

PRELIMINARY ECOLOGICAL APPRAISAL AND BIODIVERSITY NET GAIN ASSESSMENT

FOR UNIVERSITY COLLEGE

NORTH OXFORD DEVELOPMENT | 04/11/ 2021 | VERSION 1

Client

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EXECUTIVE SUMMARY

Future Nature WTC was commissioned on 20th July 2021 by University College to undertake a Biodiversity Net Gain (BNG) Assessment, as well as update the findings of the Preliminary Ecological Appraisal (PEA) undertaken by GS Ecology in 2019.

The purpose of this report is to:

- Identify the likely potential ecological constraints associated with the project
- Present the baseline survey findings and assess the feasibility for the development to achieve BNG
- Advise the team on the implementation of BNG principles and measures to maximise BNG opportunities on site
- Identify on site biodiversity enhancement opportunities

University College's aim is to meet Berkshire, Buckinghamshire and Oxford Wildlife Trusts' target of 20% BNG.

No evidence or signs of protected/priority species were detected during the survey. Structures and their bat suitability were in the same condition as the 2019 PEA. Therefore no further species survey work is required. One area of priority habitat, traditional orchard, is present on site and is to remain largely unaffected by the proposed development works. Vegetation clearance must occur outside of the bird nesting season (March to August inclusive), otherwise areas to be cleared will be subject to a nesting bird check ahead of works proceeding.

The habitats lost to development are of relatively low conservation value and as a result can be mitigated on-site. In order to achieve BNG the following measures will be undertaken:

- Enhancement of a traditional orchard from 'poor' to 'moderate' condition
- Creation of two areas of traditional orchard
- Creation of a mosaic of 'other neutral grassland' across the site

The results of the BNG Assessment are presented below. It is possible to exceed the 20% BNG target. The two scenarios are as follows:

1. Create 'other neutral grassland' to meet moderate condition within 5 years.
2. Create 'other neutral grassland' to meet good condition within 10 years.

Headline Results		Scenario 1	Scenario 2
Onsite baseline	Habitat units	7.70	7.70
	Hedgerow units	1.28	1.28
Onsite post-intervention	Habitat units	8.55	9.29
	Hedgerow units	2.31	2.31
Total unit change	Habitat units	0.85	1.59
	Hedgerow units	1.03	1.03
Total % change	Habitat units	11.08%	20.62%
	Hedgerow units	80.04%	80.04%

Future Nature WTC is producing an adaptive management plan and undertaking ongoing monitoring to ensure that newly created and enhanced habitats will meet their desired habitat type and condition within the required time frame.

1 INTRODUCTION

1.1 BACKGROUND

In December 2019, GS Ecology produced a Preliminary Ecological Appraisal (PEA) to inform a planning application of the site¹. This included a Biodiversity Net Gain (BNG) Assessment using the DEFRA issued Biodiversity Metric 2.0², which resulted in a 16.77% increase in biodiversity units. Subsequently, planning permission was granted on the 22nd October 2020 (Ref. no: 20/00116/FUL).

Future Nature WTC was commissioned by University College on 20th July 2021 to undertake an independent BNG Assessment using the updated DEFRA issued Biodiversity Metric 3.0³. The project brief also included a suite of surveys to reassess habitats and hedgerows on site, to ensure changes are reflected in BNG calculations and in the suitability of habitats / structures for protected species.

University College's stated aim is to meet Berkshire, Buckinghamshire and Oxfordshire Wildlife Trusts' target of 20% Biodiversity Net Gain. This is exceeding the 5% BNG that must be demonstrated to Oxford City Council in accordance with their Local Plan (Appendix F).

1.2 SITE LOCATION & DESCRIPTION

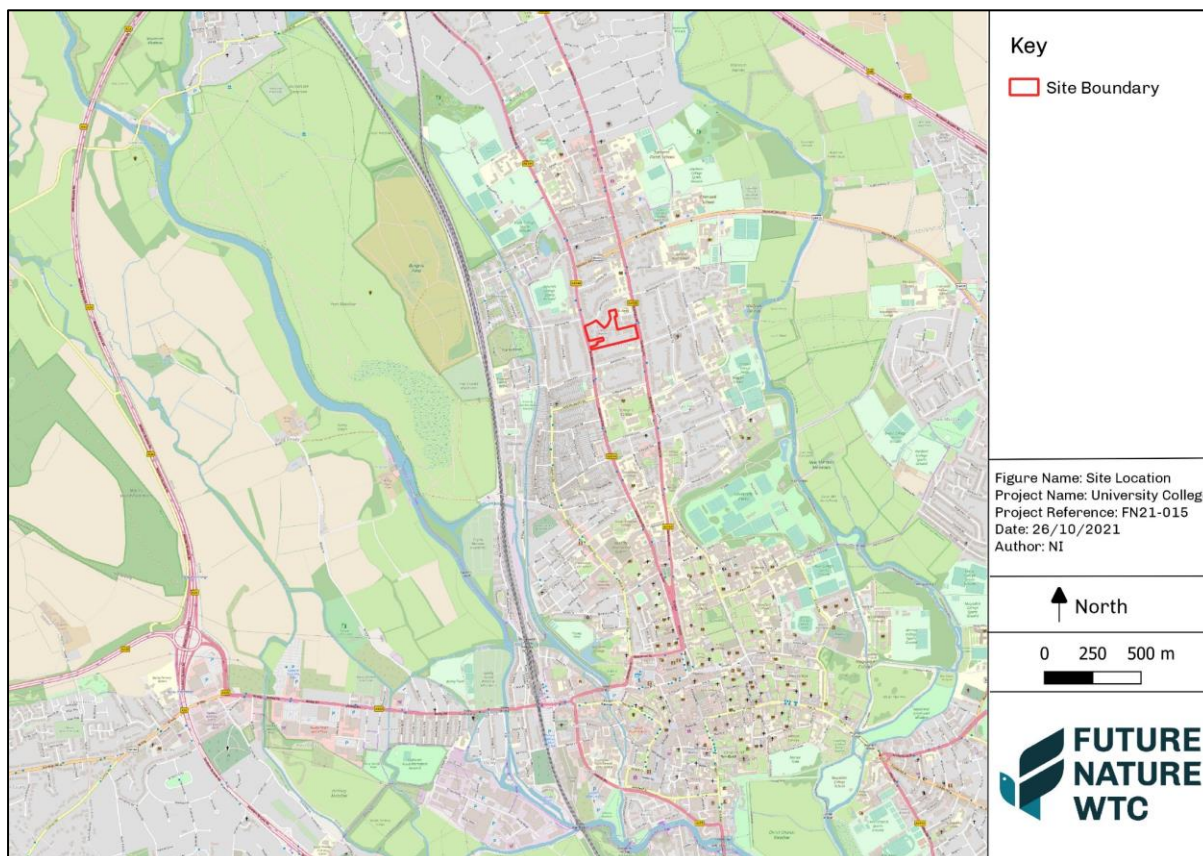
The site is located in North Oxford, adjacent to Banbury Road, OX2 6LA at an approximate central grid reference of SP 50872 08176, as illustrated in Figure 1. The survey area is approximately 2.55 ha and comprises of accommodation and gardens associated with student residence and Fairfield Residential Home.

¹ Davies, R. (2019). Preliminary Ecological Appraisal (Comprising An Extended Phase 1 Habitat & Protected Species Scoping Survey, And, A Preliminary Bat Roost Assessment). GS Ecology.

² Crosher, I, et al., The Biodiversity Metric 2.0: auditing and accounting for biodiversity value. User guide (Beta Version, July 2019). Natural England.

³ Panks, S, et al., July 2021. Biodiversity Metric 3.0: Auditing and Accounting for Biodiversity – User Guide. Natural England.

Figure 1. Site Location



1.3 REPORT OBJECTIVES

The objectives of this report are to:

- Identify the likely ecological constraints associated with the project
- Present the baseline survey findings and assess the feasibility for the development to achieve BNG
- Advise the team on the implementation of BNG principles and measures to maximise BNG opportunities on site
- Identify on site biodiversity enhancement opportunities

2 METHODOLOGY

2.1 DESK STUDY

A desk study was undertaken to assess the nature of the surrounding habitats and included:

- Assessment of aerial imagery and Ordnance Survey mapping

- A search of the Multi Agency Geographic Information for the Countryside Website⁴ (MAGIC) for designated sites and European protected species within 2 km of the survey area
- Data search undertaken by Thames Valley Environmental Records Centre

2.2 FIELD SURVEY

2.2.1 Habitats/Protected Species

The site was subject to a preliminary walk over, during which habitat types were identified and their boundaries mapped. Habitat types were defined as per the UK Habitat Classification criteria⁵. During the preliminary survey, the site was checked for evidence of protected and priority species, and habitats were assessed for their potential to support them.

Bat survey effort and assessment are based on best practice guidelines produced by the Bat Conservation Trust⁶, which classifies the suitability (negligible, low, moderate or high) of the roosting, foraging and commuting habitats within the site. Full details of the classifications are provided in Appendix G. Structures within the site to be impacted by the development were inspected⁷ externally for Potential Roost Features (PRFs) and to record any field signs, including bats, is present.

The survey visits were undertaken on 30/07/2021, 04/08/2021 and 11/08/2021 by Nick Iazard BSc (Hons) – Assistant Ecologist in the weather conditions presented in Table 1.

Within each semi-natural habitat type vascular plant species were recorded as well as an assessment of their abundance. Their relative abundances are based on the DAFOR scale (D – Dominant, A – Abundant, F – Frequent, O – Occasional, R – Rare). A species list is present within Appendix B. A detailed list of tree species have been identified within the Arboricultural Impact Assessment⁸ produced by FLAC and have therefore not been included within the species list.

⁴ Multi Agency Geographic Information for the Countryside (MAGIC) www.magic.gov.uk

⁵ The UK Habitat Classification, Habitat Definitions Version 1.1 (2020)

⁶ Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

⁷ It should be noted that assessment relates entirely on the structure or tree's suitability to support bats and or other protected species. Assessment must in no way be taken as an assessment of the structure's integrity or safety.

⁸ Forbes-Laird, J. (December 2019). University College Oxford North Site, Arboricultural Impact Assessment

Date	Average Temperature	Cloud Cover	Precipitation	Wind Conditions (Beaufort scale)
30/07/2021	16°C	100%	Moderate continuous	2
04/08/2021	21°C	25%	None	1
11/08/2021	20°C	25%	None	1

2.3 BNG ASSESSMENT

Each habitat and hedgerow feature on site was subject to a condition assessment using the DEFRA issued Biodiversity Metric 3.0. All habitats are assigned as good, moderate, or poor in accordance with the criteria outlined in their respective condition assessment sheet⁹.

