

Preliminary Ecological Appraisal and Biodiversity Net Gain Feasibility Report

Bold Forest Garden Village

Land North of Gorsey Lane, St Helens

WA9 4FU



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Summary

- A Preliminary Ecological Appraisal was carried out of an area of land north of Gorsey Lane, St Helens in 2024.
- The survey was required to inform the Bold Forest Garden Village Masterplan (the Masterplan) that St Helens Council is currently commissioning. The survey area comprises the Garden Village allocation itself (Policy LPA11) and the adjacent Local Wildlife Site. The BFGV encompasses 132.86ha (147.36ha including the LWS), resulting in a potential development capacity of 2,988 dwellings.
- The study will be made available to the consultants undertaking the Masterplan and inform an ecological impact assessment, mitigation strategy and BNG strategy for the allocation.
- A Local Wildlife Site (LWS) lies adjacent to the allocation boundary (Field, North of Gorsey Lane/ Tunstalls Farm). It is likely this site could be impacted by the potential development. Either directly through disturbance or indirectly through pollution incidents or increased surface run-off during or following construction. Other sites of importance lie at a sufficient distance from the allocation, including Clockface County Park, Colliers Moss Common, Dog Kennel Plantation/Griffin Wood and other surrounding woodlands close to the allocation area, of which the potential development could interfere with ecological networks.
- Habitats within the allocation comprise agricultural land of cereal crops or land left to fallow, grassland, and mixed deciduous woodland. There is also an extensive ditch and pond network throughout the allocation.
- Habitats and species outlined within the Bold Forest Park Action Plan (BFPAP) may be present within the allocation, of which lies in the jurisdiction of the BFPAP.
- 11 LWS, 1 LNR and 1 NIA are within 2km of the allocation.
- Protected species and BAP/LBAP records were found within the surrounding 2km of the allocation; species include Bats (*Chiroptera*), Water Vole (*Arvicola Terrestris*), Great Crested Newt (*Triturus cristatus*).
- A Biodiversity Net Gain (BNG) assessment for the Bold Forest Garden Village development provided a baseline of 354.67 habitat units, 43.84 hedgerow units and 22.10 watercourse units. There are an addition 47.93 habitat units, 6.58 hedgerow units and 5.86 watercourse units within the LWS within the allocation area boundary. To achieve 10% net gain 388.10 habitat units, 48.22 hedgerow units and 24.31 watercourse units are required. When considering the LWS this increases to 440.82 habitat units, 55.46 hedgerow units and 30.75 watercourse units.
- The full ecological impacts of the proposed Masterplan development cannot be fully assessed following the PEA (Preliminary Ecological Appraisal) alone and survey work is required as outlined in the recommendations.

1.Introduction

Background

1.1 St Helens Borough Council commissioned the Mersey Forest to undertake a Preliminary Ecological Appraisal (PEA), an Extended Phase 1 Habitat Survey and baseline Biodiversity Net Gain (BNG) assessment for the Bold Forest Garden Village (BFGV) Masterplan area in St Helens (henceforth referred to as 'the allocation').

1.2 The BFGV site allocation (reference 4HA) was released from the Green Belt for the purpose of allocating it for residential development in the Local Plan encompassing 132.86ha, resulting in a potential development capacity of 510 dwellings within the plan period (by 2037) and approximately 3,000 dwellings in total in accordance with Local Plan estimates.

1.3 This report has been produced with reference to current guidelines for a Preliminary Ecological Appraisal (Chartered Institute of Ecology and Environmental Management (CIEEM 2012) and British Standard BS 42020:2013 (BSI, 2013) which involves the evaluation of potential ecological constraints based on Extended Phase 1, (Joint Nature Conservation Committee (JNCC 2010)) survey data and background desk study. The purpose of this report is to provide information for the Local Planning Authority (LPA) to:

- Identify the likely ecological constraints associated with the masterplan project;
- Identify any potential mitigation measures likely to be required following the Mitigation Hierarchy.
- Identify any additional surveys that may be required to inform an Ecological Impact Assessment; and
- Identify the opportunities offered by the project to deliver ecological enhancement (and biodiversity net gain).

