



## UNIVERSAL DESTINATIONS & EXPERIENCES UK PROJECT

Former Kempston Hardwick Brickworks  
and adjoining land, Bedford

Environmental Statement Volume 3

### Appendix 6.14 - UK Habitat Classification Report

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# 1 INTRODUCTION

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## 1.1 PROJECT BACKGROUND

- 1.1.1. This UK Habitat Classification (UKHab) report has been prepared in support of the planning proposal for the Proposed Development as described in **Chapter 2: Description of the Proposed Development (Volume 1)** of the Environmental Statement.
- 1.1.2. The boundary for the Proposed Development is shown in **Annex 1** and will hereafter be referred to as 'the Site'. The Site consists of the Lake Zone, the Core Zone, the West Gateway Zone, and the East Gateway Zone (as shown in **Annex 1**).

## 1.2 ECOLOGICAL BACKGROUND

- 1.2.1. A Preliminary Ecological Appraisal (PEA) (provided as **Appendix 6.1: Preliminary Ecological Appraisal Report (Volume 3)**) of the Site was undertaken by WSP in 2024. This included a desk study and a field survey, which identified broad habitat areas and types. The field survey element of the PEA was undertaken between January and April 2024, which is outside the optimal period for botanical identification of some species, therefore additional habitat surveys were undertaken in August 2024.

## 1.3 SCOPE OF THE REPORT

- 1.3.1. WSP was commissioned by UDX to undertake a UKHab survey of the Site. The objective of the survey was to create an overview of habitat types present and the indicative floral species that they contain; the species lists in this report are not exhaustive.
- 1.3.2. The report presents baseline survey information but does not include an assessment of effects upon habitats. The impact assessment for habitats is outlined in **Chapter 6: Ecology and Nature Conservation (Volume 1)**.
- 1.3.3. WSP has provided this report solely for the use of the recipient and accepts no liability to any third parties or any other party using or reviewing the report or any part thereof. WSP makes no warranties or guarantees, actual or implied, in relation to this report, or the ultimate commercial, technical, economic or financial effect on the project to which it relates, and bears no responsibility or liability related to its use other than as set out within the scope of the contract under which it was supplied.

## 2 RELEVANT LEGISLATION AND POLICY

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2.1.1. The report has been compiled with reference to the following relevant nature conservation legislation, planning policy and the UK Biodiversity Framework<sup>1</sup> from which the protection of sites, habitats and species is derived in England.

- *The Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations)*<sup>2</sup>;
- *Environment Act 2021*<sup>3</sup>;
- *The Wildlife and Countryside Act 1981 (as amended) (WCA)*<sup>4</sup>;
- *The Natural Environment and Rural Communities (NERC) Act 2006 (as amended) (England)*<sup>5</sup>;
- *The Hedgerow Regulations 1997*<sup>6</sup>; and
- *The National Planning Policy Framework (NPPF) 2024*<sup>7</sup>.

### NATIONAL PLANNING POLICY FRAMEWORK

2.1.2. At a national context, planning policy is driven by the *NPPF*<sup>7</sup> which was updated in 2024 sets out, amongst other points, how at an overview level “*planning policies and decisions should contribute to and enhance the national and local environment by*”:

- “...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”; and
- “...minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures...”.

2.1.3. The *NPPF*<sup>7</sup> states that this should be achieved through local planning development frameworks and gives recommendations for criteria-based policies which recognise the hierarchy of designated sites which range from internationally important habitat to sites of importance at a local level and ensure that they are protected “*in a manner commensurate with their statutory status or identified quality in the development plan*”.

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<sup>1</sup> JNCC on behalf of the Four Countries' Biodiversity Group (4CBG). 2024. UK Biodiversity Framework. JNCC, Peterborough.(2024) Available at <https://data.jncc.gov.uk/data/19a729f6-440e-4ac6-8894-cc72e84cc3bb/uk-biodiversity-framework.pdf> [Accessed: 19 May 2025].

<sup>2</sup> HM Government (2017) *The Conservation of Habitats and Species Regulations 2017*. Available at: <https://www.legislation.gov.uk/ukxi/2017/1012/contents> [Accessed: 05 March 2025].

<sup>3</sup> HM Government (2021) *Environment Act 2021*. Available at: <https://www.legislation.gov.uk/ukpga/2021/30/contents> [Accessed: 05 March 2025].

<sup>4</sup> HM Government (1981) *Wildlife and Countryside Act 1981*. Available at: <https://www.legislation.gov.uk/ukpga/1981/69> [Accessed: 05 March 2025].

<sup>5</sup> HM Government (2006) *Natural Environment and Rural Communities Act 2006*. Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents> [Accessed: 05 March 2025].

<sup>6</sup> HM Government (1997) *The Hedgerows Regulations 1997*. Available at: <https://www.legislation.gov.uk/ukxi/1997/1160/contents> [Accessed: 05 March 2025].

<sup>7</sup> Ministry of Housing, Communities and Local Government (2024) *National Planning Policy Framework*. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2> [Accessed: 05 March 2025].

2.1.4. A list of principles which planning authorities should follow when determining planning applications is included in the *NPPF*<sup>7</sup> which includes the following:

- “If significant harm to biodiversity resulting from a development cannot be avoided ... adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused”;
- “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 reasons, and a suitable compensation strategy exists”; and
- “Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate”.

2.1.5. Although the *NPPF*<sup>7</sup> revoked *Planning Policy Statement 9 (PPS9)*<sup>8</sup>, the Office of the Deputy Prime Minister (ODPM) *circular 06/2005*<sup>9</sup>, originally prepared to accompany *PPS9*, remains current; this states that “the presence of a protected species is a material consideration when a planning authority is considering a development proposal” and also includes confirmation that “potential effects of a development, on habitats or species listed as priorities in the UK Biodiversity Action Plan (BAP)<sup>10</sup>...are capable of being a material consideration in the...making of planning decisions.”. The circular advises that local authorities should consult Natural England before granting planning permission if the proposals could adversely affect a protected species, this definition of a protected species includes birds.

## Local Policy

2.1.6. Full details of all relevant biodiversity legislation and policy are provided in **Appendix 3.1: Legislation, Policy and Guidance for all ES Technical Topics (Volume 3)**.

<sup>8</sup> Ministry of Housing, Communities and Local Government (2006) *Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS9)*. Available at: <https://www.gov.uk/government/publications/planning-for-biodiversity-and-geological-conservation-a-guide-to-good-practice> [Accessed: 05 March 2025].

<sup>9</sup> Ministry of Housing, Communities and Local Government (2005) *Biodiversity and geological conservation: circular 06/2005*. Available at: <https://www.gov.uk/government/publications/biodiversity-and-geological-conservation-circular-06-2005> [Accessed: 05 March 2025].

<sup>10</sup> The UK BAP was revoked in 2012; however, the NERC Act Section 41 list contains habitats and species of principal importance for the conservation of biodiversity, capturing information previously associated with the UK BAP.