The Proposed Univ North site plan¹⁰ produced by Níall McLaughlin Architects was used to calculate the post-development BNG units. The number, condition and size of urban trees to be felled and subsequently planted, were identified within the Arboricultural Impact Assessment¹¹ produced by FLAC. This was converted into an area using the BNG Metric 3.0 Urban tree helper tool.

2.4 LIMITATIONS TO SURVEY

The field survey and associated habitat condition assessment were undertaken within the optimal growing season. The results presented here are therefore considered not to be significantly constrained.

The extent of built linear features (e.g. walls and fences) were not mapped. This is not considered to a constraint, given that they do not contribute any biodiversity units.

2.5 ASSUMPTIONS

Where it is unclear whether newly created features will meet their aspired condition, a 'worst-case' scenario has been applied by setting their condition to poor. This has been applied to a small area of orchard proposed to be created on modified grassland.

⁹ Biodiversity Metric 3.0: Auditing and accounting for biodiversity – Technical Supplement part 1a (2021)

¹⁰ McLaughlin, N. (December 2019). Proposed Site Plan, 1711 – University College Oxford – North Site

Given the current condition of hedgerows on site, newly created hedgerows have been assigned a condition score of 'moderate'. This is reasonable given that the majority of hedgerows on site are in 'good' condition.

2.6 ASSESSMENT METHODOLOGY

Guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) is utilised to provide receptor valuations. The level of value of specific ecological receptors is assigned using a geographic frame of reference. For example, international value being most important i.e. Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Proposed Special Protection Areas (pSPAs), then national i.e. Sites of Special Scientific Interest (SSSI) , regional, county i.e. Local Wildlife Sites (LWS), district i.e. Local Nature Reserves (LNR), local and lastly, within the immediate zone of influence of the site only (low). Examples detailing each value is outlined in Appendix D.

3 RESULTS

3.1 DESK STUDY

3.1.1 Designated Sites

A search of the MAGIC and Thames Valley Environmental Records Centre data indicated that there are 5 statutory designated sites and 4 non statutory designated sites within the 2 km search area. Designated site information is summarised in Table 2.

Designation	Site Name	Reason for Designation	Distance from Survey Area (Closest Point)
Statutory designated sites			
SAC	Oxford Meadows	Designated for its Lowland hay meadows that have been shaped by long-term grazing and hay-cutting. It is the larger of the only two sites in the UK for creeping marshwort.	725 m
SSSI	Port Meadow with Wolvercote Common & Green	The site is suspected to have been grazed for over a millennium. It includes a series of neutral grasslands situated in the Thames floodplain. They have been key in studying the effect of grazing and habitat management on the ecology of grasslands. ¹²	725 m
SSSI	Hook Meadow and The Trap Grounds	Unimproved neutral meadows within the River Thames flood plain. It supports flora indicative of traditional hay field management such as cowslip, adder's tongue and greater burnet. There are nesting opportunities for reed warbler and whitethroat, and wetter areas support wintering snipe. ¹³	725 m
SSSI	New Marston Meadows	The site contains agriculturally unimproved neutral meadows within the River Cherwell flood plain. Plants indicative of ancient grassland are present including meadow-rue, pepper-saxifrage and adder's tongue fern. ¹⁴	746 m
SSSI	Magdalen Grove	Designated for its geological importance. The inter-glacial sedimentary deposits have yield mammal bones, mollusca and pollen. ¹⁵	1955 m

¹² <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000153.pdf>

¹³ <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1002183.pdf>

¹⁴ <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1006612.pdf>

¹⁵ <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1005955.pdf>

Designation	Site Name	Reason for Designation	Distance from Survey Area (Closest Point)
Non-Statutory designated sites			
LWS	Trap Grounds	A small area of rare reedbed habitat, supporting a good number of birds of conservation concern.	437 m
LWS	Almonds Farm & Burnt Mill Fields	A wet pasture with an alkaline, lime-rich soil providing a species-rich floral composition. This includes flat-sedge, greater water parsnip, bristle club-rush and marsh arrow-grass.	1349 m
LWS	Binsey Green	An area of semi-improved grassland which holds a significant population of the internationally listed creeping marshwort.	1382 m
LWS	Great Meadow	A previously unmanaged meadow turned wet woodland. It is undisturbed and provides a good habitat for birds, including bullfinch.	1848 m

3.1.2 Priority Habitats

One priority habitat (as defined within Appendix F)¹⁶ is present within the site boundary: An area of traditional orchard. The immediate area is urban and consists of residential housing, the majority of priority habitats are positioned adjacent to the River Thames and River Cherwell.

A search of the MAGIC website and the Thames Valley Environmental Record Centre data identified the following priority habitats within 2 km:

- Coastal and Floodplain Grazing Marsh
- Lowland Meadows
- Lowland Fens
- Lowland Mixed Deciduous Woodland
- Reedbeds
- Traditional Orchard

3.1.3 European Protected Species Licencing

The MAGIC website identified 7 granted European Protected Species (EPS) licenses within 2 km for bat species. See Table 3 for more details.

¹⁶ UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008. (Updated Dec 2011)

Reference	Species	Start and End Date	Type	Distance from Survey Area (Closest Point)
2016-22076-EPS-MIT	Common pipistrelle	08/03/2016 08/03/2021	Destruction of a resting place	708 m
2016-22076-EPS-MIT-1	Common pipistrelle	22/06/2016 08/03/2021	Destruction of a resting place	708 m
2014-2499-EPS-MIT	Common pipistrelle	02/09/2014 30/09/2019	Destruction of a resting place	883 m
2014-2499-EPS-MIT-1	Common pipistrelle	24/02/2015 30/09/2019	Destruction of a resting place	883 m
EPSM2012-4539	Common pipistrelle	01/08/2013 30/05/2016	Destruction of a resting place	1714 m
2016-20931-EPS-MIT	Common pipistrelle, soprano pipistrelle	22/02/2016 28/02/2021	Destruction of a resting place	1853 m
2015-15232-EPS-MIT	Soprano pipistrelle	14/10/2015 13/10/2020	Destruction of a resting place	1920 m

3.1.4 General Land Use

A review of aerial imagery and Ordnance Survey mapping indicates immediate land use to be predominately urban housing. The wider countryside consists of a mosaic of arable farming and meadows within the River Thames and River Cherwell Floodplains’.

3.2 PROTECTED AND PRIORITY SPECIES

3.2.1 Local Records Centre

A summary of the records of protected or otherwise notable species provided by Thames Valley Environmental Record Centre is available in Appendix E. The full data search results are available on request.

3.3 FIELD SURVEY

3.3.1 Habitat Assessment

A total of 7 habitat features and 3 hedgerow features were recorded during the UK Habitat Classification survey. The location of habitat and hedgerow features are presented in the baseline and post-development maps, figures 2 and 3 respectively. A summary of each habitat is provided below in Table 4. The condition assessments for each habitat are presented within Appendix H.

Habitat		Description	Condition
Primary code	Secondary code(s)		
Line of trees w1g6	48 – Non-native	A linear group of 8 leyland cypress within the southern orchard compartment at the northern boundary of the site. The eastern side of the trees are in particularly poor condition and lack an undisturbed margin.	Poor
Hedgerow (priority habitat) h2a	47 – Native	Well maintained, ornamental hedgerows predominantly comprising of yew, box and beech.	Mixed ¹⁷
Other hedgerow h2b		A sparser hedgerow comprising of privet, yew & hazel.	Poor ¹⁸
Other neutral grassland g3c	16 – Tall herb 17 – Ruderal / ephemeral 80 - Unmanaged 91 – Development site	An area of tall grassland that has been unmanaged on a formerly disturbed habitat. This cannot meet the criteria for ‘Open Mosaic Habitats on Previously Developed Land’ given that it does not meet criteria (1) “Open Mosaic habitat at least 0.25 ha in size”. It does however closely meet ‘26d’ within the UKHab Field Key. The sward is very tall and comprised primarily false oat-grass and Yorkshire fog. It includes a leggy	Poor

¹⁷ See ‘Appendix I’ for the condition assessments for each hedgerow.

¹⁸ The condition of ‘Hedge Ornamental Non Native is locked at ‘poor’.

