (UKHab)	Area (ha)	Distinctiveness	Condition	Strategic significance	Habitat Units
Urban - Vacant/derelict land/bareground	0.09	Low	Poor	Low	0.18
Grassland - Modified grassland	3.31	Low	Moderate	Low	13.24
Grassland - Modified grassland	0.91	Low	Poor	Low	1.82
Heathland and shrub - Mixed scrub	0.06	Medium	Moderate	Low	0.48
Heathland and shrub - Mixed scrub	0.12	Medium	Poor	Low	0.48
Lakes - Temporary lakes, ponds, and pools	0.00	High	Good	Medium	0.00
Lakes - Temporary lakes, ponds, and pools	0.00	High	Poor	Medium	0.00
Woodland and forest - Other woodland; broadleaved	4.64	Medium	Poor	Medium	20.42
Urban - Urban Tree	0.02	Medium	Moderate	Medium	0.18
Total	9.13*				36.79

*'Urban - Urban Tree' areas are excluded from total area to prevent double counting of area; however, the unit contributions are included within the habitat unit total.

Table 6. Off-site Baseline Hedgerow Habitats

Habitat type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	Hedgerow Units
Line Of Trees (Ecologically Valuable)	0.02	Medium	Poor	Medium	0.09
Native Hedgerow	0.66	Low	Moderate	Medium	2.90
Native Hedgerow	0.66	Low	Poor	Medium	1.46
Native Hedgerow - Associated with bank or ditch	0.10	Medium	Moderate	Medium	0.88
Native Hedgerow with Trees	0.23	Medium	Moderate	Medium	2.02
Total	1.67	-	-	-	7.35

Table 7. Off-site Baseline River Habitats

Habitat type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	River Units
Ditches	0.86	Medium	Moderate	Low	6.88
Culvert (Offsite – adjacent to Proposed Development)	0.19	Low	Poor	Low	0.38
Total	1.05	-	-	-	7.26

4.1.4 Post-Development Habitats

The proposed Landscape Plan¹¹ includes provision of several habitats. The habitats identified on Site post-development vary in ecological value, ranging from 'Very Low' to 'Medium' distinctiveness.

2.80 ha of On-site area-based habitat are proposed to be retained, with the remainder of post-development area-based habitats being enhanced. 0.90 km of On-site hedgerow habitat are proposed to be retained, with the remainder of post-development hedgerow habitats being enhanced 0.13 km of On-site river based habitat are proposed to be retained. The proposed habitats to be created, retained, and enhanced are shown on the Post-development Plan in Appendix B.

As outlined in Section 2.1.3, SS has been assigned to all post-development habitats proposed within the Landscape Plan¹¹. All SS allocations have remained the same as stated within section 4.1.1 of the report above. With exception of 'Grassland – Other Neutral Grassland' which only appears within the post-development habitats and has been assigned 'Low' SS because it has limited ecological importance on this Site.

The high-level management prescriptions required for the created habitats to reach their target condition in the specified timeframe is provided in Appendix G.

4.1.5 On-site Post-Development Habitat Units

The Post-Development biodiversity value of the On-site area-based habitats retained and created was calculated as 4.77 for retained area-based habitat units (Table 8) and 20.85 for created area-habitat units (Table 9). The Post-Development biodiversity value of the On-site hedgerow habitats retained, and created was calculated as 16.76 retained habitat units (Table 10) and 11.46 for created habitat units (Table 11). The Post-Development biodiversity value of the On-site river habitats retained and created was calculated as for retained 0.59 area-based habitat units (Table 12) and for 3.51 created area-habitat units (Table 13).

Table 8. Retained Area-Based Habitats

Habitat type (UKHab)	Area (ha)	Distinctiveness	Condition	Strategic significance	Habitat Units
Grassland - Modified grassland	0.20	Low	Poor	Medium	0.44
Grassland - Modified grassland	0.04	Low	Poor	Low	0.08
Heathland and shrub - Mixed scrub	0.17	Medium	Moderate	Low	0.68

Habitat type (UKHab)	Area (ha)	Distinctiveness	Condition	Strategic significance	Habitat Units
Urban - Developed land; sealed surface	1.98	V.Low	N/A - Other	Low	0.00
Woodland and forest - Other woodland; broadleaved	0.15	Medium	Moderate	Medium	1.32
Woodland and forest - Other woodland; mixed	0.26	Medium	Moderate	Medium	2.29
Total	2.80	-	-	-	4.81

Table 9. Created Area-Based Habitats

Habitat type (UKHab)	Area (ha)	Distinctiveness	Target Condition	Strategic Significance	Time to target condition (yrs)	Habitat Units
Cropland - Cereal crops	0.46	Low	N/A - Agricultural	Low	1	0.89
Cropland - Cereal crops	1.03	Low	N/A - Agricultural	Low	1	1.99
Grassland - Modified grassland (Grasscrete)	0.02	Low	Moderate	Low	4	0.07
Grassland - Modified grassland	0.02	Low	Poor	Low	1	0.04
Grassland - Modified grassland	0.22	Low	Poor	Low	1	0.42
Grassland - Modified grassland	0.92	Low	Poor	Low	1	1.78
Grassland - Modified grassland	0.00	Low	Poor	Low	1	0.00
Grassland - Other neutral grassland	0.89	Medium	Moderate	Low	5	5.96
Grassland - Other neutral grassland	0.25	Medium	Moderate	Low	5	1.67
Grassland - Other neutral grassland	0.07	Medium	Poor	Low	2	0.26
Urban - Developed land; sealed surface	1.51	V.Low	N/A - Other	Low	0	0.00
Urban - Developed land; sealed surface	0.00	V.Low	N/A - Other	Low	0	0.00
Woodland - Other woodland; mixed	2.54	Medium	Moderate	Medium	30	7.68
Urban - Urban Tree	0.03	Medium	Moderate	Medium	27	0.10
Urban - Developed land; sealed surface	0.02	V. Low	N/A - Other	Low	0	0.00
Total	7.95*	-	-	-	-	20.85

*'Urban - Urban Tree' areas are excluded from total area to prevent double counting of area; however, the unit contributions are included within the habitat unit total.

Table 10. Retained Hedgerow Habitats

Habitat type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	Hedgerow Units
Native Species Rich Hedgerow	0.16	Medium	Good	Medium	2.11
Native Species Rich Hedgerow With Trees	0.30	Medium	Good	Medium	5.94

Habitat type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	Hedgerow Units
Native Species Rich Hedgerow With Trees	0.44	Medium	Good	Medium	8.71
Total	0.90	-	-	-	16.76

Table 11. Created Hedgerow Habitats

Habitat type (UKHab)	Length (km)	Distinctiveness	Target Condition	Strategic Significance	Time to target condition (yrs)	Hedgerow Units
Native Species Rich Hedgerow with trees	0.61	High	Moderate	Medium	10	5.64
Native Species Rich Hedgerow with trees	0.63	High	Moderate	Medium	10	5.82
Total	1.24	-	-	-	-	11.46

Table 12. Retained River Habitats

Habitat type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	River Units
Other Rivers and Streams	0.13	High	Poor	High	0.67
Total	0.13	-	-	-	0.67

Table 13. Created River Habitats

Habitat type (UKHab)	Length (km)	Distinctiveness	Target Condition	Strategic Significance	Time to target condition (yrs)	River Units
Ditches	0.47	Medium	Poor	Low	1	1.81
Ditches	0.44	Medium	Poor	Low	1	1.70
Total	0.91	-	-	-	-	3.51

4.1.6 Off-site Post-Development Habitat Units

The Post-Development biodiversity value of the area-based habitats retained and enhanced was calculated as 2.16 for retained habitat units (Table 14) and 27.02 for enhanced habitat units, in Table 15. The Post-Development biodiversity value of the hedgerow habitats retained and enhanced was calculated as 3.48 for retained hedgerow units (Table 16) and 2.44 for enhanced hedgerow units, in Table 17. The Post-Development biodiversity value of the river habitats retained was calculated as 7.70 for retained river units (Table 18).