## 3 METHODS

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### 3.1 FIELD SURVEY

#### UKHAB SURVEY

- 3.1.1. The UKHab survey was undertaken across the Site (subject to access – see Notes and Limitations below) in August 2024 by two suitably qualified and experienced habitat surveyors. The purpose of the survey was to identify the habitat types present within the Site in accordance with the habitat descriptions described within the UK Habitat Classification Version 2.01<sup>11</sup>. The survey sought to review and update the habitat data previously collected by the surveys conducted for the PEA in January, February and April 2024.
- 3.1.2. The documentation of UKHab version 2.01 states that it should be referenced as version 2.0.
- 3.1.3. The UKHab system comprises a principal hierarchy (the Primary Habitats) and non-hierarchical Secondary Codes. Primary Habitats include ecosystems (level 1), broad habitat types (level 2 and level 3), more defined habitats including Habitats of Principal Importance (HPI) (level 4) and further defined habitats including Annex I habitats (level 5). Habitats were classified to level 5 where possible. Where relevant, Secondary Codes were used to provide further detail on habitats as detailed in the UK Habitat Classification 2.0<sup>11</sup>.
- 3.1.4. A single Primary Habitat is assigned to each polygon, line or point feature with generally a maximum of six secondary codes used. Habitats are described by the Primary Habitat first (e.g., w1h5 (other woodland; mixed predominantly broadleaved)) with secondary codes following (e.g., w1h5 36 57 (other woodland; mixed predominantly broadleaved that is plantation with young trees - self set)). Lowercase letters are used, with the levels 2 to 5 shown by the alphanumeric code and no commas are used between secondary codes as per the UKHab User Manual<sup>12</sup>. For habitats of interest that were too small to map, point features were used with primary habitats and secondary codes where applicable.
- 3.1.5. Plant species were recorded using the DAFOR scale<sup>13</sup>.
- 3.1.6. Plant species within the Site, along with their scientific names, are listed in **Annex 2**. The scientific names follow those in the New Flora of the British Isles<sup>14</sup>.
- 3.1.7. Habitats were digitised using a Geographical Information System (GIS) as mapped in **Annex 3**.
- 3.1.8. Any invasive plant species listed on Schedule 9 of the *Wildlife and Countryside Act (WCA) 1981* (as amended)<sup>4</sup>, which were evident during the field survey, were also target noted.

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<sup>11</sup> UKHab Limited (2023) *UK Habitat Classification Version 2.0*. Available at: <https://www.ukhab.org> [Accessed: 05 March 2025].

<sup>12</sup> Natural England (March 2010). Farm Environment Plan Manual. Retrieved from [www.naturalengland.org.uk: http://adlib.everysite.co.uk/resources/000/251/202/NE264.pdf](http://adlib.everysite.co.uk/resources/000/251/202/NE264.pdf)

<sup>13</sup> The DAFOR scale has been used to estimate the frequency and cover of the different plant species as follows: Dominant (D) - >75% cover, Abundant (A) – 51-75% cover, Frequent (F) – 26-50% cover, Occasional (O) – 11-25% cover, Rare (R) – 1-10% cover., The term 'Locally' (L) is also used where the frequency and distribution of a species are patchy and 'Edge' (E) is also used where a species only occurs on the edge of a habitat type.

<sup>14</sup> Stace, C.A. (2019) *New Flora of the British Isles*. 4th edn. Cambridge: Cambridge University Press.

## HEDGEROW SURVEY

- 3.1.9. Survey methodologies outlined in the Hedgerow Handbook<sup>15</sup> were followed for the hedgerow survey. The species richness of hedgerows was assessed by sampling 30m sections along the hedgerow in accordance with the guidelines.
- 3.1.10. In the UKHab methodology, hedgerows are split into priority and non-priority hedgerows. Priority hedgerows are HPI under Section 41 of the *NERC Act 2006* (as amended)<sup>5</sup>. To qualify as a priority hedgerow, they must comprise predominantly (80% or more cover) of at least one native, woody species. This is the methodology that has been used to identify the hedgerows on Site.
- 3.1.11. The UKHab methodology splits hedgerows into 'species rich native hedgerows' (native hedgerows with more than five species present) (HPI), 'other native hedgerows' (HPI), and 'non-native ornamental hedgerows' (not HPI).

## NOTES AND LIMITATIONS

- 3.1.12. This report documents a field survey of the Site; the desk study element can be found in the **Appendix 6.1: Preliminary Ecological Appraisal Report (Volume 3)**.
- 3.1.13. Some of the areas within the Site boundary could not be accessed, particularly the railway corridor in the East Gateway Zone and road verges of the A421. Approximately 13% of the Site was either surveyed from neighbouring land or from aerial mapping. Where areas were unable to be accessed, the habitat type was assigned using precautionary measures.
- 3.1.14. Due to health and safety concerns, plant species at margins of lakes were observed from a distance.
- 3.1.15. Surveyors recorded invasive non-native species (INNS) when observed incidentally; however, a comprehensive INNS survey was not conducted.
- 3.1.16. Standard UKHab symbology was not used when mapping the habitats, as it was believed that non-standard symbology would be easier for the non-specialist to interpret.
- 3.1.17. Although the Site was surveyed multiple times, it is possible that early/late flowering species were not recorded. This is not considered to be a significant limitation as surveyors recorded sufficient information to confidently identify the habitat types.
- 3.1.18. Ecological survey data is typically valid for 18 months unless otherwise specified, for example if conditions are likely to change more quickly due to ecological processes or anticipated changes in management<sup>16</sup>.

<sup>15</sup> Department for Environment, Food and Rural Affairs (2007) *Hedgerow Survey Handbook*. Available at: <https://www.gov.uk/government/publications/hedgerow-survey-handbook> [Accessed: 05 March 2025].

<sup>16</sup> Chartered Institute of Ecology and Environmental Management (2019) *On the lifespan of ecological reports and surveys*. Available at: <https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf> [Accessed: 05 March 2025].

## 4 RESULTS

- 4.1.1. The majority of the habitats present within the Site comprised arable fields bound by hedgerows and grassland margins, most notably within the Core Zone and West Gateway Zone. The Lake Zone consisted of more varied habitats, with large areas of waterbodies, reedbeds, and other neutral grassland present. Towards the south of the Lake Zone, open mosaic habitat on previously developed land was recorded. Pockets of woodland and scrub were also present throughout the Site. The remaining areas within the Site primarily comprised roads and associated hardstanding, including Marston Vale Railway Line present to the east of the West Gateway Zone, and Midland Main Railway Line to the east of the East Gateway Zone.
- 4.1.2. In total, 21 UKHab habitat types were identified within the Site as summarised in **Table 4-1** along with areas in hectares (or length for linear features). The location and extent of habitats recorded are shown on plans provided within **Annex 3**. A description of each habitat type identified is provided below which provides an overview of the dominant and notable species recorded, and where relevant, the composition and management. An indicative plant species list has been compiled and is provided in **Annex 2**. Site photographs showing indicative images of the habitats recorded across the Site are appended in **Annex 4**. The order of the habitat descriptions below reflects their ordering in the UKHab manual and does not reflect habitat importance or abundance.