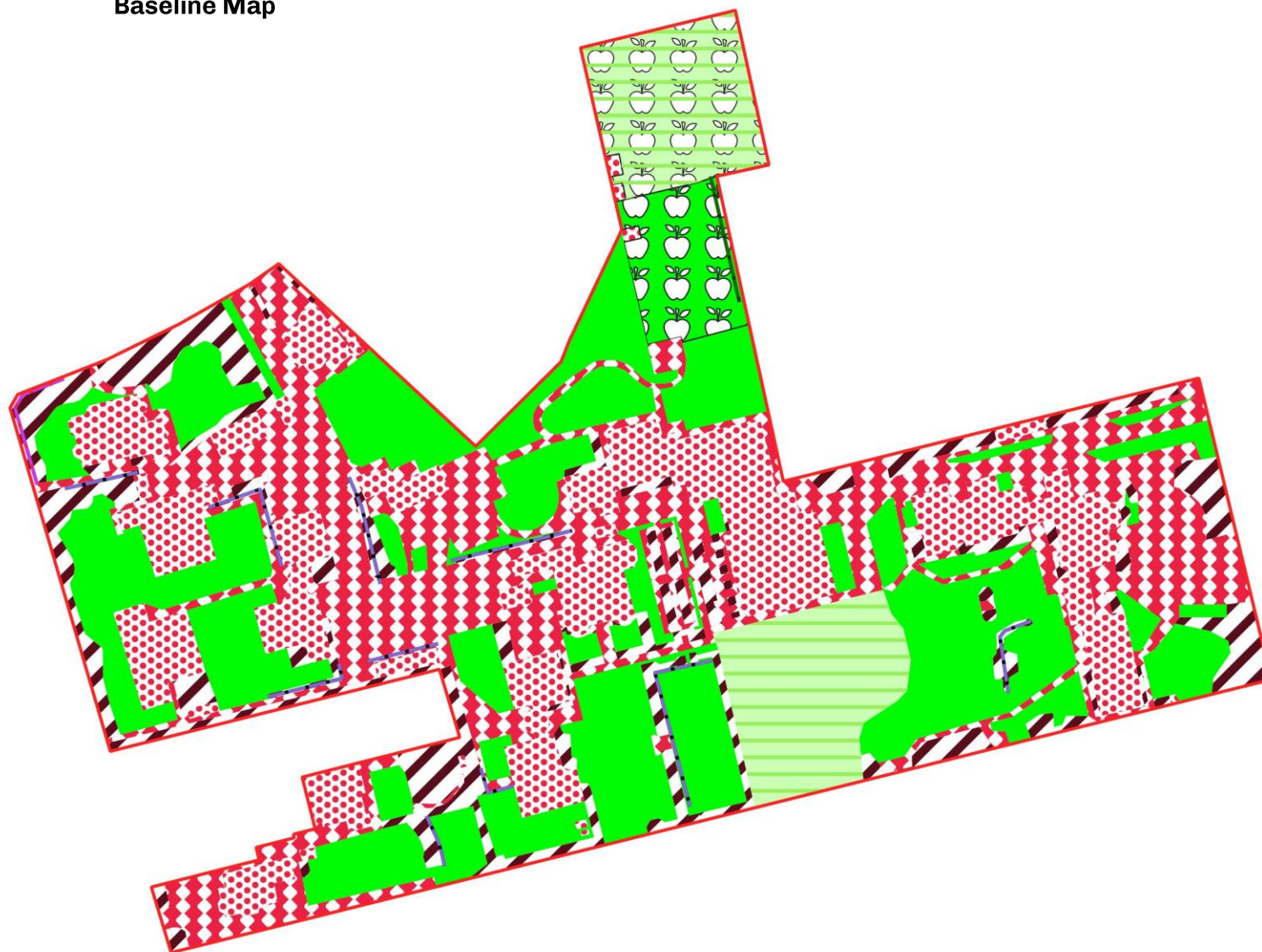
	161 – Tall or tussocky sward	stand of common nettle and hedge bindweed in the southwestern extent. A number of garden escapes including caper spurge and Wilson’s honeysuckle are present along the southern boundary.	
Other neutral grassland g3c	21 – Traditional orchards 64 – Mown paths	The northernmost area of traditional orchard. It includes a mixture of species such as pear, medlar and plum, though apple is the most dominant. A mown path is present through the centre, and around the perimeter of this area, and is surrounded by areas where grassland has been left to grow tall. There are typically 9-15 species / m ² and the sward is primarily comprised of false oat-grass, perennial rye-grass, cock’s foot and Yorkshire fog. There is a significant amount of hedge and field bindweed growing around the perimeter of the site, and around the fruit tree stems.	Moderate
Modified grassland g4	11 – Scattered trees 66 – Frequently mown	Typical lawn habitat present throughout the site. It is species poor (<9 species / m ²) primarily comprising of perennial rye-grass and fescue sp. The lawn areas are frequently mown, and cut very short.	Moderate
Modified grassland g4	11 – Scattered trees 66 – Frequently mown	A 0.02 ha area of species poor grassland located within the southeasternmost part of the site boundary. The grassland is cut short, though some areas are damper and partially shaded which contain a number of wildflower species such as ground ivy and black medick. The grassland is dominated by perennial rye-grass, and fescue sp.	Good
Modified grassland g4	21 – Traditional orchards 77 - Neglected	The southernmost area of traditional orchard. Similar to the northernmost orchard, apple is the dominant species, though pear and hawthorn are present to a lesser degree. No bindweed is present within this area, however there is a significant amount of common nettle. The sward is species poor and dominated by perennial rye-grass and cock’s foot.	Poor

Built-up areas and gardens u1	231 – Vegetated garden	There is a mixture of garden planting across the site, including lavender within flower beds and introduced and ornamental shrubs within borders.	Poor ¹⁹
Buildings u1b5	98 – Institutional building	There are a number of institutional buildings on site, as well as Fairfield residential home. The condition of, and associated bat roosting suitability has not changed significantly since the 2019 survey undertaken by GS Ecology.	N/A
Other developed land u1b6		Areas of developed land not associated with buildings. Including tarmac roads and pathways.	N/A

¹⁹ The condition of 'vegetated garden' within BNG Metric 3.0 is locked at 'poor'.

Figure 2: UK Habitat Classification

Baseline Map



Key

- Site Boundary
- UKHab Linear
- w1g6 - line of trees
- h2b - other hedgerow
- h2a - hedgerow (priority habitat)
- UKHab Polygons
- g3c - other neutral grassland
- g3c-21 - other neutral grassland - traditional orchard
- g4 - modified grassland
- g4-21 - modified grassland - traditional orchard
- u1 - built-up areas and gardens
- u1b5 - buildings
- u1b6 - other developed land

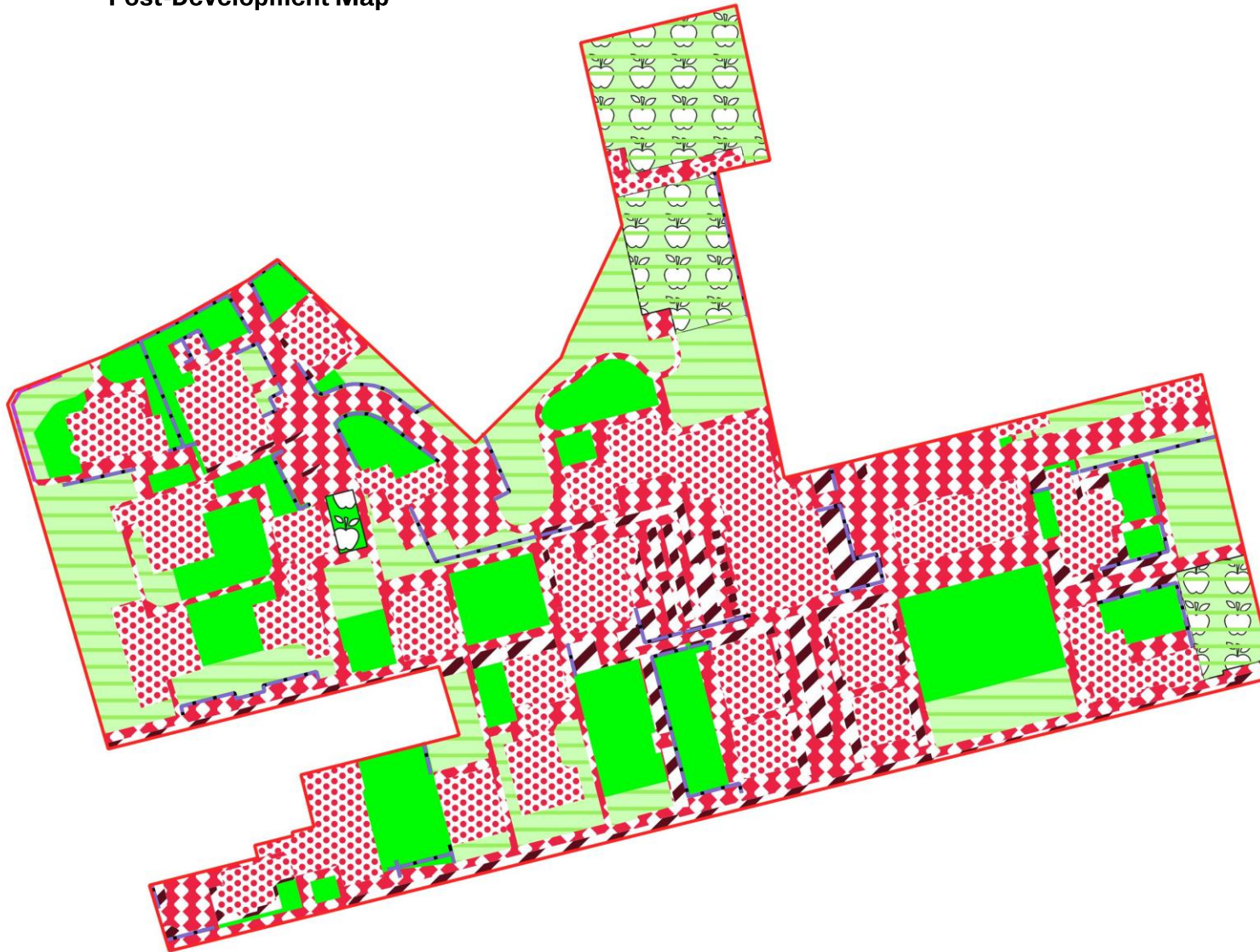
Figure Name: UKHab Pre-development
 Project Name: University College
 Project Reference: FN21-015
 Date: 27/10/2021
 Author: NI

North

0 25 50 m



Figure 3: UK Habitat Classification
Post-Development Map



Key

- Site Boundary
- UKHab Linear
- h2b - other hedgerow
- h2a - hedgerow (priority habitat)
- UKHab Polygons
- g3c - other neutral grassland
- g3c-21 - other neutral grassland - traditional orchard
- g4 - modified grassland
- g4-21 - modified grassland - traditional orchard
- u1 - built-up areas and gardens
- u1b5 - buildings
- u1b6 - other developed land

Figure Name: UKHab Post-development
 Project Name: University College
 Project Reference: FN21-015
 Date: 27/10/2021
 Author: NI

↑ North

0 25 50 m



3.3.2 Invasive non-native species

No non-native invasive species on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were identified during the field survey.

3.3.3 Protected Species

3.3.3.1 Bats

The data search returned a number of bat records in close proximity to the site, though did not return any within the site boundary. Two injured brown long-eared bats were recorded in 2006, located approximately 500 m north. The habitats on site that are suitable for the use of bats are outlined in Table 5.

Habitat	Use for Bats
Neutral grassland	Foraging
Mature trees	Roosting, Foraging and Commuting
Hedgerows	Commuting

No signs of bats were seen during the survey. The buildings to be affected by the works were subject to an external inspection. The suitability of which remained “negligible” as classified in the 2019 PEA undertaken by GS Ecology. No additional PRFs were observed. The Norway maple assigned as “low” suitability was also reinspected, and retains this suitability. The tall neutral grassland on site provides an immediate foraging habitat for bats roosting in the surrounding area. However the site is poorly connected to the wider countryside.

All buildings to be affected by the development have negligible suitability for roosting bats and do not require further survey.

3.3.3.2 Birds

All trees and hedgerows on site provide nesting opportunities for birds. Table 6 lists the species of medium and high conservation concern status recorded during the survey.

Species	Comment	Conservation Status ^{20 21}
Dunnock	Calling within trees along western boundary	UK BAP, Amber-listed

²⁰ National Priority Species are species of principal importance listed in Section 41 of the NERC Act (2006).

²¹ Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708-746.

3.3.3.3 Great Crested Newt (*Triturus cristatus*)

The data search did not return any records of great crested newt within the site or surrounding area. No waterbodies are present within the site boundary, the nearest of which is located 580 m northwest.