Table 14. Retained Area-Based Habitats

Habitat type (UKHab)	Area (ha)	Distinctiveness	Condition	Strategic significance	Habitat Units
Urban - Vacant/derelict land/ bareground	0.09	Low	Poor	Low	0.18
Grassland - Modified grassland	0.45	Low	Moderate	Low	1.80
Lakes - Temporary lakes, ponds and pools	0.00	High	Good	Medium	0.00
Lakes - Temporary lakes, ponds and pools	0.00	High	Poor	Medium	0.00
Urban - Urban Tree	0.02	Medium	Poor	Medium	0.18
Total	0.56*	-	-	-	2.16

*'Urban - Urban Tree' areas are excluded from total area to prevent double counting of area; however, the unit contributions are included within the habitat unit total.

Table 15. Enhanced Area-Based Habitats

Habitat type (UKHab)	Area (ha)	Distinctiveness	Target Condition	Strategic Significance	Time to target condition (yrs)	Habitat Units
Grassland - Modified grassland	3.26	Low	Moderate	Low	10	8.01
Grassland - Modified grassland	0.87	Low	Moderate	Low	10	3.66
Heathland and shrub - Mixed Scrub	0.06	Medium	Good	Low	3	0.22
Heathland and shrub - Mixed Scrub	0.12	Medium	Moderate	Low	5	0.40
Woodland and forest - Other woodland; broadleaved	4.64	Medium	Moderate	Medium	10	14.29
Grassland - Modified grassland	0.05	Low	Moderate	Medium	10	0.23
Grassland - Modified grassland	0.04	Low	Moderate	Medium	10	0.21
Total	8.64	-	-	-	-	27.02

Table 16. Retained Hedgerow Habitats

Habitat type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	Hedgerow Units
Line of Trees (Ecologically Valuable)	0.02	Low	Poor	Medium	0.09
Native Hedgerow	0.33	Low	Moderate	Medium	1.45
Native Hedgerow - Associated with bank or ditch	0.10	Medium	Moderate	Medium	0.88
Native Hedgerow with Trees	0.12	Medium	Moderate	Medium	1.06
Total	0.57	-	-	-	3.48

Table 17. Enhanced Hedgerow Habitats

Habitat type (UKHab)	Length (km)	Distinctiveness	Target Condition	Strategic Significance	Time to target condition (yrs)	Hedgerow Units
Native Hedgerow	0.33	Low	Moderate	Medium	5	1.22
Native Hedgerow	0.66	Low	Poor	Medium	5	1.22
Total	0.99	-	-	-	-	2.44

Table 18. Retained River Habitats

Habitat type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	River Units
Culvert	0.19	Low	Poor	Low	0.38
Ditches	0.75	Medium	Moderate	Low	6.00
Total	0.94	-	-	-	6.38

4.1.7 Summary of Results

All baseline habitats and habitats created and retained are present within the accompanying Biodiversity Metric 3.0 assessment for the Proposed Development (Appendix H).

A summary of the results is shown in Table 19. This includes the Off-site habitat mitigation at Foxburrow Wood. Based on the current Post-Development Plan, the Proposed Development is predicted to result in a net gain of 7.34 habitat units (+16.19%), a net gain of 9.49 hedgerow units (+47.00%) and a net gain of 2.59 river units (+363.75%).

Table 19. Summary of On-site and Off-site Results

Habitat Type	On-site Baseline	On-site Post-Development	Off-site Baseline	Off-site Post-development	Total Net Unit Change	Total Net % Change
Habitat units	45.34	25.66	36.79	63.81	+7.34	+16.19%
Hedgerow units	20.20	28.23	7.35	8.81	+9.49	+47.00%
River units	0.71	4.19	7.26	6.38	+2.59	+363.75%

4.1.7.1 Trading Rules

The trading rules within the Biodiversity Metric 3.0 are a set of rules that try to prevent the 'trading down' of habitat distinctiveness. Under the trading rules losses of habitat are to be compensated for on a "like for like" or "like for better" basis.

The trading rules within the Biodiversity Metric 3.0 are currently satisfied for 'High' and 'Low' distinctiveness levels but are not satisfied for 'Medium' distinctiveness habitats (see Table 20).

Table 20. Trading Rules Summary

Distinctiveness Group	Trading Rule	Trading Satisfied?
High	Same habitat required	Yes
Medium	Same broad habitat or a higher distinctiveness habitat required	No
Low	Same distinctiveness or better habitat required	Yes

4.1.7.2 Summary Of Changes By Broad Habitat Types

Tables 21, 22 and 23 show the overall change in On-site broad habitat types. There is an overall loss of Cropland, Heathland and shrub, Sparsely vegetated land, and Woodland and forest habitats. There is an overall gain for Grassland and Urban Habitats. Tables 24, 25 and 26 show the overall change in Off-site broad habitat types. There is an overall gain of Grassland and Woodland Habitats. The habitat types that are being lost are being sufficiently offset by Off-site habitats; therefore, overall losses across multiple habitats are not considered to be detrimental to the overall biodiversity value of the Site.

Table 21. Change by Broad On-site Area-Based Habitat Type

	Baseline	Post development	Change
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Habitat group	Existing area	Existing value	Proposed area	Proposed value	Area change	Unit change
Cropland	1.77	3.54	1.49	2.88	-0.28	-0.66
Grassland	2.30	5.04	2.63	10.72	0.33	5.68
Heathland and shrub	0.59	2.36	0.17	0.68	-0.42	-1.68
Sparsely vegetated land	0.32	1.92	0.00	0.00	-0.32	-1.92
Urban	2.04	0.01	3.54	0.09	1.50	0.08
Woodland and forest	3.69	32.47	2.95	11.28	-0.74	-21.19

Table 22. Change by Broad On-site Hedgerow Habitat Type

Habitat group	Baseline		Post development		Change	
	Existing area	Existing value	Proposed area	Proposed value	Area change	Unit change
Native Species Rich Hedgerow with trees	0.74	14.65	1.98	26.11	1.24	11.46
Native Species Rich Hedgerow	0.34	4.49	0.16	2.11	-0.18	-2.38
Line of Trees	0.08	1.06	0.00	0.00	-0.08	-1.06

Table 23. Change by Broad On-site River Habitat Type

Habitat group	Baseline		Post development		Change	
	Existing area	Existing value	Proposed area	Proposed value	Area change	Unit change
Other Rivers and Streams	0.10	0.60	0.10	0.60	0.00	0.00
Ditches	0.00	0.00	0.90	3.50	0.90	3.50