**Table 4-1 – UKHab Categories and Areas**

UKHab Category	UKHab Code	Area (ha)	Length (m)
Other neutral grassland	g3c	33.21	N/A
Modified grassland	g4	8.24	N/A
Other lowland mixed deciduous woodland (HPI)	w1f7	26.56	N/A
Other broadleaved woodland	w1g	0.96	N/A
Ecologically valuable line of trees	w1g 34	N/A	276.61
Other woodland – mixed	w1h	0.14	N/A
Native hedgerow (HPI)	h2a	N/A	1700.11
Hedgerow with trees (HPI)	h2a 11	N/A	3096.74
Other blackthorn scrub	h3a6	0.07	N/A
Bramble scrub	h3d	0.19	N/A
Hawthorn scrub	h3f	1.42	N/A
Mixed scrub	h3h	7.92	N/A
Reedbeds (HPI)	f2e	6.35	N/A
Cereal crops	c1c	139.96	N/A



UKHab Category	UKHab Code	Area (ha)	Length (m)
Developed land – sealed surface	u1b	19.51	N/A
Artificial unvegetated – unsealed surface	u1c	6.06	N/A
Suburban mosaic of developed and natural surface	u1d	1.51	N/A
Sparsely vegetated urban land	u1f	2.39	N/A
Standing open water and canals	r1	13.61	N/A
Rivers and streams	r2	N/A	7,755.07
<i>Open mosaic habitat on previously developed land (HPI) (not included in area total as overlaps with primary UKHab types)*</i>	<i>Secondary code 80</i>	2.80	N/A
<b>Total</b>	<b>N/A</b>	<b>268.1</b>	<b>12,828.53</b>

\* This 2.8ha quantifies areas of sparsely vegetated land, woodland, scrub and grassland already listed in the table, which were also given the secondary code 80. Therefore, it cannot be summed with the other habitats in the list.

### Other Neutral Grassland – g3c

- 4.1.3. Other neutral grassland is not a HPI.
- 4.1.4. The majority of grassland within the Lake Zone was classified as other neutral grassland and was present in proximity to the waterbodies (**Annex 4, Figure 1**), along field margins, and as small pockets of habitat within the hard standing. Some areas were dominated by bird's-foot trefoil *Lotus corniculatus*. Other recorded species included abundant creeping cinquefoil *Potentilla reptans*, with frequent selfheal *Prunella vulgaris*, Yorkshire fog *Holcus lanatus*, and false oat grass *Arrhenatherum elatius*. Additionally, occasional lesser century *Centaureum pulchellum*, ribwort plantain *Plantago lanceolata*, and wild carrot *Daucus carota* were recorded.
- 4.1.5. An area to the centre of the Lake Zone contained abundant Yorkshire fog and false oat grass, frequent creeping cinquefoil, cat's ear *Hypochaeris radicata*, and bramble *Rubus sp.*, with occasional eyebright *Euphrasia sp.*, perforate St John's wort *Hypericum perforatum*, common hawthorn *Crataegus monogyna*, and creeping thistle *Cirsium arvense*. Rare species included sheep sorrel *Rumex acetosella* and selfheal (**Annex 4, Figure 2**). This habitat was uniform and ungrazed.
- 4.1.6. An area to the east of the Lake Zone was recorded as containing species including abundant spiny retharrow *Ononis spinosa*, frequent false oat grass, bird's-foot trefoil, ragwort *Jacobaea vulgaris*, and bramble, and occasional agrimony *Agrimonia eupatoria*, wild carrot, and teasel *Dipsacus sp.* (**Annex 4, Figure 3**). This habitat area was grazed and had areas of bare ground.
- 4.1.7. None of the discrete areas of this habitat type contained more than 10 species per m<sup>2</sup>.
- 4.1.8. The majority of grassland bordering roads in the southwest of the Site could not be accessed due to access restrictions. The habitat has been classified as other neutral grassland on a precautionary basis. The only exception is where grass verges appeared to be regularly managed and displaying a short sward, which resulted in the area being mapped as modified grassland.

### Modified Grassland – g4

- 4.1.9. This habitat type is not a HPI.
- 4.1.10. This habitat was recorded throughout the Core Zone and West Gateway Zone, along arable field margins, and surrounding watercourses within arable fields (**Annex 4, Figure 4**). This vegetation is characterised by the dominance of grass species which are palatable to livestock, with a low abundance and diversity of flowering species, which indicates high soil fertility. The management of this grassland was most often frequently mown (secondary code 108), and rabbit grazed, displaying a short sward.
- 4.1.11. Additionally, road verges throughout the Site were not accessed. Where the grassland appeared regularly managed and displaying a short sward, the habitat was classified as modified grassland.
- 4.1.12. Grass species recorded during the field survey included cock's-foot *Dactylis glomerata*, false oat grass, and common couch *Elytrigia repens*. Abundant forbs included common nettle *Urtica dioica* and hemlock *Conium maculatum*, with occasional hedge bedstraw *Gallium album* (**Annex 4, Figure 5**).

### Other Lowland Mixed Deciduous Woodland – w1f7

- 4.1.13. This woodland habitat type is a HPI, incorporating most semi-natural broadleaved woodland in southern and eastern England on the full range of soil types, with great variety in species composition of the canopy and ground layer.
- 4.1.14. An area of w1f7 was recorded along the southern boundary of the arable area of the West Gateway Zone, to the north of the cut-out in the southeast corner. The woodland was semi mature and dominated by common ash *Fraxinus excelsior* and hazel *Corylus avellana*, with occasional silver birch *Betula pendula*, Scot's pine *Pinus sylvestris*, and field maple *Acer campestre* also present. The shrub layer included abundant common hawthorn, blackthorn *Prunus spinosa*, and elder *Sambucus nigra*, with occasional spindle *Euonymus europaeus*, dogwood *Cornus sanguinea*, and Norway maple *Acer platanoides* (**Annex 4, Figure 6**). Although some non-native tree species were recorded, only a small area of woodland was observed, therefore it cannot be assumed that this is a representative of the whole woodland. The woodland did not appear to be actively managed. It was recorded as w1f7 on a precautionary basis.
- 4.1.15. A second area of w1f7 was recorded along the north-east boundary of the Lake Zone. Common ash, wild cherry *Prunus avium*, sycamore *Acer pseudoplatanus*, Norway maple, elder, and willow *Salix* sp. were recorded within the woodland. Approximately 10% of the woodland comprised Scot's pine.
- 4.1.16. A third area of woodland was recorded surrounding the southernmost waterbody within the Lake Zone. The woodland was mature plantation woodland and was approximately 10m wide. The species present included blackthorn and sycamore. There was limited ground flora recorded.
- 4.1.17. Multiple areas of woodland were recorded within the East Gateway Zone (**Annex 4, Figure 7**), including woodland parallel to the Midland Main Railway Line. The woodlands were plantation and consisted of mature English oak *Quercus robur*, elm *Ulmus* sp, field maple, common hawthorn, blackthorn, and hazel, with the ground flora dominated by common ivy *Hedera helix*, with broad-leaved dock *Rumex obtusifolius*, and cleavers *Galium aparine*. Non-native species such as Norway maple and Scot's pine were identified, but collectively these covered less than 10% of the woodland (**Annex 4, Figure 8**).