3.3.3.4 Badger (*Meles meles*)

The data search did return records of badger, though none were present within or immediately adjacent to the site. The tall neutral grassland does provide suitable foraging habitat. A fox earth was identified within this area, based on fresh spoil and the shape of the entrance hole. However there were no signs of badger activity such as setts, latrines or hairs recorded during the field survey.

3.3.3.5 Reptiles

The data search did not return any records of reptiles within the site or surrounding area. The tall grassland, could provide sufficient shelter for slow worm, however this area is new and poorly connected with other suitable habitats.

3.3.3.6 Water Vole (*Arvicola amphibious*)

The data search did return records of water vole along the Oxford Canal. However, the site itself contains no water features and is therefore unsuitable. No field signs were seen.

3.3.3.7 Otter (*Lutra lutra*)

The data search did return records of otter along the River Thames, Oxford Canal and River Cherwell. However, the site itself contains no water features and is therefore unsuitable. No field signs were seen.

3.3.3.8 Hazel Dormouse (*Muscardinus avellanarius*)

The data search did not return any records of hazel dormouse within the site or surrounding area. Whilst there are standard broadleaved trees scattered throughout the site, they lack the dense understorey preferred by this species. No field signs were recorded during the survey. The site is poorly connected to suitable habitats and is unlikely to support an isolated population.

3.3.4 Priority Species

3.3.4.1 Hedgehog (*Erinaceus europaeus*)

The data search did not return any records of hedgehog within the site. The habitats on site are intensively managed and provide limited hibernation opportunities.

3.3.4.2 Brown Hare (*Lepus europaeus*)

The data search did not return any records of brown hare within the site or surrounding area. The habitats on site are not suitable, as they provide insufficient shelter. No field signs were seen.

3.3.4.3 Butterflies

The data search did not return any records of priority butterfly species within the site or surrounding area. No priority butterfly species were seen during the survey. The habitats on site are suitable to support a number of common species, such as peacock, gatekeeper and meadow brown.

3.4 BNG ASSESSMENT

The biodiversity unit calculations for baseline habitat and hedgerow features are presented in Tables 7 and 8 respectively. The technical evidence associated with Biodiversity Metric 3.0 is presented in Appendix C. Refer to the accompanying spreadsheet for full details on BNG calculations.

Table 7: Biodiversity Units of Habitats on site pre- and post-development

Pre-development Habitat	Area (Ha)	Condition	Biodiversity Units	Post-development habitat	Area (Ha)	Condition	Biodiversity Units
Developed land; sealed surface	1.09	N/A	0.00	Developed land; sealed surface	1.25	N/A	0.00
Vegetated garden	0.32	Poor	0.64	Vegetated garden	0.18	Poor	0.36
Modified grassland	0.02	Good	0.12	<i>To be replaced post-development</i>			
Modified grassland	0.79	Moderate	3.16	Modified grassland	0.46	Moderate	1.84
Traditional orchards	0.12	Moderate	1.44	Traditional orchards	0.11	Moderate	1.32
Traditional orchards	0.07	Poor	0.42	Traditional orchards	0.07	Moderate	0.58
Other neutral grassland	0.14	Poor	0.56	<i>To be replaced post-development</i>			
Urban tree ²²	0.12	Poor	0.48	<i>To be replaced post-development</i>			
Urban tree	0.11	Moderate	0.88	<i>To be replaced post-development</i>			
<i>Not present on site pre-development</i>				Other neutral grassland	0.43	Moderate	2.88
<i>Not present on site pre-development</i>				Traditional orchards	0.01	Poor	0.05
<i>Not present on site pre-development</i>				Traditional orchards	0.04	Moderate	0.24
<i>Not present on site pre-development</i>				Urban tree	0.42	Moderate	1.28
Totals (2 decimal places)	2.55		7.70		2.55		8.55

²² Please note that the area associated with urban trees is not included in the total area calculations.

Existing feature	Length (Km)	Condition	Biodiversity Units	Post-development feature	Length (Km)	Condition	Biodiversity Units
Native hedgerow	0.171	Good	1.02	Native hedgerow	0.042	Good	0.25
Native hedgerow	0.043	Moderate	0.17	Native hedgerow	0.043	Moderate	0.17
Hedge ornamental non native	0.030	Poor	0.03	Hedge ornamental non native	0.030	Poor	0.03
Line of trees	0.028	Poor	0.06	<i>To be replaced post-development</i>			
<i>Not present on site pre-development</i>				Native hedgerow	0.555	Moderate	1.86
Totals (2 decimal places)	0.27		1.28		0.67		2.31

Onsite baseline	Habitat units	7.70
	Hedgerow units	1.28
Onsite post-intervention	Habitat units	8.55
	Hedgerow units	2.31
Total unit change	Habitat units	0.85
	Hedgerow units	1.03
Total % change	Habitat units	11.08%
	Hedgerow units	80.04%

4 SITE ASSESSMENT

4.1 HABITATS

Based on current assessment the site is considered to be of local ecological value. The orchard on site is a priority habitat, of which there are few of in the surrounding urban area.

4.2 PROTECTED SPECIES

4.2.1 Bats

Overall, roosting habitat, commuting and foraging habitat suitability are considered to be low in relation to the Bat Conservation Trust's Guidance (summarised in Appendix G).

All buildings to be affected by the development have negligible suitability for roosting bats and do not require further survey.

The single Norway Maple retains its low suitability for bats, and a precautionary soft-fell methodology should be applied. The other trees marked for felling on site have negligible suitability for roosting bats.

4.2.2 Birds

The site is considered to be of low value. The trees and hedgerows on site do provide nesting opportunities. However it is considered that the site does not currently support a significant population of high conservation value species. There are similar nesting opportunities present within hedgerows and trees in the surrounding area.

4.2.3 Great Crested Newt (*Triturus cristatus*)

The site is considered to be of low value. There are no waterbodies present within 500 m of the site, and terrestrial opportunities on site are limited. There are no records of Great Crested Newt in the surrounding waterbodies, which are poorly connected to the site, as it is surrounded by busy roads.

4.2.4 Badger (*Meles meles*)

The site is considered to be of low value. Whilst there is suitable foraging habitat within the grassland on site, there is no evidence of this species currently using the site. It is poorly connected to other suitable habitat.

4.2.5 Reptiles

The site is considered to be of negligible value. The tall grassland could provide areas with suitable hibernaculum, however it is poorly connected and surrounded by well managed short-grassland.

4.2.6 Water Vole (*Arvicola amphibious*)

The site is considered to be of negligible value. No waterbodies are present within the site boundary.

4.2.7 Otter (*Lutra lutra*)

The site is considered to be of negligible value. No waterbodies are present within the site boundary.

4.2.8 Hazel Dormouse (*Muscardinus avellanarius*)

The site is considered to be of negligible value. The habitats are unsuitable and the broadleaved trees lack the dense understorey preferred by this species. The site is not connected to suitable habitat in the wider countryside.

4.3 PRIORITY SPECIES

4.3.1 Hedgehog (*Erinaceus europaeus*)

The site is considered to be of low value. There are limited hibernation opportunities within the site, which is poorly connected to the surrounding area and bound by busy roads either side.

4.3.2 Brown Hare (*Lepus europaeus*)

The site is considered to be of negligible value. The habitats are unsuitable, and the site is too small to support this species.

4.3.3 Butterflies

The site is considered to be of low value. The habitats on site are suitable to support a number of common butterfly species. There are similar opportunities in the surrounding area.

5 FEASIBILITY OF BNG

This section identifies the enhanced and created habitats that will result in an 11.08% BNG. It will identify how the habitat criteria will be met and the time appointed to meet the desired condition. Opportunities to further enhance BNG will be identified. It will also identify how the good practice principles for development have been achieved²³.

5.1 BNG GOOD PRACTICE PRINCIPLES

The mitigation hierarchy has been implemented throughout the design process to:

- Avoid impacts wherever possible through project design
- Minimise impacts where they cannot be avoided
- Restore habitats that are retained or could be impacted by the development
- As a last resort, compensate for the loss, or damage to habitats. The priority should be on-site compensation, and if this is not possible, off-site compensation should be sought.

All appropriate steps have been taken to minimise impacts on biodiversity. The most valuable habitats for wildlife on site (traditional orchards) are to remain largely unaffected. On-site habitat enhancements and creation will produce more valuable habitats for wildlife and leave the site in a better condition for biodiversity than it is currently. The risks have been addressed within the BNG Metric, and the likely gains greatly exceed the 5% improvement as identified in policy G2 of the Oxford City Plan (Appendix F)

5.2 ENHANCED HABITATS

In total, one area of traditional orchard is to be enhanced. The northern-most area of orchard presents a number of opportunity to be improved, however it will not meet 'good' condition until veteran or ancient trees are present. Therefore whilst enhancements to this habitat will be identified within a management plan, an increase in habitat condition has not been applied within the metric calculations.

²³ CIEEM, CIRIA, IEMA. (2016). Biodiversity Net Gain: Good practice principles for development

5.2.1 Traditional Orchards

The southernmost area of traditional orchard is to be enhanced from 'poor' condition to 'moderate' condition. The baseline habitat condition criteria is presented in Appendix H. Table 10 compares the baseline to the desired condition and indicates the works required to achieve this. The desired condition must be met within 15 years, this is easily achievable once improvements occur to the underlying species-poor sward.

Condition Assessment Criteria		Baseline	Post development	Feasibility
1	Presence of ancient and / or veteran trees. NB - this criterion is non-negotiable for achieving good condition.	N	N	
2	Less than 5% of fruit trees are smothered by scrub. Small patches of dense scrub and/or scattered scrub growing between trees can be beneficial to biodiversity, however these should occupy less than 10% of ground cover.	Y	Y	
3	There is evidence of formative and/or restorative pruning to maintain longevity of trees.	N	Y	Formative pruning to occur on newly planted fruit trees.
4	Presence of standing and/or fallen dead wood: all mature trees have standing or fallen branches, stems and stumps greater than 10 cm diameter associated with them.	N	Y	Wood from on-site felling operations to be retained and used to create log-pile habitats within orchard. Large fallen dead-wood to remain in place.
5	At least 95% of the trees are free from damage caused by humans or animals e.g. browsing, bark stripping or rubbing on non-adjusted ties.	Y	Y	
6	Sward height is varied (between 5 cm and 30 cm) and small patches of bare ground are present creating structural diversity. Up to 10% cover of patches of tall herb vegetation may be present.	N	Y	A similar structure to be created as the northernmost orchard, with a mown path surrounded by tall grassland.
7	Species richness of the grassland is equivalent to a medium, high, or very high distinctiveness grassland.	N	Y	Reseeding works will increase species diversity, and exceed 9 species per m ² . This will classify the habitat as 'other neutral grassland', a medium distinctiveness habitat.
8	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ³ make up less than 10% of ground cover.	N	Y	Undesirables to be removed in orchard improvement works and frequent weeding of undesirables.
Condition Assessment Result				
Good: Passes 6, 7 or 8 of 8 criteria, including non-negotiable criterion 1				
Moderate: Passes 4 or 5 of 8 criteria; OR Passes 6 or 7 of 8 criteria, excluding non-negotiable criterion 1			Y	
Poor: Passes 0, 1, 2 or 3 of 8 criteria		Y		

5.3 CREATED HABITATS

There will be a total of 3 newly created habitats. This includes a mosaic of 'other neutral grassland' across the site, as well as two new areas of traditional orchard.