Table 24. Change by Broad Off-site Area-Based Habitat Type

Habitat group	Baseline		Post development		Change	
	Existing area	Existing value	Proposed area	Proposed value	Area change	Unit change
Grassland	4.22	15.06	4.22	27.17	0.00	12.11
Heathland and shrub	0.18	0.96	0.18	1.58	0.00	0.62
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.11	0.36	0.11	0.36	0.00	0.00
Woodland and forest	4.64	20.42	4.64	34.71	0.00	14.30

Table 25. Change by Broad Off-site Hedgerow Habitat Type

Habitat group	Baseline		Post development		Change	
	Existing area	Existing value	Proposed area	Proposed value	Area change	Unit change
Native Species Rich Hedgerow	0.00	0.00	0.99	5.33	0.99	5.33
Native Hedgerow – Associated with bank or ditch	0.10	0.88	0.10	0.88	0.00	0.00
Native Hedgerow with trees	0.23	2.02	0.12	1.06	-0.11	-0.97
Line of Trees (Ecologically Valuable)	0.02	0.09	0.02	0.09	0.00	0.00
Native Hedgerow	1.32	4.36	0.33	1.45	-0.99	-2.90

Table 26. Change by Broad Off-site River Habitat Type

Habitat group	Baseline		Post development		Change	
	Existing area	Existing value	Proposed area	Proposed value	Area change	Unit change
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.9	6.9	0.8	0.0	-0.1	-6.9
Culvert	0.2	0.4	0.2	0.0	0.0	-0.4

5. Recommendations

Based on the current proposals and outlined assumptions, the Proposed Development was predicted to result in an overall net loss On-site of approximately 43.40% for habitat units, a net gain of 39.76% for hedgerow units and a net gain of 487.21% for river units. Therefore, further habitat mitigation was required to achieve a minimum of a 10% net gain in biodiversity for habitat units.

In accordance with best practice, the delivery of biodiversity units should always be initially considered On-site. However, where opportunity for additional habitat creation and enhancement On-site is limited, land outside of the development boundary may need to be considered for the proposed development to achieve no net loss. As the On-site enhancement recommendations do not result in the proposed development achieving +10% BNG for-area-based habitats, Off-site mitigation was required.

Off-site solutions have been presented that are over and above current management plans for Foxburrow Wood to secure the remaining biodiversity units required to achieve 10% net gain for habitat. The solutions at Foxburrow Wood include habitat enhancements of woodland, grassland, hedgerows, scrub, as well as the creation of floodplain wetland mosaic habitat. The proposed habitat enhancement at Foxburrow Wood would secure the overall units required to achieve +10% net gain in habitat units.

The trading rules are not met for the 'Medium' distinctiveness habitat 'Woodland and forest – Other woodland; broadleaved' and 'Heathland and shrub - mixed scrub' habitat without the implementation of Off-site compensation. Further mitigation is required to satisfy these trading rules. To satisfy the trading rules for the mixed woodland plantation, 6.89 units would need to be provided of the same broad habitat type or 'better', any habitat of a higher distinctiveness. However, woodland replacement is preferable to avoid an overall loss of woodland. Therefore, in order to satisfy the trading rules for the loss of 6.89 units of Woodland and forest - Other woodland; broadleaved, an agreement with the Trust for Oxfordshire has been agreed. There is a loss of -0.42 ha of mixed scrub habitat as a result of the Proposed Development and there is no aspiration to create more scrub at Foxburrow Wood (only to enhance existing scrub). In this instance this loss is considered acceptable. This is because it is likely that the woodland edge and understorey will provide an ecological function similar to that of the scrub. Therefore, non-adherence to the trading rules at Foxburrow Wood is considered acceptable in this scenario for scrub.

The outputs of the Biodiversity Metric 3.0 are dependent on all created and retained and enhanced habitats meeting the target conditions, subject to the criteria outlined within Natural England's Biodiversity Metric 3.0 Technical Note². Management methodology to meet the target condition for each habitat would therefore need to be outlined within an overarching Landscape Masterplan/ Ecological Management Plan for the proposed development.

Based on the results of the assessment no further habitat mitigation is required in order to achieve a net gain in biodiversity. However, the Post-Development plans do not currently satisfy the trading rules.

6. Conclusion

Based on the current plans for the Site, the Proposed Development is predicted to result in a net gain of 16.19% for area-based habitat units, a net gain of 47.00% for hedgerow units and a gain of 363.75% for river units. The Proposed Development therefore exceeds the BNG target of +10% BNG for each habitat type, as set out in West Oxfordshire Council Local Plan⁷. Because of this, no further recommendations have been made. However, trading rules have not been met for the Proposed development. Therefore, in order to satisfy the trading rules for the loss of 6.89 units of Woodland and forest - Other woodland; broadleaved, an agreement with the Trust for Oxfordshire has been agreed.

The outputs of the Biodiversity Metric 3.0¹ are dependent on all retained and enhanced habitats meeting the target conditions, subject to the criteria outlined within Biodiversity Metric 3.0 guidance documents². Habitats would need to be monitored to ensure correct establishment and growth, and remedial action would need to be taken if this does not proceed as expected, otherwise the target conditions used in the calculations may not be met and the predicted biodiversity units might not be achieved.

7. Proposed Planning Condition Amendment

Although an agreement has been made with the Trust for Oxfordshire and an Agreement in Principle made with the Wychwood Trust, a suggested amendment has been proposed to the wording of Planning Condition 18 to not include specific numbers of units. The BNG assessment will be revised during the development of construction details prior to construction, which may provide an opportunity to retain additional existing vegetation which had