- 4.1.18. Further areas of w1f7 were recorded along the west, south, and east boundaries of the Core Zone (**Annex 4, Figure 9**).
- 4.1.19. In addition, an area of woodland was observed along the southern boundary of the West Gateway Zone, to the south of Broadmead Road. There was no access into the woodland, therefore it was visually surveyed from its boundary. The woodland was semi-mature, and the canopy was dominated by common ash, with abundant field maple, and frequent willow recorded. The shrub layer consisted of common hawthorn and bramble, with common nettle present within the ground layer. Dead wood was also observed.
- 4.1.20. Areas of woodland that could not be fully accessed due to land access restrictions, were assessed by aerial imagery, and classified as lowland mixed deciduous woodland on a precautionary basis.

#### **Ecologically Valuable Line of Trees – w1g 34**

- 4.1.21. A line of mature trees was present south of Manor Road, dividing two fields within the Core Zone (**Annex 4, Figure 10**). The line of trees was dominated by elm, with other species present including frequent blackthorn, with occasional elder, common hawthorn, plum *Prunus sp.*, field maple, and crab apple *Malus sylvestris*. Multiple large gaps were present within the line of trees.
- 4.1.22. A line of trees is classified as ecologically valuable (secondary code 34) when it has at least one mature, veteran, or ancient tree per 30m length. The line of trees within the Site contained mature trees.

#### **Other Broadleaved Woodland – w1g**

- 4.1.23. Other broadleaved woodland without additional secondary codes is not a HPI.
- 4.1.24. This habitat type is classified as broadleaved and mixed woodland not meeting the criteria of w1a to w1f. An area of other broadleaved woodland was identified west of the A421 which could not be accessed due to access restrictions. These areas consisted of newly planted trees with guards to protect the trees still visible.
- 4.1.25. An area of other broadleaved woodland was present towards the south of the Lake Zone which was secondary coded as open mosaic habitats on previously developed land (secondary code 80), this qualifies this particular area of other broadleaved woodland as a HPI. The woodland primarily consisted of sparse, young silver birch, with the ground flora with patches of bare ground dominated by lichen.

#### **Other Woodland – Mixed - w1h**

- 4.1.26. This habitat type is not a HPI.
- 4.1.27. This habitat type is classified as a mixture of broadleaved and coniferous trees in which neither make up >80% of the tree cover. A single area of w1h was recorded in the southeastern area of the West Gateway Zone (**Annex 4, Figure 11**), to the western side of the cut-out. There was no access to this woodland, therefore it was surveyed from the edge. The woodland consisted of abundant common ash and field maple, with frequent Scots pine and elder also present. Hazel and English oak were present occasionally in the canopy layer, and frequently in the shrub layer. There was a limited ground layer with occasional bramble saplings and hedge bedstraw.

#### **Native Hedgerow (HPI) – h2a**

- 4.1.28. All of the hedgerows on Site qualify as HPI under the *NERC Act 2006* (as amended)<sup>5</sup>.

- 4.1.29. Hedgerows were present along the boundaries of arable field margins and bordering roads, and comprised species such as common hawthorn, blackthorn, elder, dog rose *Rosa canina* agg., and elm. The hedgerow margins included species such as common couch, cleavers *Galium aparine*, hemlock, false oat grass, and common nettle.
- 4.1.30. Within the Site there were seven hedgerows plus an additional ten hedgerows containing trees (secondary code 11) (**Annex 4, Figure 12 and Figure 13**). The hedgerows (H) (h2a) and hedgerows with trees (HT) (h2a 11) are listed in **Table 4-2**.
- 4.1.31. Hedgerows bordering roads that could not be accessed due to access restrictions, have been classified as HPI on a precautionary basis.

**Table 4-2 – Details of Hedgerows on Site**

Reference	Location	Length (m)	Species
H1	Lake Zone	162.21	Blackthorn, rose <i>Rosa</i> sp, whitebeam <i>Sorbus aria</i> , common hawthorn, elder
H2	West Gateway Zone	14.16	Species not recorded – no access
H3	West Gateway Zone	231.97	Species not recorded – no access
H4	West Gateway Zone	182.85	Rose, blackthorn
H5	West Gateway Zone	522.25	Blackthorn, common hawthorn
H6	West Gateway Zone	509.57	Species not recorded – no access
H7	Core Zone	77.11	Species not recorded – no access
HT1	Lake Zone	240.54	Species not recorded – no access
HT2	Lake Zone	340.20	Common hawthorn, elder, oak, willow, rose
HT3	East Gateway Zone	95.18	Species not recorded – no access
HT4	East Gateway Zone	30.12	Species not recorded – no access
HT5	East Gateway Zone	179.70	Field maple, common hawthorn, rose, elm, blackthorn

Reference	Location	Length (m)	Species
HT6	Core Zone	927.76	Ash, blackthorn, elder, common hawthorn, field maple, rose, willow
HT7	Core Zone	450.97	Blackthorn, buckthorn <i>Rhamnus cathartica</i> , elm, common hawthorn, rose
HT8	East Gateway Zone	66.50	Species not recorded – no access
HT9	Core Zone	224.36	Blackthorn, elm, common hawthorn, field maple, rose
HT10	West Gateway Zone	541.43	Common hawthorn, elder, elm, ash, dog rose
Total		4796.85	

#### Other Blackthorn Scrub – h3a6

- 4.1.32. This habitat type is not a HPI.
- 4.1.33. Two areas of blackthorn scrub were recorded along the eastern boundary of the West Gateway Zone, adjacent to the Marston Vale Railway Line (**Annex 4, Figure 14**). The scrub was dominated by blackthorn, with abundant bramble also present.
- 4.1.34. Another small area of scrub dominated by blackthorn was recorded along the eastern bank of the watercourse running through the West Gateway Zone (**Annex 4, Figure 15**).

#### Bramble Scrub – h3d

- 4.1.35. This habitat type is not a HPI.
- 4.1.36. An area of bramble scrub was recorded along the eastern boundary of the West Gateway Zone, adjacent to the Marston Vale Railway Line (**Annex 4, Figure 16**).
- 4.1.37. Another area of bramble scrub was identified in the west of the West Gateway Zone, bordering the western edge of Woburn Road, in an area that could not be accessed due to access restrictions.

#### Hawthorn Scrub – h3f

- 4.1.38. This habitat type is not a HPI.
- 4.1.39. Two small areas of common hawthorn dominant scrub were recorded along the northern boundary of the West Gateway Zone (**Annex 4, Figure 17**).
- 4.1.40. A larger area of this habitat was recorded in the northeastern area of the Lake Zone (**Figure 18**).