5.3.1 Traditional Orchards

The smaller area (0.01 ha) of traditional orchard is to be created east of the Bennet Building, within the northwest quadrant of the site. The current landscape plans identify that the fruit trees are to be planted on an area of mown grass. Given the current manicured style of lawns on site, it has been assumed that this will only meet 'poor' condition.

If this area of traditional orchard were to be created on a 'other neutral grassland' and allowed to incorporate dead wood features, as well as a taller sward it could realistically meet the criteria for 'moderate' condition. This condition must be met within 20 years. If applied, it would result in an increase of 0.01 habitat units producing a total of 11.19% BNG.

The larger area (0.04 ha) of traditional orchard is to be created in the southeastern corner of the site. This area can reasonably achieve a 'moderate' condition given that the principles applied will be similar to the northernmost orchards that are to undergo habitat restoration. Good condition has not been considered given the time taken for trees to reach ancient / veteran status.

5.3.2 Other neutral grassland

A mosaic of 'other neutral grassland' is to be created across the site, primarily on areas currently classified as 'modified grassland'. The total amount to be created measures 0.43 ha. In order to meet this definition the habitats must exceed 9 species per m². This can reasonably be achieved and given the general absence of bracken and scrub on site, the newly created grassland should meet the 'moderate' condition within 5 years.

If the created 'other neutral grassland' were to meet 'good' condition this would result in an increase of 0.73 habitat units producing a total of 20.62% BNG. This condition must be met within 10 years. In order to meet this condition, all 5 of the following criteria must be met:

1. The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.
2. Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.
3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.
4. Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.
5. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of undesirable species and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.

An adaptive management plan, combined with ongoing monitoring should ensure that these criteria can be met within 10 years. Criteria 2,3,4 and 5 are achievable given the current conditions on site, and through changes in site management (e.g. a reduction in mowing regime). Ongoing monitoring will be key to meet criteria 1 to ensure species richness exceed 9 species m², and that perennial rye-grass does not become dominant within the sward. The habitat within the northernmost orchard currently meets the criteria 1, and it is therefore reasonable to replicate this grassland elsewhere on site.

5.4 CREATED HEDGEROWS

A total length of 0.555 km of hedgerow is to be created. Given the current structure of hedgerows on site (predominantly single species, native) these have been entered as a 'native hedgerow'. Their condition has been entered as 'moderate' given that no native hedgerows on site currently score lower than this, and therefore it is likely that this will be their minimum condition following the current management regime.

If instead the newly created hedgerows met the definition of 'native species rich hedgerow' this would result in an increase of 1.86 hedgerow unit producing a total of 224.73% BNG. In order to meet the criteria of 'species rich' the hedgerow must contain at least five native woody species.²⁴

6 RECOMMENDATIONS

6.1 AVOIDANCE STRATEGIES

The following measures should be incorporated into the design scheme to avoid impacts on wildlife:

- All trees/hedgerow and their root protection areas will be protected from damage, in accordance with BS 5837 (2012)²⁵.
- External lighting that may affect the site's suitability for bats will be avoided. If required this will be limited to low level, avoiding use of high intensity security lighting and will be directed away from the woodland, hedgerow and dark areas.
- Lighting should follow the BCT and ILP (2018) guidance²⁶. and include:
 - Recess lighting within buildings.
 - Incorporating dark zones the buildings where there is connectivity to the wider vegetated area.
 - Using LED lighting that is in the warm spectrum (2700 K) to minimise impact on bats.
 - Using motion sensors to trigger lighting for short periods of time when people are present, as opposed to using timers as this reduces the amount of time lights are on during the night.

²⁴ DEFRA (2007) Hedgerow Survey Handbook. A standard procedure for local surveys in the UK.

²⁵ British Standards Institution. (2012) Trees in Relation to Design, Demolition and Construction – Recommendations (BS 5837).

²⁶ Bat Conservation Trust and Institute of Lighting Professionals (2018) Bats and Artificial Lighting in the UK.

6.2 ADDITIONAL BIODIVERSITY ENHANCEMENTS

The data search and past surveys identified a number of bat records within the site and surrounding area. To ensure that the development is in line with the National Planning Policy Framework and Oxford Local Plan (Appendix F) it is recommended that a number of bat boxes are installed on site. This can be done using integrated bat boxes to fit in with the structure itself. Alternatively crevice bat boxes can be installed on surrounding mature trees (such as Greenwoods' ecohabitat crevice bat box) for species such as common and soprano pipistrelle. Three bat boxes should be grouped together and positioned where they are:

- At least 4 m above the ground
- Sheltered from strong winds
- Facing a south-east to south-west direction
- Away from artificial light sources
- In close proximity to treelines and hedgerows

For any tree works to mature trees, consider retaining the main stem and leaving a standing monolith. The standing deadwood is of benefit to bats and invertebrates, and artificial features could be added to the stem to provide a 'natural looking' bat roost.

When tree management or felling works occur, dead wood habitat should be created in discrete corners of the site and within the traditional orchards. This can be made by stacking wood and leaf litter to provide a valuable habitat for invertebrates, and to provide hibernacula for small mammals. The provision of hedgehog hotels (which can be purchased pre-built, or created with materials won on site) throughout will help facilitate their safe passage through the site.

To increase opportunities for nesting birds, consider installing a variety of nest boxes across the site. General purpose bird boxes could be purchased (ideally constructed from woodcrete material), or built during a community event. House sparrow are a red listed species, and their population could be support through the installation of a terrace nest box. All bird boxes should be positioned away from bat roosting and access features.

Swifts could be encouraged to nest on site through the installation of appropriate nest boxes. These could be incorporated into the new development through the inclusion of integrated 'swift bricks'.

It is recommended that the small (0.01 ha) area of traditional orchard is to be created on 'other neutral grassland' and not on intensely managed 'modified grassland'.

It is recommended that 'species-rich' (> 5 woody species) are created wherever possible on site to provide a diverse range of habitats and food sources for invertebrates.

7 ONGOING MANAGEMENT AND MONITORING

7.1 MANAGEMENT STRATEGY

A 10 year management plan is being produced by Future Nature WTC to provide best practice guidance to ensure that habitats are well-managed for biodiversity. In following this guidance, those newly created habitats will be able to closely match the characteristics of their specific UK Habitat Classification type.

7.2 MONITORING PROGRAMME

In order to ensure that the newly created and enhanced habitats will meet their desired habitat type and condition, a 10 year monitoring programme will be implemented by Future Nature WTC. This will involve an annual visit for years 1 to 5 and a final visit in year 10. At the end of year 5 a progress report will be produced to evaluate if habitats are on course to meet their desired condition.

8 CONCLUSIONS

8.1 PROTECTED/PRIORITY SPECIES

All buildings to be affected by the works have negligible potential to host roosting bats and therefore no further survey effort is required.

No other protected/priority species or signs were identified on site and it is unlikely that they will be affected by the works.

Vegetation clearance should occur outside of the bird nesting season (March to August inclusive) otherwise a nesting bird check should occur prior to any works taking place.

8.2 BIODIVERSITY NET GAIN

The mitigation hierarchy has been considered, and impacts to the most valuable habitats have been avoided. Where there are going to be impacts to habitats, these will be compensated on-site through the enhancement of current habitats and the creation of habitats of greater biodiversity value.

The majority of the site's area is composed of habitats that have a relatively low ecological value. As a result, the baseline score is relatively low. Therefore a BNG of 11.08% is achievable. In order to achieve this the following measures will be undertaken:

- Enhancement of a traditional orchard from 'poor' to 'moderate' condition
- Creation of two areas of traditional orchard
- Creation of a mosaic of 'other neutral grassland' across the site

The BNG can be increased to 20.62% providing that the created 'other neutral grassland' meets the criteria for 'good' condition within 10 years. In order to maximise the likelihood of success, a habitat management plan is to be produced as well as an ongoing monitoring programme to ensure that newly created habitats are on target to meet their desired condition.

The landscape plans will also result in a likely 80.84% increase in hedgerow units. This is achieved through the creation of new native hedgerows. This could be increased to 224.73% if they were replaced with species-rich native hedgerows.

APPENDICES

APPENDIX A – SITE PHOTOGRAPHS

Image 1 – Traditional orchard (moderate condition). Varied sward height between mown paths and tall grassland either side.



Image 2 – Traditional orchard (moderate condition). Bindweed becoming locally dominant along western edge.



Image 3 – Traditional orchard (poor condition). Species poor sward with a significant coverage of common nettle.



Image 4 – Modified grassland (moderate condition). Typical structure of lawns within the site, short, lush green sward.



Image 4 – Modified grassland (good condition).
Small area of grassland bound by planted
borders.



Image 5 – Neutral grassland. Tall grassland
sward within former building site.



Image 6 – Neutral grassland. Area of tall ruderal
vegetation.



Image 7 – Vegetated garden. Typical area of
planted borders present throughout the site.