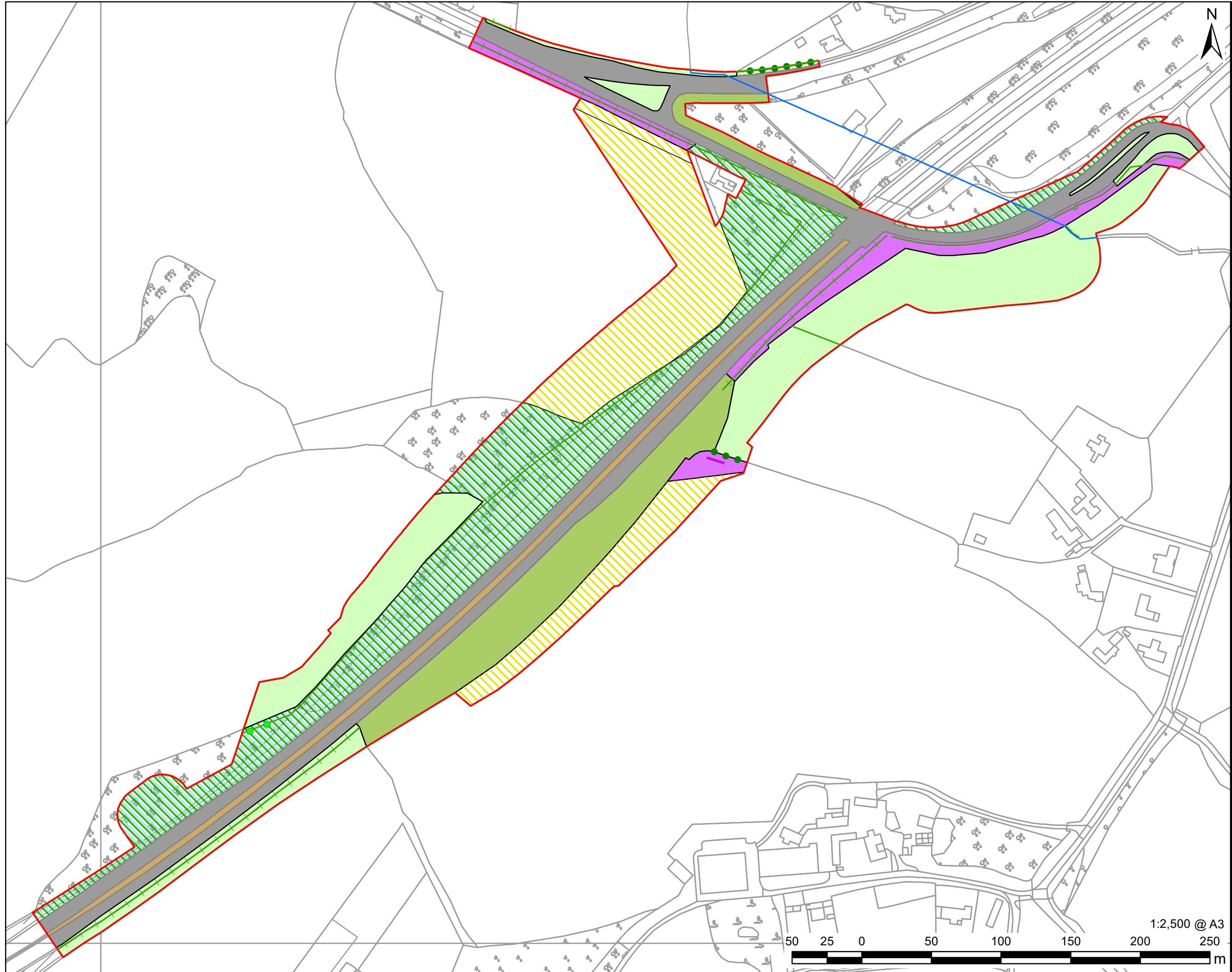
previously been assessed as being lost. Should Planning Condition 18 remain specific to the biodiversity units required to be provided, there is limited incentive to consider opportunities to reduce vegetation loss. The proposed revised wording for Planning Condition 18 is as follows:

No development shall commence unless and until, in combination with onsite measures as set out in the approved Biodiversity Net Gain Assessment in order to deliver a minimum of 10% net gain in biodiversity units above the baseline:

- a) A detailed management and monitoring plan covering a minimum of 30 years for delivery of offsite biodiversity units at Foxburrow Wood to ensure delivery of a minimum of 10% net gain in biodiversity units is submitted to and approved in writing by the County Planning Authority; and*
- b) A certificate confirming the agreement of an Offsetting Provider approved by the County Planning Authority to deliver a Biodiversity Offsetting Scheme for the provision of mixed plantation woodland in order to ensure the development meets trading rules has been submitted to and approved in writing by the County Planning Authority. The written approval of the County Planning Authority shall not be issued before the certificate has been issued by the Offsetting Provider. The details of the biodiversity enhancements shall meet the trading rule requirements as set out in the approved Revised Biodiversity Net Gain Report and shall be documented by the Offsetting Provider and issued to the County Planning Authority for their records.*

The approved plan shall thereafter be implemented in full.

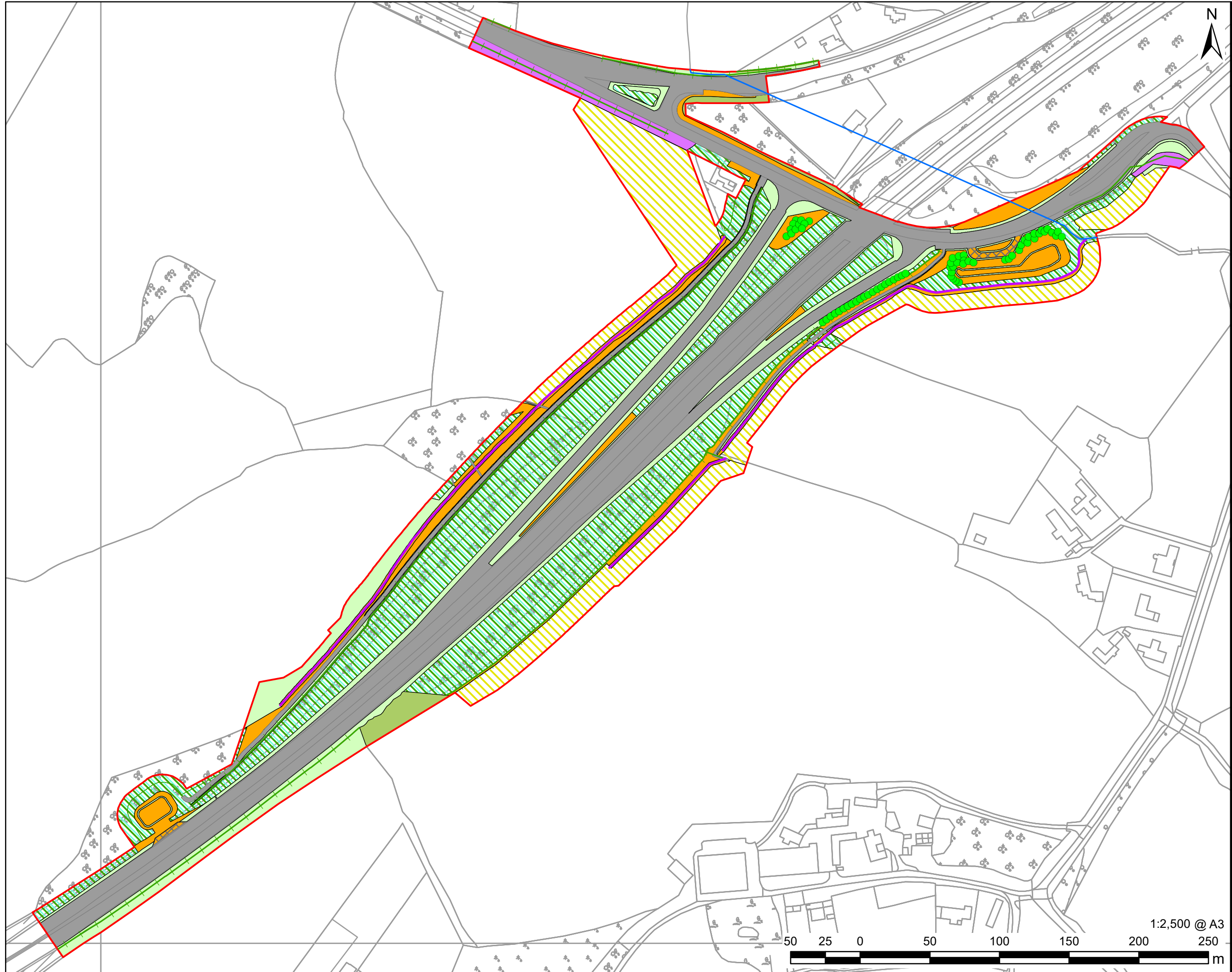
Appendix A Baseline Habitat Plan



- UK Habitat Description**
- Urban Tree
 - Lakes - Ditches
 - Line Of Trees
 - Native Species Rich Hedgerow
 - Native Species Rich Hedgerow With Trees
 - Running Water
 - ▨ Cropland - Cereal Crops
 - Grassland - Modified Grassland
 - Heathland And Shrub - Mixed Scrub
 - Sparsely Vegetated Land - Ruderal/Ephemeral
 - Urban - Developed Land; Sealed Surface
 - Woodland And Forest - Other Woodland; Broadleaved
 - ▨ Woodland And Forest - Other Woodland; Mixed