### **Mixed Scrub – h3h**

- 4.1.41. This habitat type is not a HPI unless secondary coded as such.
- 4.1.42. This habitat type was recorded along field margins, surrounding watercourses, and within urban areas, within all zones of the Site (**Annex 4, Figure 19**). Species recorded included butterfly bush *Buddleja* sp., and common hawthorn.
- 4.1.43. Two areas of this habitat were present towards the south of the Lake Zone where they were secondary coded as open mosaic habitats on previously developed land (secondary code 80) which is a HPI.
- 4.1.44. Multiple areas of scrub were identified throughout the Site within areas that were not accessed, such as areas bordering roads, Marston Vale Railway Line and Midland Main Railway Line. This habitat was classified as mixed scrub, apart from where it was clearly dominated by a species such as bramble.

### **Reedbeds – f2e**

- 4.1.45. Reedbed is a HPI and includes wetlands that are dominated by >5m wide stands of common reed *Phragmites australis* and where the water table is at or above ground level for most of the year. All but one of the waterbodies within the Lake Zone were completely or partially surrounded by areas of reedbed (**Figure 20**). These areas were dominated by common reed.

### **Cereal Crops – c1c**

- 4.1.46. This habitat type is not a HPI.
- 4.1.47. The majority of the Core Zone and West Gateway Zone consisted of arable fields (**Annex 4, Figure 21** and **Figure 22**). Additionally, there was an area of arable land in the north of the Lake Zone.

### **Developed Land – Sealed Surface – u1b**

- 4.1.48. This habitat type is not a HPI.
- 4.1.49. Many sections of the Site were on existing roads which were tarmac or concrete, including the southwest of the Lake Zone, the A421, Manor Road, and Broadmead Road (**Annex 4, Figure 23**).

### **Artificial Unvegetated – Unsealed Surface – u1c**

- 4.1.50. This habitat type is not a HPI.
- 4.1.51. The Marston Vale Railway Line corridor located along the western boundary of the Lake Zone, and between the Core and West Gateway Zones consisted of this habitat type (**Annex 4, Figure 24**). This habitat was also mapped in the centre of the Lake Zone, west of one of the waterbodies, and comprised bare earth.

### **Suburban Mosaic of Developed and Natural Surface – u1d**

- 4.1.52. This habitat classification was used to define small-scale mosaics of developed and natural surfaces, i.e., housing and gardens in sub-urban areas.

### **Sparsely vegetated urban land - u1f**

- 4.1.53. This habitat type is not a HPI unless secondary coded as such.
- 4.1.54. This habitat classification was used to define derelict, urban, permeable land with a vegetation cover of 10-50%. This was present in areas in the northeast and the south of the Lake Zone.

- 4.1.55. The area to the north of the Lake Zone had vegetation cover of up to 40%, with species including common fleabane *Pulicaria dysenterica*, scarlet pimpernel *Anagallis arvensis*, yellow-wort *Blackstonia perfoliata*, and willowherb *Epilobium* sp., with silver birch and hard rush *Juncus inflexus* bordering the reedbed (**Annex 4, Figure 25**).
- 4.1.56. The area to the south of the Lake Zone had a dense carpet of lichen, and was sparsely vegetated with rosebay willowherb *Chamerion angustifolium*, imperforate St John's wort *Hypericum maculatum*, and buddleja (**Annex 4, Figure 26**). This area of sparsely vegetated land was secondary coded as 'open mosaic habitat on previously developed land' (80), which qualifies as a HPI.

#### **Standing Open Water and Canals – r1**

- 4.1.57. Five lakes were present across the Lake Zone, most associated with the former brick works land use in this area of the Site (**Annex 4, Figure 27**). The majority of these lakes were surrounded by margins of common reed, with woodland and scrub also surrounding two of the lakes.
- 4.1.58. A further five ponds were present within the Core Zone, many of which were surrounded by varying degrees of scrub or woodland. One of the ponds was also dominated by great reedmace *Typha latifolia*.
- 4.1.59. In addition, a single pond was identified west of the A421, within an area that could not be accessed due to access restrictions.
- 4.1.60. Further information is available in **Appendix 6.2: Aquatic Habitat Scoping Assessment Report (Volume 3)**.

#### **Rivers and Streams – r2**

- 4.1.61. Watercourses were present along the boundaries of arable fields (**Figure 28**) and bordering roads. There were 28 watercourses present within the Site, the majority of which were small drainage ditches, apart from the watercourse running through the West Gateway Zone which is the Elstow Brook (**Annex 4, Figure 29**). Species recorded within the watercourses included common reed, great reedmace, water mint *Mentha aquatica*, common nettle, hemlock, and hedge bedstraw.
- 4.1.62. Further information is available in **Appendix 6.2: Aquatic Habitat Scoping Report (Volume 3)**.

#### **Open Mosaic Habitats on Previously Developed Land (OMHoPDL) – secondary code 80**

- 4.1.63. Habitat categorised by this secondary code qualify as HPI.
- 4.1.64. This secondary code was applied to a 2.8ha area of the Site located in the south of the Lake Zone (**Annex 3, Map 2**) and comprised the following primary habitats: Other Broadleaved Woodland, Mixed Scrub, and Sparsely Vegetated Unsealed Surface. A mix of these primary habitats formed the open mosaic structure, colonising an area of previously developed ground which consisted of loose rubble/brick material and hard standing with little soil substrate.
- 4.1.65. For this area to qualify as open mosaic habitats on previously developed land, it met the following five criteria detailed below in **Table 4-3** (UKHab Ltd, 2023<sup>11</sup>):

**Table 4-3 – Open Mosaic Habitats on Previously Developed Land Qualifying Criteria**

<b>UKHab Criteria</b>	<b>Justification</b>
Open Mosaic habitat over 0.25ha in size	Qualifying area on Site is 2.8ha total.
Known history of disturbance, or evidence that soil has been removed or severely modified by previous use(s). Extraneous materials/substrates such as industrial spoil may have been added.	This area of the Site, as with a significant proportion of the Lake Zone, has known history of disturbance following the historic use of this part of the Site as an operational brick works.
Site contains some vegetation. This will comprise early successional communities, consisting mainly of stress-tolerant species (e.g. indicative of low-nutrient status or drought).	Evidence of early successional communities were present throughout with abundant lichen cover present accompanying young birch woodland and sparsely vegetated ground. Other early colonising/ruderal species including yellow wort, rosebay willowherb, scarlet pimpernel, and wild <i>Reseda luteola</i> , were recorded indicating low-nutrient/fast draining and loose substrate.
Contains unvegetated, loose bare substrate, and pools may be present.	Unvegetated areas in the form of bare/broken hardstanding as well as brick/rubble material were recorded throughout.
The Site shows spatial variation within 0.25ha, forming a mosaic of $\geq 1$ early successional communities, plus bare substrate. See UKHab guidance <sup>11</sup> for full list of communities.	In addition to bare substrate, this area of the Site qualified this criterion by containing extensive lichen communities and ruderal communities.