1.4 The following ecological features have been considered:

- Statutory and non-statutory designated conservation areas;
- UK and local Biodiversity Action Plan (BAP) habitats;
- Areas of Ancient Woodland;
- Legally protected species;
- UK and local BAP species; and
- Invasive species.

1.5 The results of the PEA are to be used to inform whether further surveys are required to inform an ecological impact assessment and BNG strategy which will be produced as part of the BFGV Masterplan.

Site Location

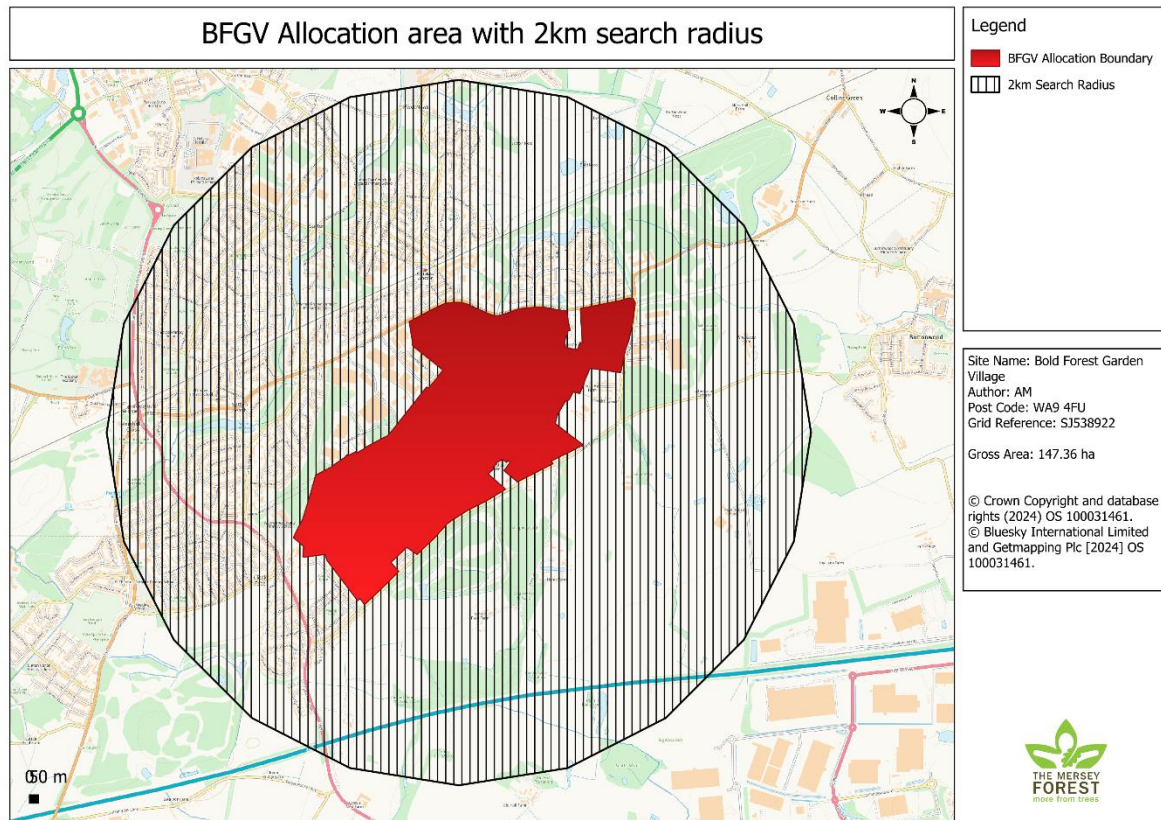


Figure 1: Aerial image of the allocation and the 2km radius (red line shows the allocation boundary and black hatch shows 2km search radius) (2024)