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Appendix B Post-Development Habitat Plan



LEGEND

- Red Line Boundary
- Urban Tree

UK Habitat Description

- Lakes - Ditches
- Native Species Rich Hedgerow
- + Native Species Rich Hedgerow With Trees
- Running Water
- Cropland - Cereal Crops
- Grassland - Modified Grassland
- Grassland - Other Neutral Grassland
- Grasscrete
- Heathland And Shrub - Mixed Scrub
- Urban - Developed Land; Sealed Surface
- Woodland And Forest - Other Woodland
- Woodland And Forest - Other Woodland; Mixed

NOTES
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ISSUE PURPOSE
BIODIVERSITY NET GAIN ASSESSMENT

PROJECT NUMBER
60611611

SHEET TITLE
Post Development Habitats

SHEET NUMBER
Figure 2

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Appendix C Habitat Classification Conversions

C.1 Phase 1 Habitat to UKHab Conversion

Phase 1 habitat classification	UKHab Classification
Hardstanding	Urban - Developed land; sealed surface
Buildings	Urban - Developed land; sealed surface
Cultivated/disturbed land - amenity	Grassland - Modified grassland
Cultivated/disturbed land - arable	Cropland - Cereal crops
Improved grassland	Grassland - Modified grassland
Other tall herb and fern - ruderal	Sparsely vegetated land - Ruderal/ephemeral
Broadleaved woodland - semi natural	Woodland and forest - Lowland mixed deciduous woodland
Mixed woodland - plantation	Woodland and forest - Other woodland; mixed
Scrub - dense/continuous	Heathland and shrub - mixed scrub
Broadleaved parkland/scattered trees	Line of trees
Hedge with trees - native species-rich	Native Species Rich Hedgerow with trees
Intact hedge - native species-rich	Native Species Rich Hedgerow
Dry ditch	Ditches
Broadleaved parkland/scattered tree	Urban - Urban Tree

C.2 Landscape Plan to UKHab Conversion

Landscape Plan Classification	UKHab Classification
Proposed footway (a40) - bound proposed prow - realignment	Urban - Developed land; sealed surface
Proposed footway (a40) - unbound proposed prow - realignment	Urban - Developed land; sealed surface
Trees removed	Urban - Urban tree

Landscape Plan Classification	UKHab Classification
Tree group removed	Woodland and forest – Other woodland; broadleaved or Woodland and forest – Other woodland; mixed dependent on location
Trees retained	Urban - Urban tree
Tree group retained	Woodland and forest – Other woodland; broadleaved or Woodland and forest – Other woodland; mixed dependent on location
Reinstated modified grassland	Grassland - Modified grassland
Reinstated cropland	Cropland - cereal crop
Grasscrete maintenance areas	50% 'Urban - Developed land; sealed surface' and 50% 'Grassland – Modified grassland'
LE 1.1 - amenity grassland	Grassland - Modified grassland
LE 1.3 - species rich grassland	Grassland - Other Neutral Grassland
LE 2.1 - woodland	Woodland and forest – Other woodland; broadleaved or Woodland and forest – Other woodland; mixed dependent on location
LE 4.4 native hedgerow with trees	Native Hedgerow with trees
LE 5.1 - individual trees	Urban – Urban tree
LE 6.2 - banks and ditches	Ditches
LE 6.4 marsh and wet grassland	Grassland - Other Neutral Grassland
Existing woodland	Woodland and forest – Other woodland; broadleaved or Woodland and forest – Other woodland; mixed dependent on location
Composting areas	Urban – Vacant/derelict land/bareground

Appendix D Condition Assessment Rationale

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
Urban - Developed land; sealed surface	No assessment required; condition is pre-set.	Phase 1 habitat survey undertaken by AECOM in August 2020	Urban Habitat Type	Pre-set	N/A - Other
Woodland and forest - Lowland mixed deciduous woodland	Scored 32 points. Scored: 2, 3, 3, 3, 3, 3, 2, 3, 1, 2, 1, 3, 3.	Phase 1 habitat survey undertaken by AECOM in August 2020	Woodland Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Grassland - Modified grassland	Passed 5 of 7 criteria. Passed criteria: 3,4,5,6,and 7. Fails 1 and 2.	Phase 1 habitat survey undertaken by AECOM in August 2020	Grassland Habitat Type (low distinctiveness)	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Grassland - Modified grassland	Passed 4 of 7 criteria. Passed criteria: 3,4,5, and 6. Fails: 1, 2, and 7.	Phase 1 habitat survey undertaken by AECOM in August 2020	Grassland Habitat Type (low distinctiveness)	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Poor
Cropland - Cereal crops	No assessment required; condition is pre-set.	Phase 1 habitat survey undertaken by AECOM in August 2020	Pre-set	Pre-set	N/A - Agricultural
Woodland and forest - Other woodland; mixed	Scores 32 points. Scored: 2, 3, 3, 3, 3, 3, 2, 3, 1, 2, 1, 3, 3.	Phase 1 habitat survey undertaken by AECOM in August 2020	Woodland Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Sparsely vegetated land - Ruderal/ephemeral	Passes all criteria.	Phase 1 habitat survey undertaken by AECOM in August 2020	Urban Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Heathland and shrub - Mixed scrub	Passes 2 of 5 criteria. Passes: 1 and 3. Fails 2, 4 and 5.	Phase 1 habitat survey undertaken by AECOM in August 2020	Scrub Habitat Type	Assumed moderate on a precautionary basis.	Poor
Line of trees	Assigned using professional judgement.	Phase 1 habitat survey undertaken	Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and	Moderate

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
		by AECOM in August 2020		assessor professional judgement	
Native Species Rich	Passes all criteria.	Phase 1 habitat survey undertaken by AECOM in August 2020	Hedgerow Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Native Species Rich Hedgerow with trees	Passes all criteria.	Phase 1 habitat survey undertaken by AECOM in August 2020	Hedgerow Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