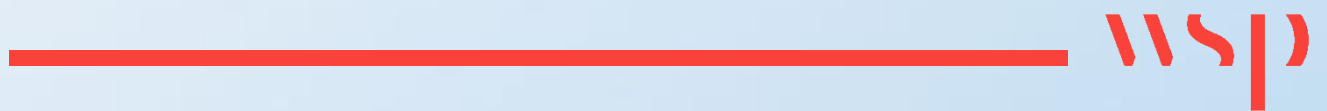
## 5 CONCLUSION

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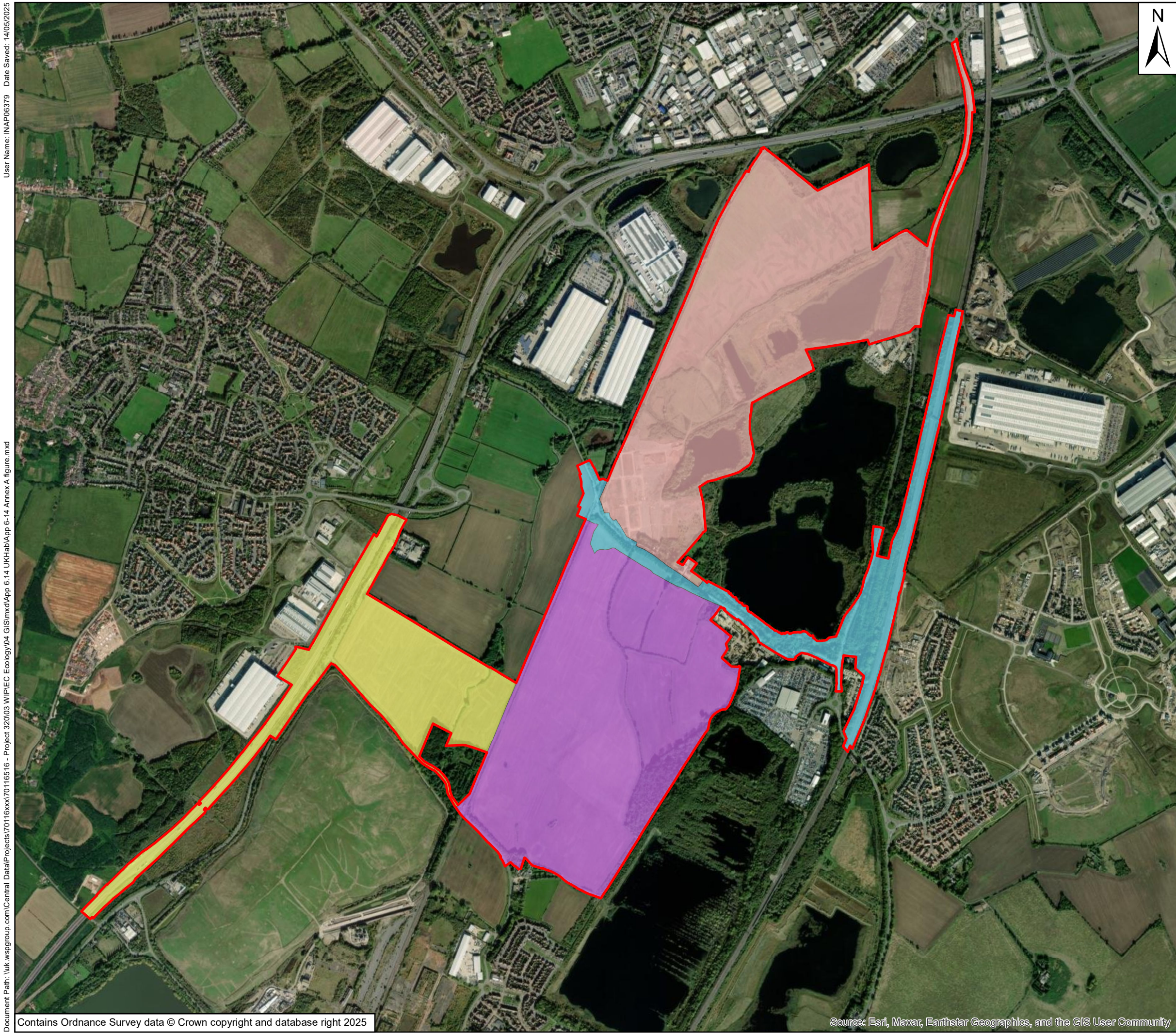
- 5.1.1. Throughout the Site, 21 UKHab habitat types were recorded (**Table 4-1**).
- 5.1.2. The majority of the habitats present within the Site comprised arable fields, bound by hedgerows, scrub and woodland and grassland margins, most notably within the Core Zone and West Gateway Zone. The Lake Zone consisted of more varied habitats, with large areas of waterbodies, reedbeds, and other neutral grassland present. Pockets of woodland and scrub were also present throughout the Site. The remaining areas within the Site primarily comprised roads and associated hardstanding, including the Marston Vale railway line dividing the Core and West Gateway Zones, and the Midland Main Railway Line located to the east of the East Gateway Zone.
- 5.1.3. Within the Site, there were four different primary habitats with HPI status, comprising native hedgerow, native hedgerow with trees, lowland mixed deciduous woodland, and reedbed. In addition, certain areas of other broadleaved woodland, mixed scrub and sparsely vegetated land were located in mosaic with one another, southwest of the Lake Zone. This vegetation was secondary coded as 'open mosaic habitat on previously developed land' and qualifies as a HPI.
- 5.1.4. The largest area habitat type was cereal crops (c1c), occupying 52.39% of the Site, followed by other neutral grassland (g3c), occupying 12.43% of the Site. Collectively, area habitats classified as HPI accounted for approximately 13.4% of the Site.
- 5.1.5. The longest linear habitat type was rivers and streams (r2), with a collective length of 7.75km, followed by hedgerow with trees (h2a 11), with a collective length within the Site of approximately 3.1km.

# Annex 1

## **SITE BOUNDARY AND ZONES**

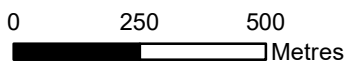






**Key**

- Site boundary
- Core Zone
- East Gateway Zone
- Lake Zone
- West Gateway Zone

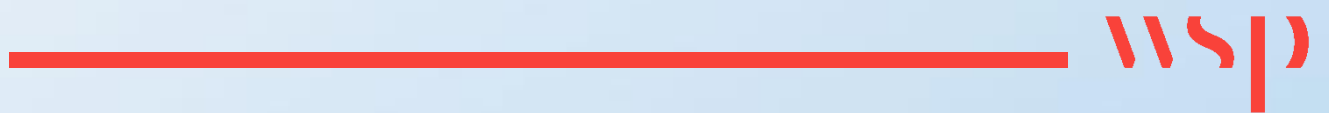


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Project:	Universal Destinations & Experiences UK Project		
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Drawing No:	Annex 1	Drawn:	AP
Date:	22/05/2025	Checked:	CM
Scale:	15,000 @ A3	Approved:	SB