APPENDIX B – PLANT SPECIES LIST

Scientific Name	Common name	Habitats	Abundance in habitat type (DAFOR)
<i>Acer platanoides</i>	Norway maple	g3c-16,17,80,91,161	R
<i>Achillea millefolium</i>	Yarrow	g4-11,66 (good)	F
		g4-11,66 (moderate)	O
		g3c-16,17,80,91,161	o
<i>Agrostis capillaris</i>	Common bent	g3c-16,17,80,91,161	R
<i>Anthriscus sylvestris</i>	Cow parsley	g3c-21,64	R
<i>Arrhenatherum elatius</i>	False oat-grass	g3c-21,64	F
		g3c-16,17,80,91,161	O
<i>Artemisia vulgaris</i>	Mugwort	g3c-16,17,80,91,161	O
<i>Bellis perennis</i>	Daisy	g4-11,66 (good)	F
		g4-11,66 (moderate)	O
<i>Buddleja</i>	Butterfly bush	g3c-16,17,80,91,161	R
<i>Calystegia sepium</i>	Hedge bindweed	g3c-21,64	F
<i>Centaurea nigra</i>	Common knapweed	g3c-16,17,80,91,161	O
<i>Chelidonium majus</i>	Greater celandine	g4-21,77	R
<i>Cirsium arvense</i>	Creeping thistle	g3c-21,64	R
		g3c-16,17,80,91,161	A
<i>Convolvulus arvensis</i>	Field bindweed	g3c-21,64	O
<i>Dactylis glomerata</i>	Cock's-foot	g3c-21,64	O
		g4-21,77	F
<i>Euphorbia lathyris</i>	Caper spurge	g3c-16,17,80,91,161	R
<i>Festuca rubra</i>	Red fescue	g4-11,66 (good)	A
		g4-11,66 (moderate)	F
		g3c-21,64	O
		g3c-16,17,80,91,161	A
<i>Fragaria vesca</i>	Wild strawberry	g3c-21,64	R
<i>Galium verum</i>	Lady's bedstraw	g3c-21,64	R
		g3c-16,17,80,91,161	f
<i>Geranium molle</i>	Dove's-foot crane's-bill	g3c-16,17,80,91,161	R
<i>Geranium robertianum</i>	Herb-robert	g3c-21,64	R
		g3c-16,17,80,91,161	R
<i>Geum urbanum</i>	Wood avens	g3c-21,64	O
		g4-21,77	R

<i>Glechoma hederacea</i>	Ground-ivy	g4-11,66 (good) g4-11,66 (moderate)	O O
<i>Hedera helix</i>	Ivy	g3c-21,64 g4-21,77	O O
<i>Helminthotheca echioides</i>	Bristly oxtongue	g3c-16,17,80,91,161	R
<i>Holcus lanatus</i>	Yorkshire fog	g3c-21,64 g4-21,77 g3c-16,17,80,91,161	O O O
<i>Lactuca perennis</i>	Blue lettuce	g3c-21,64	O
<i>Leontodon hispidus</i>	Rough hawkbit	g4-11,66 (moderate) g3c-21,64 g4-21,77	LA R R
<i>Leucanthemum vulgare</i>	Oxeye daisy	g3c-16,17,80,91,161	O
<i>Lolium perenne</i>	Perennial rye-grass	g4-11,66 (good) g4-11,66 (moderate) g3c-21,64 g4-21,77	A A F A
<i>Lonicera nitida</i>	Wilson's honeysuckle	g3c-16,17,80,91,161	R
<i>Luzula campestris</i>	Field wood-rush	g4-11,66 (moderate)	R
<i>Medicago lupulina</i>	Black medick	g4-11,66 (good) g3c-21,64 g3c-16,17,80,91,161	O R O
<i>Pentaglottis sempervirens</i>	Green alkanet	g4-21,77 g3c-16,17,80,91,161	O R
<i>Phleum bertolonii</i>	Smaller Cat's-tail	g3c-16,17,80,91,161	O
<i>Plantago lanceolata</i>	Ribwort plantain	g4-11,66 (good) g4-11,66 (moderate) g3c-21,64 g4-21,77 g3c-16,17,80,91,161	F R F O a
<i>Plantago major</i>	Greater plantain	g4-11,66 (good)	O
<i>Prunella vulgaris</i>	Selfheal	g4-11,66 (good) g4-11,66 (moderate) g3c-16,17,80,91,161	O LA O
<i>Ranunculus acris</i>	Meadow buttercup	g3c-16,17,80,91,161	O
<i>Ranunculus repens</i>	Creeping buttercup	g4-11,66 (good) g4-11,66 (moderate)	O O

		g4-21,77	O
<i>Rubus fruticosus</i> agg.	Bramble	g3c-21,64	R
		g4-21,77	O
		g3c-16,17,80,91,161	R
<i>Rumex obtusifolius</i>	Broad-leaved dock	g3c-21,64	O
		g4-21,77	O
		g3c-16,17,80,91,161	A
<i>Senecio jacobaea</i>	Common ragwort	g3c-16,17,80,91,161	A
<i>Solidago</i> sp.	Goldenrod	g3c-16,17,80,91,161	R
<i>Taraxacum</i> agg.	Dandelion	g4-11,66 (good)	O
		g4-11,66 (moderate)	R
		g3c-21,64	O
		g4-21,77	F
		g3c-16,17,80,91,161	O
<i>Trifolium dubium</i>	Lesser trefoil	g4-11,66 (good)	R
<i>Trifolium pratense</i>	Red clover	g4-11,66 (moderate)	LA
		g3c-21,64	O
		g4-21,77	R
<i>Trifolium repens</i>	White clover	g4-11,66 (moderate)	O
		g3c-21,64	O
		g3c-16,17,80,91,161	O
<i>Tussilago farfara</i>	Colt's-foot	g3c-16,17,80,91,161	R
<i>Urtica dioica</i>	Common nettle	g3c-21,64	O
		g4-21,77	F
<i>Verbascum thapsus</i>	Great mullein	g3c-16,17,80,91,161	R
<i>Veronica serpyllifolia</i>	Thyme-leaved speedwell	g4-11,66 (good)	O
		g3c-21,64	R
<i>Viola odorata</i>	Sweet violet	g4-11,66 (good)	R

APPENDIX C – EVIDENCE FOR BNG CONDITION ASSESSMENTS**Table 5-1: : Area habitat distinctiveness categories and multiplier scores (excluding intertidal habitats)**

Category	Score	Definition
Very High	8	<ul style="list-style-type: none"> Priority Habitats as defined in Section 41 of the Natural Environment and Rural Communities (NERC) Act that are highly threatened, internationally scarce and require conservation action, e.g. blanket bog. Small amount of remaining habitat with a high proportion unprotected by designation. Endangered or Critical European red list habitats.
High	6	<ul style="list-style-type: none"> Priority Habitats as defined in Section 41 of the NERC Act requiring conservation action, e.g. lowland fens. Remaining Priority Habitats not in very high distinctiveness band & other red list habitats.
Medium	4	<ul style="list-style-type: none"> Semi-natural habitats not classed as a Priority Habitat but with significant wildlife benefit, e.g. mixed scrub. One Priority Habitat (arable field margins).
Low	2	<ul style="list-style-type: none"> Habitat of low biodiversity value e.g. temporary grass and clover ley. Agricultural and Urban land of lower biodiversity value
Very Low	0	<ul style="list-style-type: none"> Little or no biodiversity value e.g. hard standing or sealed surface. Urban – artificial structures which are un-vegetated, sealed surfaces or built linear features of very low biodiversity value

The process of assessing habitat condition for use in biodiversity metric 3.0 is tailored to habitat type and considers whether a habitat meets a number of criteria relating to key physical characteristics of that habitat and its ability to support typical species. This is explained in detail in Part 1 of the Technical Supplement.

Table 5-3: Condition categories and multiplier scores for area habitats

Category	Score
Good	3
Fairly Good	2.5
Moderate	2
Fairly Poor	1.5
Poor	1

Strategic significance relates to the spatial location of a habitat parcel and works at a landscape scale. It gives additional biodiversity unit value to habitats that have been identified as habitats of strategic importance to that local area. The strategic significance categories and scores are presented below.

Habitat strategic significance categories and scores

Category	Score	Description
High	1.15	<ul style="list-style-type: none"> High potential – Area/action formally identified within a local plan, strategy or policy
Medium	1.1	<ul style="list-style-type: none"> Good potential - Location ecologically desirable but area/action not identified in local plan, strategy or policy
Low	1.0	<ul style="list-style-type: none"> Low potential - Area/action not identified in any local plan, strategy or policy No local strategy in place

A non-linear habitat’s biodiversity unit was then calculated as:

$$(Area \text{ (ha)} \times Distinctiveness \times Condition) \times (Strategic \text{ Significance})$$

The biodiversity unit for linear habitat is calculated as:

$$(Length \text{ (km)} \times Distinctiveness \times Condition) \times (Strategic \text{ Significance})$$

APPENDIX D - VALUE OF ECOLOGICAL RECEPTORS**Examples of Ecological Receptors of Differing Value**

Value	Examples
International	<ul style="list-style-type: none"> • An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, pSAC, Ramsar site) or an area which meets the designation criteria for such sites. • Internationally significant and viable areas of a habitat type listed in Annexe 1 of the Habitats Directive, or smaller areas of such habitat, which are essential to maintain the viability of a larger whole. • Any regularly occurring, globally threatened species. • A regularly occurring population of an internationally important species, which is threatened or rare in the UK, of uncertain conservation status • A regularly occurring, nationally significant population/number of any internationally important species.
National	<ul style="list-style-type: none"> • A nationally designated site (e.g. SSSI, NNR) or a discrete area which meets the published selection criteria for national designation (e.g. SSSI selection guidelines) irrespective of whether or not it has yet been notified. • A viable area of a UK BAP priority habitat, or smaller areas of such habitat which are essential to maintain the viability of a larger whole. • A regularly occurring significant number/population of a nationally important species e.g. listed on the Wildlife and Countryside Act 1981 (as amended). • A regularly occurring population of a nationally important species that is threatened or rare in the county or region. • A feature identified as being of critical importance in the UK BAP.
Regional/County	<ul style="list-style-type: none"> • Viable areas of key habitat identified in the Regional or County BAP or smaller areas of such a habitat, which are essential to maintain the viability of the larger whole. • Regional/county significant and viable areas of key habitat identified as being of regional value in the appropriate English Nature (now Natural England) Natural Area. • A regularly occurring significant population/number of any important species important at a regional/county level. • Any regularly occurring, locally significant population of a species which is listed in a Regional/County Red Data Book or BAP on account of its regional rarity or localisation. • Sites of conservation importance that exceed the district selection criteria but that fall short of SSSI selection guidelines.
City/District/Borough	<ul style="list-style-type: none"> • Areas of habitat identified in a District/City/Borough BAP or in the relevant Natural Area profile. • Sites that the designating authority has determined meet the published ecological selection criteria for designation, including Local Nature Reserves selected on District/City/Borough ecological criteria.