Appendix E Strategic Significance Rationale

Source	Strategic Significance Information
Biodiversity and Planning in Oxfordshire ¹²	<p>Legal protection for the following biodiversity features varies, but all are protected through the planning system:</p> <ul style="list-style-type: none"> • Local Wildlife Sites (LWS) • Local Geological Sites (LGS) • Irreplaceable Habitats (e.g. Ancient Woodland) • Veteran trees • Priority Habitats and Priority Species <ul style="list-style-type: none"> – Grasslands (calcareous, acid and lowland meadows), woodlands (only UKBAP woodland), wetlands (UKBAP examples including ponds and rivers) and other (arable field margins, hedgerows, lowland heath, Open Mosaic Habitat and Traditional orchards) <p>Landscape design: Landscaping should aim to retain and enhance existing biodiversity features and link up habitats. For example, native hedgerows and strips of species-rich grasslands provide routes along which species such as hedgehogs, butterflies and bats can move – Medium strategic significance and above.</p>
Oxfordshire Biodiversity Action Plan and Conservation Target Areas ¹³	<p><u>Application to assessment</u> ‘Medium’ Strategic significance assigned to ‘Native Hedgerow’, ‘Native Hedgerow with trees’, ‘Native Hedgerow – Associated with bank or ditch’, ‘Native Species Rich Hedgerow’ and ‘Native Species Rich Hedgerow with trees’.</p> <hr/> <p>Habitats that are present on site and are included within the Oxfordshire BAP include: Woodland and hedgerows Grassland: calcareous, chalk, other neutral and grazing marshes Wetland: Rivers and streams, fens, ponds, ditches, canals and gravel pits</p> <p><u>Application to assessment</u> ‘Medium’ SS already assigned to all hedgerow habitats. ‘Medium’ SS assigned to all woodland habitats as well as ‘Lakes – Temporary lakes, ponds and pools’.</p>
Whitney Shores Green Preliminary Ecological Assessment ⁸	<p>The PEA concludes that: <i>“Two Habitats of Principal Importance (as listed on Section 41 of the NERC Act 2006) were present within the Survey Area, namely ‘hedgerows’ and ‘broadleaved woodland’. At present, the Scheme is likely to result in the partial loss and/or fragmentation of these habitats. The Survey Area and surrounding habitats have the potential to support an array of wildlife due to the habitats supported. This includes foraging and commuting bats, dormice, foraging badgers, reptiles, great crested newts, wintering birds, barn owl, breeding birds and aquatic species. Unless avoidance of key habitats likely to support these species is avoided, further surveys will be required to inform a mitigation strategy.”</i></p> <p><u>Application to assessment</u> ‘Medium’ SS applied to ‘Line of Trees’.</p>
MAGIC map ¹⁶	<p>MAGIC was assessed to determine connectivity of habitats and to determine whether any priority habitats or designated sites are present. There are areas of priority deciduous woodland within the site to the south of the A40 and in between both B4022 slip roads within the On-site habitats.</p> <p>There are also records of GCN dating from 2014-2018 therefore there is a high chance that the area surrounding the On-site habitats could support GCN.</p>

Source

Strategic Significance Information

Off-site habitats do not include any priority habitats.

Application to assessment

'Medium' SS already applied to 'Woodland and forest – Other woodland; broadleaved' in the baseline On-site habitats

West Oxfordshire Local Plan⁷

Core Objective 14: Conserve and enhance the character and significance of West Oxfordshire's high quality natural, historic and cultural environment – including its geodiversity, landscape, biodiversity, heritage and arts – recognising and promoting their wider contribution to people's quality of life and social and economic well-being both within the District and beyond.

Policy OS4: High Quality Design: New development should enhance local green infrastructure and its biodiversity.

Policy EH2: Landscape character: New development should conserve and, where possible, enhance the intrinsic character, quality and distinctive natural and man-made features of the local landscape, including individual or groups of features and their settings, such as stone walls, trees, hedges, woodlands, rivers, streams and ponds.

Policy EH3: Biodiversity and Geodiversity: The biodiversity of West Oxfordshire shall be protected and enhanced to achieve an overall net gain in biodiversity by promoting the conservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species populations, particularly within the CTAs and NIAs;

Policy EH4: Public realm and green infrastructure: New development should maximise opportunities for urban greening such as through appropriate landscaping schemes and the planting of street trees.

- 'Witney grew up as a valley settlement near crossing points of the River Windrush. The river and associated floodplain forms a significant green corridor that is an important part of the character of the town and its historic setting as well as an ecological and recreational resource.'

Policy WIT 1: East Witney Strategic Development Area: Site is partially within the Environmental enhancements and landscape mitigation area within the East Witney Strategic Development Area (SDA).

Application to assessment

SS already assigned to respective habitats.

Bat Conservation Trust (BCT)- Core Sustenance Zones and habitats of importance for designing Biodiversity Net Gain for bats¹⁷

"A core sustenance zone (CSZ), as applied to bats, refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost."

There aren't any roosts identified on the Site but mature trees, broadleaved woodland and hedgerows on the site have been noted as suitable for commuting and foraging in the PEA. Potential habitats which would be used for foraging and commuting by roosting bats include woodland, hedgerows, lines of trees, and grassland.

Application to assessment

Medium SS already assigned to woodland habitats, hedgerow habitats and 'Line of Trees'. Medium SS also assigned to 'Urban – Urban trees'.

Appendix F BNG Best Practice Principals

Principle	How has this been applied in the assessment
Principle 1: Apply the Mitigation Hierarchy	The mitigation hierarchy has been applied during this assessment by means of engaging with the landscape architects for the project and finding the best ecological solutions for the Site. With it not being possible to retain some of the habitats on Site, mitigation for these habitat losses has focused on On-site and Off-site habitat provision. These efforts were successful, and this is shown by the positive BNG score.
Principle 2: Avoid losing biodiversity that cannot be offset by gains elsewhere	There is no loss of irreplaceable biodiversity due to take place on site.
Principle 3: Be inclusive and equitable	The Client has engaged with stakeholders an appropriately early stage to gauge their opinion on the proposals. The Client received positive responses regarding the plans for the Off-site mitigation plans.
Principle 4: Address risks	All risks regarding difficulties of achieving net gains for the project have been mitigated for appropriately by means of sufficient provision of compensatory habitats which have enabled the project to achieve net gains.
Principle 5: Make a measurable Net Gain contribution	Net gains have been achieved on site and this has been done by means of targeting the creation of habitats that are seen to be of local priority / significance. For example, hedgerows, urban trees and woodland are all seen as priorities for the local area; all of which have been successfully included in the design for the Proposed Development.
Principle 6: Achieve the best outcomes for biodiversity	All gains have been achieved with Off-site provisions and Site with an agreement to meet the trading rules.
Principle 7: Be additional	The biodiversity net gain delivered by the Proposed Development exceeds the minimum net gain requirement of +10% as set out in national planning policy ⁵ advice.
Principle 8: Create a net gain legacy	A net gain legacy is to be achieved on this site; this is shown by the large net gain score. It is expected that the Proposed Development will be very beneficial for the local community.
Principle 9: Optimise sustainability	The creation of other neutral grassland, woodland habitat and enhancing the habitat Off-site all contribute in providing a more biodiverse set of habitats across the Site, when compared to the baseline habitats currently present. This can be viewed as a sustainable societal impact, as it is anticipated that these increases in habitat quality will increase public engagement with these areas.

Principle 10: Be transparent

Particular effort has been made to adopt a precautionary and transparent approach when assessing the impacts of the development upon the habitats On-site and Off-site, an agreement has been made with external stakeholders in order to offset the losses with respect to the trading rules.