# Annex 2

## INDICATIVE PLANT SPECIES LIST



**Table 1 – Indicative Plant Species List – Site Wide**

<b>Common name</b>	<b>Scientific name</b>
Agrimony	<i>Agrimonia eupatoria</i>
Bird's-foot trefoil	<i>Lotus corniculatus</i>
Blackthorn	<i>Prunus spinosa</i>
Bramble	<i>Rubus sp.</i>
Broad-leaved dock	<i>Rumex obtusifolius</i>
Buddleja	<i>Buddleja sp</i>
Catsear	<i>Hypochaeris radicata</i>
Cleavers	<i>Galium aparine</i>
Cocksfoot	<i>Dactylis glomerata</i>
Common ash	<i>Fraxinus excelsior</i>
Common couch	<i>Elytrigia repens</i>
Common fleabane	<i>Pulicaria dysenterica</i>
Common hawthorn	<i>Crataegus monogyna</i>
Common hazel	<i>Corylus avellana</i>
Common ivy	<i>Hedera helix</i>
Common nettle	<i>Urtica dioica</i>
Common ragwort	<i>Jacobaea vulgaris</i>
Common reed	<i>Phragmites australis</i>
Creeping cinquefoil	<i>Potentilla reptans</i>
Creeping thistle	<i>Cirsium arvense</i>
Dog rose	<i>Rosa canina</i>
Dogwood	<i>Cornus sanguinea</i>
Elder	<i>Sambucus nigra</i>
Elm	<i>Ulmus sp.</i>
English oak	<i>Quercus robur</i>
Eyebright	<i>Euphrasia sp.</i>
False oat grass	<i>Arrhenatherum elatius</i>
Field maple	<i>Acer campestre</i>
Great reedmace	<i>Typha latifolia</i>
Hard rush	<i>Juncus inflexus</i>

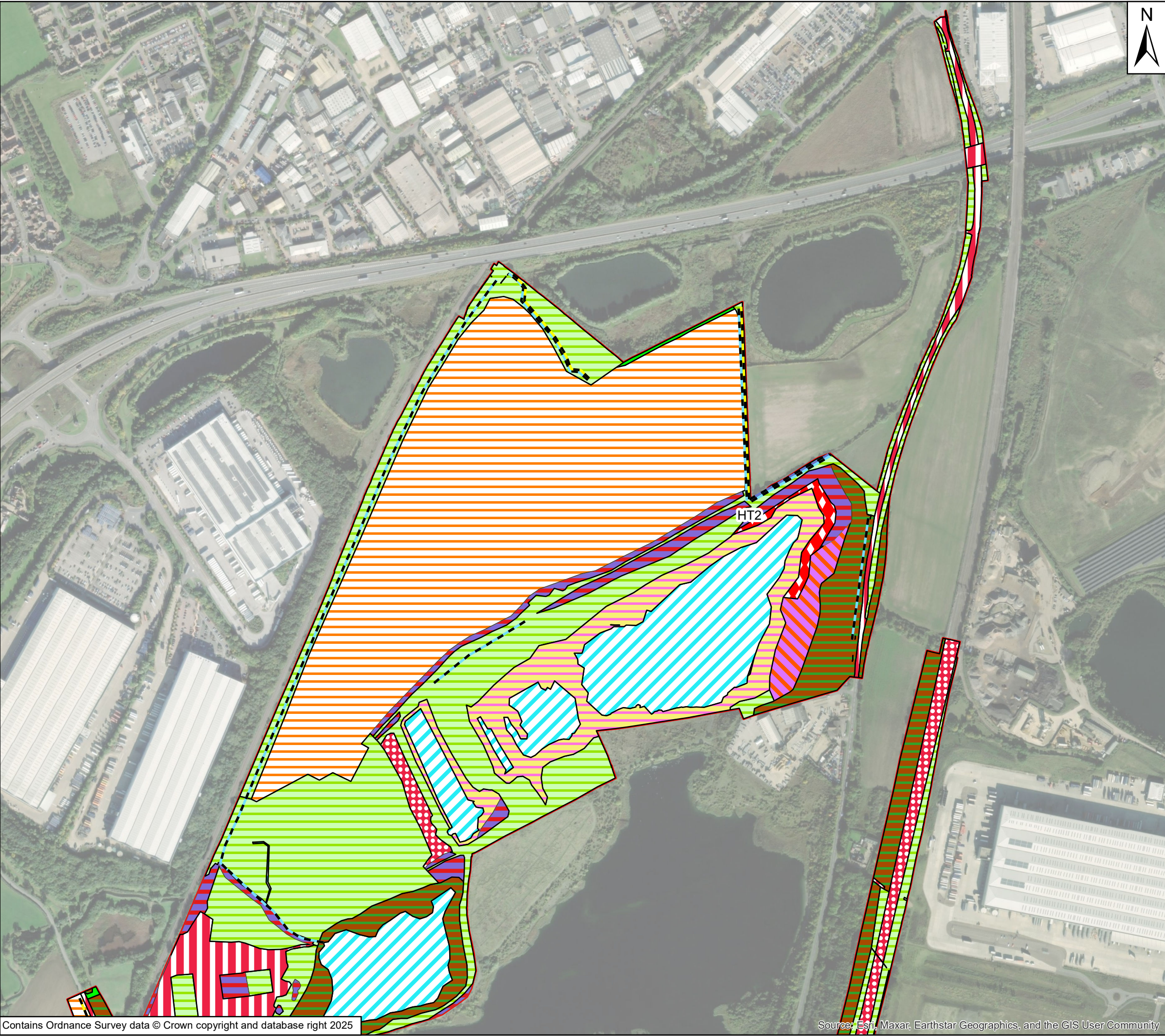
Common name	Scientific name
Hedge bedstraw	<i>Galium album</i>
Hemlock	<i>Conium maculatum</i>
Imperforate St John's wort	<i>Hypericum maculatum</i>
Norway maple	<i>Acer platanoides</i>
Perforate St John's wort	<i>Hypericum perforatum</i>
Reed sweet grass	<i>Glyceria maxima</i>
Rosebay willowherb	<i>Chamerion angustifolium</i>
Scarlet pimpernel	<i>Anagallis arvensis</i>
Scots pine	<i>Pinus sylvestris</i>
Selfheal	<i>Prunella vulgaris</i>
Sheep sorrel	<i>Rumex acetosella</i>
Silver birch	<i>Betula pendula</i>
Spindle	<i>Euonymus europaeus</i>
Spiny retharrow	<i>Ononis spinosa</i>
Sycamore	<i>Acer pseudoplatanus</i>
Teasel	<i>Dipsacus sp.</i>
Water mint	<i>Mentha aquatica</i>
Wild carrot	<i>Daucus carota</i>
Wild cherry	<i>Prunus avium</i>
Willow	<i>Salix sp.</i>
Willowherb	<i>Epilobium sp.</i>
Yellow wort	<i>Blackstonia perfoliata</i>
Yorkshire fog	<i>Holcus lanatus</i>

# Annex 3

## UK HABITAT MAPS







N

**Key**

- Site boundary
- c1c - cereal crops
- f2e - reedbeds
- g3c - other neutral grassland
- g4 - modified grassland
- h3f - hawthorn scrub
- h3h - mixed scrub
- r1 - standing open water and canals
- u1b - developed land, sealed surface
- u1c - artificial unvegetated unsealed surface
- u1f - sparsely vegetated urban land
- w1f7 - other lowland mixed deciduous woodland
- h2a - hedgerow (priority habitat)
- h2a 11 - hedgerow with trees
- r2 - rivers and streams