	<ul style="list-style-type: none"> • Sites/features that are scarce within the District/City/Borough or which appreciably enrich the District/City/Borough habitat resource. • A diverse and/or ecologically valuable hedgerow network. • A population of a species that is listed in a District/City/Borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation. • A regularly occurring, locally significant number of a District/City/Borough important species during key phases of its life cycle.
Local	<ul style="list-style-type: none"> • Areas identified in a Local BAP or the relevant natural area profile. • Sites/features which area scarce in the locality or which are considered to appreciably enrich the habitat resource within the local context, e.g. species-rich hedgerows. • Local Nature Reserves selected on Parish/Local ecological criteria. • Significant numbers/population of a locally important species <u>e.g.</u> one which is listed on the Local BAP. • Any species, populations or habitats of local importance.
Low	<ul style="list-style-type: none"> • Habitats of moderate to low diversity which support a range of locally and nationally common species, the loss of which can be easily mitigated.

APPENDIX E – LOCAL RECORDS SEARCH

Species		Number of Records	Most Recent Record	Suitable Habitat on site?	Level of Protection		
Common Name	Latin Name				HR 2017	WCA 1981	NERC /UK BAP
Brown Long-eared Bat	<i>Plecotus auritus</i>	7	2013	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	23	2018	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Daubenton's bat	<i>Myotis daubentonii</i>	7	2013	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Noctule bat	<i>Nyctalus noctula</i>	6	2016	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	13	2018	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Eurasian badger	<i>Meles meles</i>	23	2012	Yes - foraging	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
European otter	<i>Lutra lutra</i>	107	2019	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
European water vole	<i>Arvicola amphibius</i>	57	2018	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
West european hedgehog	<i>Erinaceus europaeus</i>	47	2019	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Common lizard	<i>Zootoca vivipara</i>	7	2013	No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Grass snake	<i>Natrix helvetica</i>	34	2017	No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Slow-worm	<i>Anguis fragilis</i>	254	2017	Yes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Key		<p>HR 2017 – The Conservation of Habitats and Species Regulations 2017</p> <p>WCA 1981 – The Wildlife and Countryside Act 1981 (as amended) (Bird species listed relate solely to those included on Schedule 1)</p> <p>NERC – The Natural Environment and Rural Communities Act 2006</p> <p>UK BAP – UK Biodiversity Action Plan</p>					

APPENDIX F - POLICY AND LEGISLATION**National Planning Policy Framework (NPPF)²⁷**

The revised National Planning Policy Framework sets out the government's planning policies for England and how these are expected to be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced. Planning law requires that applications for planning permission be determined in accordance with the development plan. The key paragraphs from the relating to the natural environment are detailed below:

Ecologically Relevant Paragraphs of the NPPF	
Paragraph	Statement
174	<p>Planning policies and decisions should contribute to and enhance the natural and local environment by:</p> <ul style="list-style-type: none"> protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; maintaining the character of the undeveloped coast, while improving public access to it where appropriate; minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.
175	<p>Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework²⁸; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.</p>

²⁷ NPPF July 2021 (<https://www.gov.uk/government/publications/national-planning-policy-framework--2>)

²⁸ Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.

<p>176</p>	<p>Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads²⁹. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.</p>
<p>177</p>	<p>When considering applications for development within National Parks, the Broads and Areas of Outstanding Natural Beauty, permission should be refused for major development³⁰ other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:</p> <p>the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;</p> <p>the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and</p> <p>any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.</p>
<p>178</p>	<p>Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 176), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.</p>
<p>179</p>	<p>To protect and enhance biodiversity and geodiversity, plans should:</p> <p>Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity³¹; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation³²; and promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.</p>
<p>180</p>	<p>When determining planning applications, local planning authorities should apply the following principles:</p>

²⁹ English National Parks and the Broads: UK Government Vision and Circular 2010 provides further guidance and information about their statutory purposes, management and other matters.

³⁰ For the purposes of paragraphs 176 and 177, whether a proposal is 'major development' is a matter for the decision maker, taking into account its nature, scale and setting, and whether it could have a significant adverse impact on the purposes for which the area has been designated or defined.

³¹ Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.

³² Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.

	<p>if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;</p> <p>development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;</p> <p>development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons³³ and a suitable compensation strategy exists; and</p> <p>development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.</p>
<p>181</p>	<p>The following should be given the same protection as habitats sites: potential Special Protection Areas and possible Special Areas of Conservation; listed or proposed Ramsar sites³⁴; and sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.</p>
<p>182</p>	<p>The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.</p>

Oxford City Council

Policy G2 of the Oxford Local Plan 2036 (adopted 2020) states:

“Development that results in a net loss of sites and species of ecological value will not be permitted.

Sites and species important for biodiversity and geodiversity will be protected. Planning permission will not be granted for any development that would have an adverse impact on sites of national or international importance (the SAC and SSSIs), and development will not be

³³ For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.

³⁴ Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site.

permitted on these sites, save where related to and required for the maintenance or enhancement of the site's importance for biodiversity or geodiversity.

Development proposed on land immediately adjacent to the SSSIs should be designed with a buffer to avoid disturbance to the SSSIs during the construction period.

On sites of local importance for wildlife, including Local Wildlife Sites, Local Geological Sites and Oxford City Wildlife Sites, on sites that have a biodiversity network function, and where there are species and habitats of importance for biodiversity that do not meet criteria for individual protection, development will only be permitted in exceptional circumstances whereby:

- a) there is an exceptional need for the new development and the need cannot be met by development on an alternative site with less biodiversity interest; and
- b) adequate onsite mitigation measures to achieve a net gain of biodiversity are proposed; and
- c) where this is shown not to be feasible then compensation measures will be required, secured by a planning obligation.

Compensation and mitigation measures must offset the loss and achieve an overall net gain for biodiversity. For all major developments proposed on greenfield sites or brownfield sites that have become vegetated, this should be measured through use of a recognised biodiversity calculator. To demonstrate an overall net gain for biodiversity, the biodiversity calculator should demonstrate an improvement of 5% or more from the existing situation. Offsetting measures are likely to include identification of appropriate off- site locations/projects for improvement, which should be within the relevant Conservation Target Area if appropriate, or within the locality of the site. When assessing whether a site is suitable for compensation, consideration will be given to the access, enjoyment and connection to nature that the biodiversity site to be lost has brought to a locality. A management and monitoring plan might be required for larger sites. The calculation should be applied to the whole site.”

Natural Environment and Rural Communities (NERC) Act 2006^{35 36}

Section 40 – To conserve biodiversity

Section 40 puts a duty on public authorities to conserve biodiversity when undertaking its duties and functions,

Section 41 – Biodiversity list and Action

Section 41 – Section 41 – Requires the Secretary of State to *publish a list of the living organisms and types of habitat considered to be of principal importance for the purpose of conserving biodiversity*. They must also *take such steps as appear to the Secretary of State to be*

³⁵ <https://www.legislation.gov.uk/ukpga/2006/16/section/40>

³⁶ <https://www.legislation.gov.uk/ukpga/2006/16/section/41>

reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section or promote the taking by others of such steps.

The 2007 lists were superseded by the UK Post-2010 Biodiversity Framework.

UK Priority Habitats (excl. marine habitats) ³⁷	
UK BAP broad habitat	UK BAP
Rivers and Streams	Rivers
Standing Open Waters and Canals	Oligotrophic and Dystrophic Lakes
	Ponds
	Mesotrophic Lakes
	Eutrophic Standing Waters
	Aquifer Fed Naturally Fluctuating Water Bodies
Arable and Horticultural	Arable Field Margins
Boundary and Linear Features	Hedgerows
Broadleaved, Mixed and Yew Woodland	Traditional Orchards
	Wood-Pasture and Parkland
	Upland Oakwood
	Lowland Beech and Yew Woodland
	Upland Mixed Ash woods
	Wet Woodland
	Lowland Mixed Deciduous Woodland
	Upland Birch woods
Coniferous Woodland	Native Pine Woodlands
Acid Grassland	Lowland Dry Acid Grassland
Calcareous Grassland	Lowland Calcareous Grassland
	Upland Calcareous Grassland
Neutral Grassland	Lowland Meadows
	Upland Hay Meadows
Improved Grassland	Coastal and Floodplain Grazing Marsh
Dwarf Shrub Heath	Lowland Heathland
	Upland Heathland
Fen, Marsh and Swamp	Upland Flushes, Fens and Swamps
	Purple Moor Grass and Rush Pastures
	Lowland Fens
	Reedbeds
Bogs	Lowland Raised Bog
	Blanket Bog
Montane Habitats	Mountain Heaths and Willow Scrub
Inland Rock	Inland Rock Outcrop and Scree Habitats
	Calaminarian Grasslands
	Open Mosaic Habitats on Previously Developed Land
	Limestone Pavements
Supralittoral Rock	Maritime Cliff and Slopes
Supralittoral Sediment	Coastal Vegetated Shingle
	Machair
	Coastal Sand Dunes

Protected Species Legislation

European Protected Species

³⁷ <http://jncc.defra.gov.uk/page-5706>

European Protected Species (EPS) are species of plants and animals (other than birds) protected by law throughout the European Union. They are listed in Annexes II and IV of the European Habitats Directive and receive full protection under The Conservation of Species and Habitats Regulations (as amended) 2019. This make it an offence to:

- deliberately capture, injure or kill any European Protected Species (EPS)
- to deliberately disturb any European Protected Species (EPS);
- to damage or destroy a breeding site or place of rest or shelter used by any European Protected Species (EPS).

The Wildlife and Countryside Act 1981 (as amended) adds further protection by making it an offence to intentionally or recklessly³⁸ disturb an EPS while it is occupying a structure or place which it uses for shelter or protection, or to obstruct access to any structure or place the species uses for shelter or protection.

European Protected Species relevant to the UK			
Animals		Plants	
All bat species	Great Crested Newt	Yellow marsh saxifrage	Creeping marshwort
Large blue butterfly	Otter	Shore dock	Slender naiad
Wild cat	Smooth snake	Killarney fern	Fen Orchid
Marine turtles, dolphins, porpoises and whales (all species)	Sturgeon fish	Early gentian	Floating-leaved water plantain
Dormouse	Natterjack toad	Lady's slipper	
Sand lizard	Pool Frog		
Fisher's Estuarine Moth	Snail, Lesser Whirlpool Ram's-horn		

Other Protected Species		
Species	Legislation	Level of Protection
Red Squirrel	Wildlife and Countryside Act 1981 (as amended) Wild Mammals (Protection) Act 1996	The species is listed on Schedule 5 of the Wildlife and Countryside Act (1981) makes the following actions offences: <ul style="list-style-type: none"> • intentionally killing, injuring, or taking red squirrels • intentionally or recklessly damaging, destroying or obstructing access to any structure or place used for shelter or protection • disturbing red squirrels whilst they are using any structure or place used for shelter or protection Under the Wild Mammals (Protection) Act, squirrels are protected from unnecessary suffering by a number of methods.