Appendix G Baseline Habitat Descriptions

Baseline Habitat	Description
Urban - Developed land; sealed surface	Much of the Site consists of hardstanding consisting of the existing A40 highway, with a single small building to the north.
Grassland - Modified grassland	<p>Multiple areas of grassland are used for horse and cattle grazing are located across the Site. These fields are dominated by grasses such as perennial ryegrass (<i>Lolium perenne</i>) and Yorkshire fog (<i>Holcus lanatus</i>), with frequent examples of cock's foot (<i>Dactylis glomerata</i>), bread wheat (<i>Triticum aestivum</i>) and timothy grass (<i>Phleum pratense</i>). Other species such as common nettle (<i>Urtica dioica</i>), dandelion (<i>Taraxacum officinale</i>), white clover (<i>Trifolium album</i>) and broadleaved dock (<i>Rumex obtusifolius</i>) are also occasionally present at the base of hedgerows along these fields.</p> <p>There is a single small area of amenity grassland present to the north of the Site, along the existing highway. This grassland is dominated by perennial ryegrass, Yorkshire fog, false oat grass (<i>Arrhenatherum elatius</i>) and common bent (<i>Agrostis capillaris</i>). In addition, there are occasional instances of creeping buttercup (<i>Ranunculus repens</i>), silver weed (<i>Argentina anserine</i>), slender speed well (<i>Veronica filiformis</i>), nipplewort (<i>Lapsana communis</i>), common daisy (<i>Bellis perennis</i>), red clover (<i>Trifolium pratense</i>) and dandelion.</p>
Cropland – Cereal crops	Arable land makes up a large proportion of the Site, located primarily to the north of the existing highway with a smaller area to the south. These fields are either left fallow or had been recently ploughed at the time of survey.
Heathland and Shrub - Mixed scrub	Areas of mixed scrub are located at various locations across the Site, associated with hedgerow junctions, woodland understorey and along highway edges.
Sparsely vegetated land - Ruderal/Ephemeral	Patches of tall ruderal can be observed from a distance between the lanes of the existing highway. Due to access and safety constraints, only a habitat type could be determined without identification of specific flora, however, the habitat appeared to be of limited biodiversity value.
Woodland and forest – Other woodland; broadleaved	Two sections of broadleaved semi-natural woodland are located along the highway edge, one to the south and the other to the north, sandwiched between the A40 and B4022. The majority of these woodlands are comprised of a combination of immature and semi-mature trees, with the occasional mature tree present. The species observed included oak (<i>Quercus robur</i>), ash (<i>Fraxinus excelsior</i>), hazel (<i>Corylus avellana</i>), white poplar (<i>Populus alba</i>), field maple (<i>Acer campestre</i>) and elm (<i>Ulmus</i> sp.).
Woodland and forest – Other woodland; mixed	Mixed plantation woodland is located extensively across the Site, with some planted in a linear fashion to the west of the highway. These woodlands contain a various of tree species, such as ash, oak, hawthorn (<i>Crataegus mongyna</i>), silver birch (<i>Betula pendula</i>) and horse chestnut (<i>Aesculus hippocastanum</i>), along with European larch (<i>Larix decidua</i>), elder (<i>Sambucus nigra</i>), field maple and Scots pine (<i>Pinus sylvestris</i>). An understorey layer of bramble (<i>Rubus fruticosus</i> agg.) and common nettle is also present across much of the woodland.

Baseline Habitat	Description
Ditches	A single dry ditch enters the Site from the south, associated with the field margins and scrub.
Native Species Rich Hedgerow	A native species-rich hedgerow runs along the field and highway border to the northeast of the Site. This hedge is dominated by species such as blackthorn (<i>Prunus spinosa</i>) and hawthorn, with frequent examples of bramble and field maple. Elm, hazel, rose (<i>Rosa</i> sp.) and sycamore (<i>Acer pseudoplatanus</i>) are also frequently observed
Native Species Rich Hedgerow with trees	Species-rich hedgerows with trees are present along the east side of the A40 highway and the south side of the B4022. These hedgerows have a similar composition to the other hedgerows On-site, with blackthorn, hawthorn, bramble, hazel, rose, field maple and sycamore all present. In addition, frequent examples of mature ash, oak, elm, and white poplar trees are present.
Line of trees	There is a single line of trees entering the Site towards the south, on the eastern side of the A40 highway. The species recorded in this line consisted of mature oak, ash, elm and occasionally white poplar.
Other Rivers and Streams	A 0.32 km stretch of the Limb brook passes through the Site boundary. The brook flows eastwards, with the main habitat found either side of the brook consisting of pasture grassland to the north and south. Significant management of bankside vegetation is present on the bank tops. The banks are generally shallow, gently sloping and earth-based, with short grasses and scrub present. There are open sections, however the majority of the brook remains in shade. Aquatic macrophytes are present and dominated by emergent broad-leaved vegetation and occasional rushes, although these are still limited. Areas of poaching along the banks are also present from livestock. Artificial reinforcement was present to the western section of the brook, where a culvert passes under the existing A40 and B4022 roads, as well as to support a small culvert and bridge used to move over the brook.

Appendix H Habitat Management Required to Achieve Target Condition

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
Grassland – Modified grassland	<p>Target condition is 'Poor' in one year.</p> <ul style="list-style-type: none"> This will require the area to be seeded with an amenity grassland seed mix following ground preparation and regularly cut for amenity and security purposes. 	<p>To meet target condition, it will be necessary to:</p> <ul style="list-style-type: none"> Carry out planting according to the specification in the Landscape Plan; Carry out planting to appropriate standards; Monitor planting to ensure correct establishment, and take remedial action if growth fails. 	Poor
Grassland – Other neutral grassland	<p>Target condition is 'Moderate' in five years.</p> <ul style="list-style-type: none"> Undesirable species and physical damage is below 5% cover. Cover of bracken less than 20% and cover of scrub and bramble less than 5% Variation of sward height with at least 20% being more than 7cm and 20% being less than 20%. 	<p>To meet target condition, it will be necessary to:</p> <ul style="list-style-type: none"> Carry out planting according to the specification in the Landscape Plan; Carry out planting to appropriate standards; <p>Monitor planting to ensure correct establishment, and take remedial action if growth fails.</p> <p><u>Year 1:</u></p> <ul style="list-style-type: none"> June – Spray off or remove competitive/ruderal growth July – power/disc harrow. August - Spray off or remove competitive/ruderal growth. September to October – Seed with seed mix (Emorsgate EM5 or similar with additional yellow rattle @ 0.1g/m2). <p><u>Year 2:</u></p> <ul style="list-style-type: none"> April to June/July – control annual weeds by pulling or pot treatment. July to September – Mow to 5-10cm. <p><u>Year 3 onwards:</u></p> <ul style="list-style-type: none"> Cut and collect arisings late July early August. 	Moderate
Heathland and shrub – Mixed scrub	<p>Target condition is 'Moderate' in five years.</p> <ul style="list-style-type: none"> Undesirable species to make up less than 5% of ground cover. Absence of invasive non-native species. 	<p>To meet target condition, it will be necessary to:</p> <ul style="list-style-type: none"> Carry out planting according to the specification in the Landscape Plan; Carry out planting to appropriate standards; <p>Monitor planting to ensure correct establishment, and take remedial action if growth fails.</p>	Moderate