1.6 The aerial image of the allocation (Figure 1) shows the allocation to consist of land that is a mix of arable land, grassland and small patches of lowland mixed deciduous woodland and hedgerows. Other features within the allocation include a network of ditches and ponds. The allocation is situated within the Bold Forest Park and is bounded by Reginald Road/Bold Road/Travers Entry/ Gorsey Lane/ Crawford Street, Bold, St Helens (approximate National Grid Reference (NGR): SJ 53809 92205). The surrounding areas consist of business units, housing estates and two country parks to the south and north-east of the allocation. The National Historic Landscape Characterisation (250m Grid) for England classifies the allocation as enclosed agricultural (typically premodern form) (MAGIC (Multi Agency Geographic Information for the Countryside) (Multi Agency Geographic Information for the Countryside)).

2. Methodology

Desk Study

2.1 A desk study was carried out using existing available information provided by Merseyside Biobank for a 2km search radius from the allocations central grid reference. DEFRA's Multi-agency Geographic Information for the Countryside (MAGIC) was also used. Ordnance Survey (OS) and satellite mapping from Google Earth and Bluesky International Ltd were used to gain contextual habitat information and to gain understanding on the ecological network connectivity between the allocation and other green spaces.

2.2 Biological records were obtained from Merseyside Biobank in which the following was identified within 2km of the allocations centre:

- Records of protected taxa
- Records of BAP taxa
- Records of Red Listed Taxa
- Records of WCA schedule 9 (including invasive plants)
- A list of designated sites
- A list of other sites of interest (e.g. Ancient woodlands)
- A list of all BAP habitats
- A summary of the area for all available mapped Phase 1 and/or NVC habitats found within 500m of the allocation.

2.3 DEFRA's Multi-agency Geographic Information for the Countryside (MAGIC) map (Defra 2024) was utilised to gain information on priority habitats, ongoing CSS schemes and protected or notable species in the area within the allocation and within 1km of the allocation.