0100200

Metres

Client:

Universal Destinations & Experiences

Project:

Universal Destinations & Experiences  
UK Project

Title

UKHab Map  
1 of 3

Drawing No:Annex 3.1

Date:22/05/2025

Scale:6,500 @ A3

Drawn:AP

Checked:CM

Approved:SB

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N

Key

Site boundary

c1c - cereal crops

g3c - other neutral grassland

g4 - modified grassland

h3a6 - other blackthorn scrub

h3d - bramble scrub

h3f - hawthorn scrub

h3h - mixed scrub

r1 - standing open water and canals

u1b - developed land, sealed surface

u1c - artificial unvegetated unsealed surface

u1d - suburban mosaic of developed/natural surfaces

u1f - sparsely vegetated urban land

w1f7 - other lowland mixed deciduous woodland

w1g - other woodland, broadleaved

w1h - other woodland, mixed

h2a - hedgerow (priority habitat)

h2a 11 - hedgerow with trees

r2 - rivers and streams

w1g6 - line of trees

0100200

Metres

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Client:

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Project:

Universal Destinations & Experiences UK Project

Title

UKHab Map 2 of 3

Drawing No: Annex 3.2

Date: 22/05/2025

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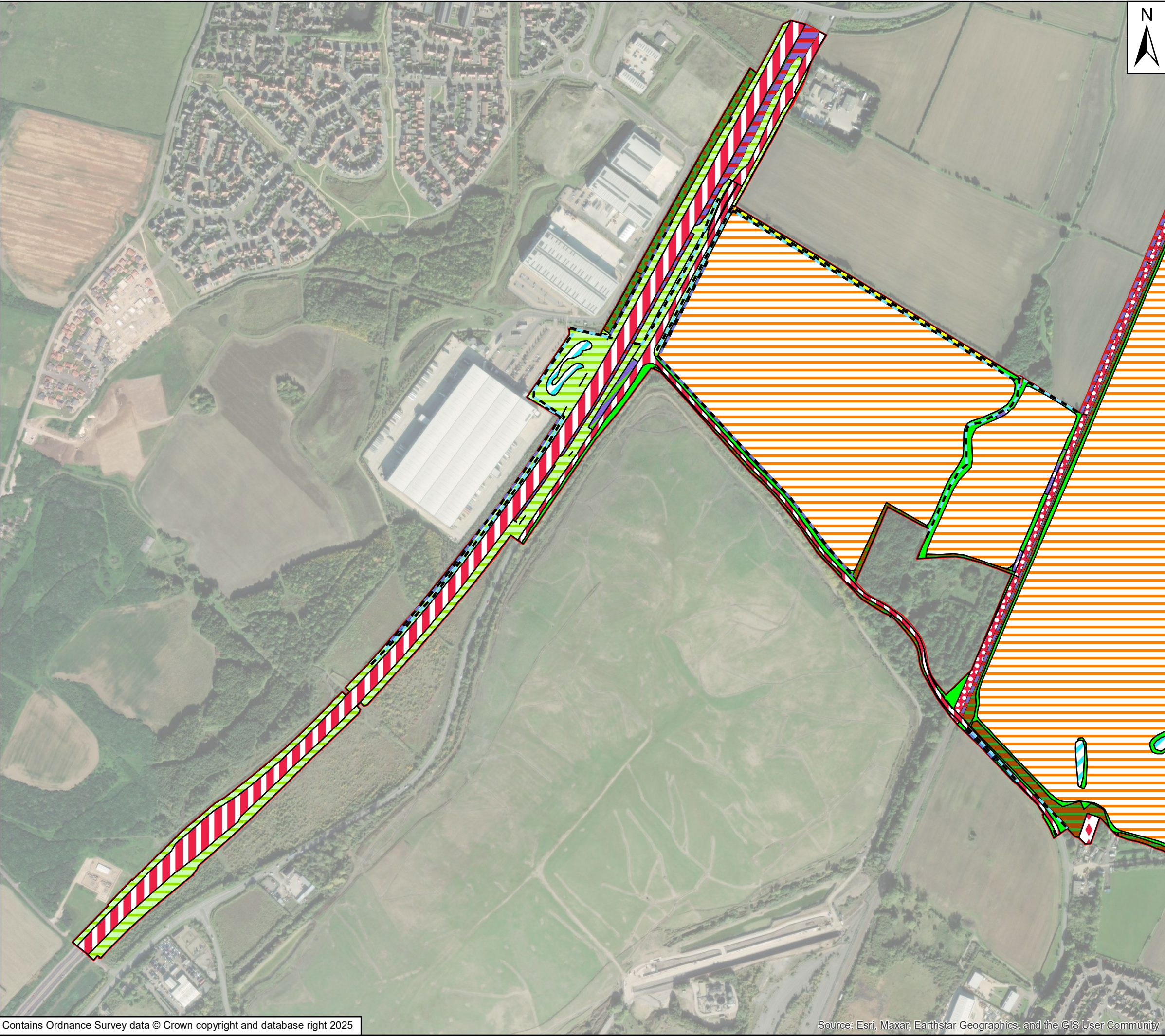
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Project:

Universal Destinations & Experiences  
UK Project

Title

UKHab Map  
3 of 3

Drawing No:

Annex 3.3

Date:

22/05/2025

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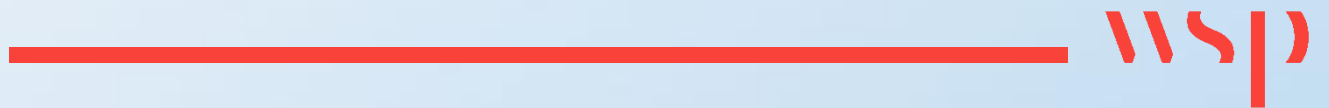
Approved:

SB



# Annex 4

## **INDICATIVE HABITAT PHOTOGRAPHS**





**Figure 1 - g3c**



**Figure 2 - g3c**



**Figure 3 - g3c**



**Figure 4 - g4**





**Figure 5 - g4**



**Figure 6 - w1f7**



**Figure 7 - w1f7**



**Figure 8 - w1f7**





**Figure 9 - w1f7**



**Figure 10 - w1g 34**



**Figure 11 - w1h**



**Figure 12 - h2a**





**Figure 13 - h2a**



**Figure 14 - h3a6**



**Figure 15 - h3a6**



**Figure 16 - h3d**





**Figure 17 - h3f**



**Figure 18 - h3f**



**Figure 19 - h3h**



**Figure 20 - f2e**





**Figure 21 - c1c**



**Figure 22 - c1c**



**Figure 23 - u1b**



**Figure 24 - u1c**





**Figure 25 - u1f**



**Figure 26 - u1f**



**Figure 27 - r1**



**Figure 28 - r2**





**Figure 29 - r2**



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