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
Lakes – Ponds (Non-Priority Habitat)	<ul style="list-style-type: none"> Representative of UKHab description and at least 3 woody species with not one comprising more than 75% of the cover. Good age range with seedlings, young shrubs and mature shrubs. 	<p>To meet target condition, it will be necessary to:</p> <ul style="list-style-type: none"> Carry out planting according to the specification in the Landscape Plan; Carry out planting to appropriate standards; Monitor planting to ensure correct establishment, and take remedial action if growth fails. 	Moderate
Urban – Developed land; sealed surface	No assessment required; condition is pre-set.	<p>To meet target condition, it will be necessary to:</p> <ul style="list-style-type: none"> Carry out planting according to the specification in the Landscape Plan; Carry out planting to appropriate standards; <p>Monitor planting to ensure correct establishment, and take remedial action if growth fails.</p>	N/A – Other
Woodland and forest – Lowland mixed deciduous woodland	Target condition of 'Moderate' in 30+ years.	<p>To meet target condition, it will be necessary to:</p> <ul style="list-style-type: none"> Carry out planting according to the specification in the Landscape Plan; Carry out planting to appropriate standards; <p>Monitor planting to ensure correct establishment, and take remedial action if growth fails.</p>	Moderate

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
Woodland and forest – Other woodland; mixed	<p>Target condition of 'Moderate' in 30 years.</p> <ul style="list-style-type: none"> • Three age classes present. • Erect fencing to prevent significant browsing damage evident in woodland. • No invasive species present in the woodland. • >80% of canopy trees and >80% of understorey shrubs are native. • Five or more native tree or shrub species found across the woodland parcel. • Open space within the woodland is 20-40% of woodland has areas of temporary open space. • Woodland managed to ensure there is low risk pest or disease present. • Less than 1 hectare in total nutrient enrichment across woodland area and/or less than 20% of woodland has damaged ground. 	<p>To meet target condition, it will be necessary to:</p> <ul style="list-style-type: none"> • Carry out planting according to the specification in the Landscape Plan; • Carry out planting to appropriate standards; <p>Monitor planting to ensure correct establishment, and take remedial action if growth fails.</p>	Moderate
Native Species Rich Hedgerow	<p>Target condition of 'Moderate' in 5 years.</p> <ul style="list-style-type: none"> • A1. Height >1.5 m average along length • A2. Width >1.5 m average along length • B1. Gap - hedge base • B2. Gap - hedge canopy continuity • C1. Undisturbed ground and perennial vegetation • C2. Undesirable perennial vegetation • D1. Invasive and neophyte species • D2. Current damage • E1. Tree age • E2. Tree health 	<p>To meet target condition, it will be necessary to:</p> <ul style="list-style-type: none"> • Carry out planting according to the specification in the Landscape Plan; • Carry out planting to appropriate standards; <p>Monitor planting to ensure correct establishment, and take remedial action if growth fails. Prepare the ground along a 1.5m wide strip to provide good soil conditions and as little competition from other vegetation as possible. Hedging whips must be:</p> <ul style="list-style-type: none"> • At least 2-year-old transplants • Between 450mm to 600mm high • Native species, (with hawthorn, blackthorn and hazel comprising at least 70% of the mix) • Planted in a staggered 'double row' 400mm apart with a minimum of 6 plants per metre • Kept clear of weeds until they are established • Under sown with Emorsgate EH1 Hedgerow mix or similar. <p>Hedge Species should include:</p> <ul style="list-style-type: none"> • 30% Hawthorn <i>Crataegus monogyna</i> • 30% Blackthorn <i>Prunus spinosa</i> • 10% Hazel <i>Corylus avellana</i> • 10% Bird Cherry <i>Prunus padus</i> 	Moderate

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
Grassland - Coastal Floodplain Grazing Marsh	<p>Target condition is 'Moderate' in 10 years. 4 of 5 of the below criteria must be passed along with the essential criterion. If one essential criteria is not met it is possible to achieve 'Moderate' condition by passing all 6 other criteria.</p> <p>Essential criteria:</p> <ul style="list-style-type: none"> • All ditches recorded in the habitat are in Good condition using the ditch habitat condition sheets. • The water table is at or near the surface for the majority of the year or saturation of the soil at the surface, not maintained artificially. <p>All other criteria:</p> <ul style="list-style-type: none"> • The appearance and composition of vegetation closely matches characteristics of specific wetland habitat type. • The water supplies to the wetland are of good quality and low turbidity. • Cover of scrub and scattered trees is less than 10%. • Cover of bareground is less than 10%. • There is an absence of invasive non-native species and undesirable species make up less than 5% of ground cover (this includes but is not limited to nettles, clevers and dock species). 	<ul style="list-style-type: none"> • 10% Field Maple <i>Acer campestre</i> • 10% Dog Rose <i>Rosa canina</i> <p>To meet target condition, it will be necessary to:</p> <ul style="list-style-type: none"> • Carry out planting according to the specification in the Landscape Plan; • Carry out planting to appropriate standards; <p>Monitor planting to ensure correct establishment, and take remedial action if growth fails.</p>	Moderate

Appendix I Biodiversity Metric 3.0 Calculation

Biodiversity Metric 3.0 to be included as an attachment.

On-site baseline	<i>Habitat units</i>	45.34
	<i>Hedgerow units</i>	20.20
	<i>Fiver units</i>	0.71
On-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	25.66
	<i>Hedgerow units</i>	28.23
	<i>Fiver units</i>	4.19
On-site net % change (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	-43.40%
	<i>Hedgerow units</i>	39.76%
	<i>Fiver units</i>	487.21%
Off-site baseline	<i>Habitat units</i>	36.79
	<i>Hedgerow units</i>	7.35
	<i>Fiver units</i>	7.26
Off-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	63.81
	<i>Hedgerow units</i>	8.81
	<i>Fiver units</i>	6.38
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	7.34
	<i>Hedgerow units</i>	9.49
	<i>Fiver units</i>	2.59
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	16.19%
	<i>Hedgerow units</i>	47.00%
	<i>Fiver units</i>	363.75%
Trading rules Satisfied?	No - Check Trading Summary	

Appendix J Agreement in Principle – Wychwood Forest Trust



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Emily Major
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9th March 2022

By email

Dear Emily

A40 Shores Green junction upgrade project

Further to our recent discussions, I write to confirm that Wychwood Forest Trust would in principle be happy to enter into a formal agreement to deliver and maintain biodiversity offsetting/net gain in perpetuity for the above development scheme at our Foxburrow Wood ecological restoration site in north Witney.

Thank you for supplying your initial assessment of the ecological baseline at Foxburrow and the application of the metric tool. I am broadly in agreement with your surveyors and with the calculation of biodiversity units the discussed vision for habitat enhancements would achieve. If anything, I would consider the uplift predictions for the site sensibly conservative, and am confident that creation of significant wetland and deadwood habitats at Foxburrow would be transformative for the biodiversity of the site and the local landscape. I understand that detailed plans for the scheme will be developed in due course should the planning application be successful.

Kind regards,

Neil Clennell
Chief Executive

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