³⁸ Under the Countryside and Rights of Way Act 2000 (CROW Act) extended the protection to cover reckless damage or disturbance

Birds	Wildlife and Countryside Act 1981 (as amended)	<p>Under the Wildlife and Countryside Act (1981) it is an offence if any person:</p> <ul style="list-style-type: none"> • intentionally kills, injures or takes any wild bird • intentionally takes, damages or destroys the nest of any wild bird whilst that nest is in use or being built; • intentionally takes, damages or destroys eggs of any wild bird; <p>Wild birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) are protected from:</p> <ul style="list-style-type: none"> • intentional or reckless disturbance whilst it is building a nest or is in, on or near a nest containing eggs or young; • disturbance of dependent young
White-clawed Crayfish	Wildlife and Countryside Act 1981 (as amended)	<p>Under the Wildlife and Countryside Act (1981) it is an offence if any person:</p> <ul style="list-style-type: none"> • intentionally takes a white-clawed crayfish • sells, offers or exposes for sale, or has in his possession or transports for the purpose of sale, any live or dead white clawed crayfish or any part of, or anything derived from, such an animal

APPENDIX G - BAT SUITABILITY AND SURVEY EFFORT

Classifications of suitability are based on those provided within the Bat Conservation Trust Good Practice Survey Guidelines³⁹, with the table below taken from page 35 of the guidelines (table 4.1).

Guidelines for assessing the potential suitability of proposed development sites for bats (based on the presence of habitat features within the landscape, to be applied using professional judgement)		
Suitability	Description	
	Roosting Habitats	Commuting and Foraging Habitats
Negligible	Negligible habitat features on site, likely to be used by roosting bats	Negligible habitat features on site, likely to be used by commuting and foraging bats
Low	<p>A structure with one or more potential roost sites that could be used by individual bats opportunistically.</p> <p>However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions^a and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation^b).</p> <p>A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential^c.</p>	<p>Habitat that could be used by small numbers of commuting bats such as gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.</p> <p>Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.</p>
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	<p>Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.</p>
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys,

³⁹ Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

	<p>longer periods of time due to their size, shelter, protection, conditions^a and surrounding habitat</p>	<p>streams, hedgerows, lines of trees and woodland edge.</p> <p>High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree lined watercourse and grazed parkland.</p> <p>Site is close to and connected to known roosts.</p>
<p>a. For example in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.</p> <p>b. Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten et al., 2015). This phenomenon requires some research in the UK but ecologists should be aware of potential for larger numbers of this species to be present during the autumn and winter in larger buildings in highly urbanised environments.</p> <p>c. The system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015)</p>		

APPENDIX H – HABITAT CONDITION ASSESSMENTS

UKHab Habitat Type(s)		Grassland - Modified grassland	
DEFRA BNG Metric 3.0 Ref		3	
Condition Assessment Criteria		Pre development	Notes
1	There must be 6-8 species per m ² . Note - if a grassland has 9 or more species per m ² it should be classified as a moderate distinctiveness grassland habitat type. NB - this criterion is non-negotiable for achieving good condition.	Y	
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	N	Frequently mown sward – almost all <7 cm.
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y	
4	Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	Y	
5	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Y	Cover of bare ground present beneath canopy of scattered trees
6	Cover of bracken less than 20%.	Y	
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ¹ make up less than 5% of ground cover.	Y	There is little in the way of undesirables
Condition Assessment Result			
Good: Passes 6 or 7 of 7 criteria including non-negotiable criterion 1			
Moderate: Passes 4 or 5 of 7 criteria; OR Passes 6 of 7 criteria excluding non-negotiable criterion 1			
Poor: Passes 0, 1, 2 or 3 of 7 criteria		Y	

UKHab Habitat Type(s)		Grassland - Modified grassland	
DEFRA BNG Metric 3.0 Ref		4	
Condition Assessment Criteria		Pre development	Notes
1	There must be 6-8 species per m ² . Note - if a grassland has 9 or more species per m ² it should be classified as a moderate distinctiveness grassland habitat type. NB - this criterion is non-negotiable for achieving good condition.	Y	
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	N	Frequently mown sward – almost all <7 cm.
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y	No scattered scrub – well manicured lawn.
4	Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	Y	
5	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	N	No bare ground, all comprises of short grasses.
6	Cover of bracken less than 20%.	Y	
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ¹ make up less than 5% of ground cover.	N	White clover falls within range of 5 – 10% of ground cover, deemed undesirable.
Condition Assessment Result			
Good: Passes 6 or 7 of 7 criteria including non-negotiable criterion 1			
Moderate: Passes 4 or 5 of 7 criteria; OR Passes 6 of 7 criteria excluding non-negotiable criterion 1		Y	
Poor: Passes 0, 1, 2 or 3 of 7 criteria			

UKHab Habitat Type(s)		Grassland – Traditional Orchard	
DEFRA BNG Metric 3.0 Ref		5	
Condition Assessment Criteria		Pre development	Notes
1	Presence of ancient ¹ and / or veteran ² trees. NB - this criterion is non-negotiable for achieving good condition.	N	The trees within the orchard are relatively young and do not meet the classification as a veteran tree.
2	Less than 5% of fruit trees are smothered by scrub. Small patches of dense scrub and/or scattered scrub growing between trees can be beneficial to biodiversity, however these should occupy less than 10% of ground cover.	N	Little scrub encroachment however bindweed is becoming dominant.
3	There is evidence of formative and/or restorative pruning to maintain longevity of trees.	Y	
4	Presence of standing and/or fallen dead wood: all mature trees have standing or fallen branches, stems and stumps greater than 10 cm diameter associated with them.	N	No large deadwood or standing dead wood is present.
5	At least 95% of the trees are free from damage caused by humans or animals e.g. browsing, bark stripping or rubbing on non-adjusted ties.	Y	
6	Sward height is varied (between 5 cm and 30 cm) and small patches of bare ground are present creating structural diversity. Up to 10% cover of patches of tall herb vegetation may be present.	Y	The sward is mixed, comprising of mown paths and areas allowed to grow tall.
7	Species richness of the grassland is equivalent to a medium, high, or very high distinctiveness grassland.	Y	The grassland meets the criteria of 'other neutral grassland', a medium distinctiveness habitat.
8	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ³ make up less than 10% of ground cover.	N	In total, bindweed, docks and clover exceed 10% cover.
Condition Assessment Result			
Good: Passes 6, 7 or 8 of 8 criteria, including non-negotiable criterion 1			
Moderate: Passes 4 or 5 of 8 criteria; OR Passes 6 or 7 of 8 criteria, excluding non-negotiable criterion 1		Y	
Poor: Passes 0, 1, 2 or 3 of 8 criteria			

UKHab Habitat Type(s)		Grassland – Traditional Orchard	
DEFRA BNG Metric 3.0 Ref		6	
Condition Assessment Criteria		Pre development	Notes
1	Presence of ancient ¹ and / or veteran ² trees. NB - this criterion is non-negotiable for achieving good condition.	N	The trees within the orchard are relatively young and do not meet the classification as a veteran tree.
2	Less than 5% of fruit trees are smothered by scrub. Small patches of dense scrub and/or scattered scrub growing between trees can be beneficial to biodiversity, however these should occupy less than 10% of ground cover.	Y	Little scrub encroachment however ivy is becoming dominant.
3	There is evidence of formative and/or restorative pruning to maintain longevity of trees.	N	Relatively young specimens with little evidence of formative pruning.
4	Presence of standing and/or fallen dead wood: all mature trees have standing or fallen branches, stems and stumps greater than 10 cm diameter associated with them.	N	No large deadwood or standing dead wood is present.
5	At least 95% of the trees are free from damage caused by humans or animals e.g. browsing, bark stripping or rubbing on non-adjusted ties.	Y	
6	Sward height is varied (between 5 cm and 30 cm) and small patches of bare ground are present creating structural diversity. Up to 10% cover of patches of tall herb vegetation may be present.	N	The sward height is very tall and has been left, little structural diversity.
7	Species richness of the grassland is equivalent to a medium, high, or very high distinctiveness grassland.	N	The grassland meets the criteria of 'modified grassland' given the low species diversity and dominance of perennial rye-grass and cock's foot.
8	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ³ make up less than 10% of ground cover.	N	Common nettle exceeds 10%.
Condition Assessment Result			
Good: Passes 6, 7 or 8 of 8 criteria, including non-negotiable criterion 1			
Moderate: Passes 4 or 5 of 8 criteria; OR Passes 6 or 7 of 8 criteria, excluding non-negotiable criterion 1			
Poor: Passes 0, 1, 2 or 3 of 8 criteria		Y	

UKHab Habitat Type(s)		Grassland – Other neutral grassland	
DEFRA BNG Metric 3.0 Ref		7	
Condition Assessment Criteria		Pre development	Notes
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.	Y	It does meet the definition for a 'other neutral grassland' given that is a moderately species-rich sward on neutral soil.
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	N	The majority of the sward exceeds 7cm as the entirety of the area has been left to grow tall.
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Y	There are small areas of bare ground and undulating topography where building materials have been left.
4	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	N	No large deadwood or standing dead wood is present.
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of undesirable species ¹ and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	N	Undesirable species exceeds 5% of area, broad-leaved dock and creeping thistle is abundant.
Condition Assessment Result			
Good: Passes 5 of 5 criteria			
Moderate: Passes 3 or 4 of 5 criteria			
Poor: Passes 0, 1 or 2 of 5 criteria		Y	

APPENDIX I – HEDGEROW CONDITION ASSESSMENTS

Hedge no.	H7001	H7002	H7003	H7004	H7005	H7006	H7007	H7008	H7009	H7011
Hedge type	Native hedgerow	Native hedgerow	Native hedgerow	Native hedgerow	Native hedgerow	Native hedgerow	Native hedgerow	Native hedgerow	Native hedgerow	Native hedgerow
Height >1.5m	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Width >1.5m	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Gaps, base-canopy <0.5m>90%	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
Gaps <10%, no gaps>5m	Y	Y	Y	Y	Y	N	Y	N	Y	Y
>1m undisturbed margin	N	N	N	N	N	N	N	N	N	N
Undesirable perennials <20% of margins	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
>90% hedge & margins native	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
>90% free of damage	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CONDITION	Good	Good	Good	Good	Good	Moderate	Good	Moderate	Good	Good