Field Study

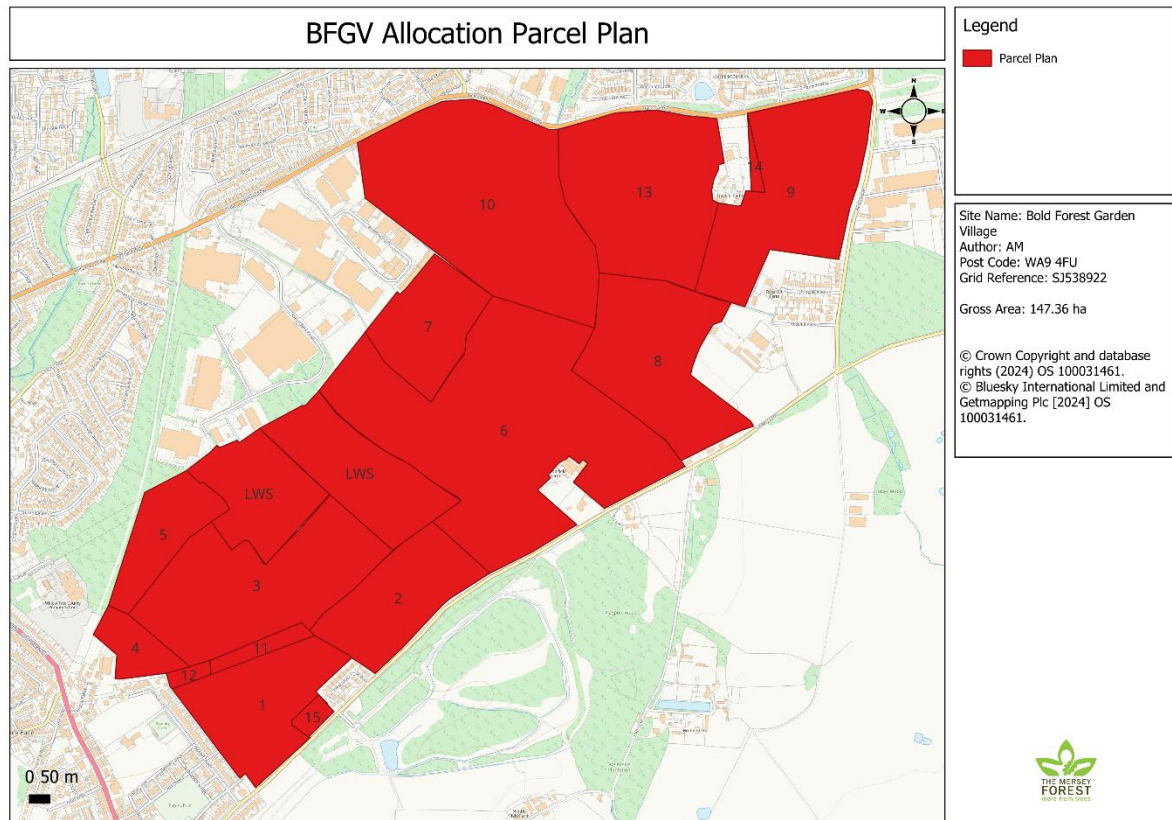


Figure 2. BFGV Allocation Parcel Plan (Labels show parcel number) (2024).

2.4 All habitats present within the allocation, with the potential to support rare, protected or otherwise notable species were noted.

2.5 The habitat and species surveys were conducted using a parcel-based approach, as illustrated in Figure 2. Each parcel was individually classified and assessed according to the DEFRA condition assessment as part of the Biodiversity Net Gain (BNG) evaluation. During the habitat classification process, plant species within each parcel were documented.

2.6 Surveys were conducted between April 2024 and September 2024.

2.7 Surveys were conducted across the parcels to assess the suitability of various habitats for supporting specific wildlife species. Each ditch within the parcels was evaluated for its potential to support Water Voles, with any field signs indicative of their presence being noted. Bird surveys were carried out during the peak breeding season (Between March and August) to accurately document the bird species present. All ponds within the surveyed parcels were assessed for their suitability to support Great Crested Newts (GCN) using the Habitat Suitability Index (HSI). Additionally, bat suitability surveys were conducted on potential roosting or commuting or foraging areas. Any other species encountered during these surveys were also recorded.

2.8 In the context of this report rare, protected or otherwise notable species were those considered to meet any of the following criteria:

- Species protected by legislation.
- UK Post 2010 UK Biodiversity Framework priority species (BAP) and Local Biodiversity Action Plan (LBAP) species.
- Nationally rare or nationally scarce species.
- Species of Conservation Concern (e.g. JNCC Red List, RSPB/BTO Red List or Amber List, The Mammal Society Red List).

Limitations and assumptions

2.9 The desk study and field study may be limited by factors that influence plant and animal present (e.g. activity and dormancy periods). An assessment can be made of the habitats within the survey area with respect to their potential to support protected or priority species. e-DNA testing has not been completed to support the study.

2.10 Access for landownership parcels 15 and 12 are limited (as indicated in Figure 2), which could restrict the survey. However, the desk study has provided information to make an assessment. Pond, trees, and other ecological features that could not be accessed were still mapped and an assessment has been made based on data search information.

2.11 This PEA does not constitute a full botanical survey. Species present at the time of the survey were noted. A comprehensive botanical survey may be necessary in areas where protected or notable species were identified during the initial data search. This includes areas within the Local Wildlife Sites (LWS). Areas identified as grassland may require an additional full botanical survey, habitat types have been classified within the BNG feasibility study and in Figure 8, and a map has been included in Appendix II.

2.12 The protected species assessment provides a view of the likelihood of protected species being present on allocation, based on habitat suitability and the known distribution of species in the local area.

2.13 The surveys were undertaken between April 2024 and September 2024, this is an optimal window for carrying out an extended phase 1 survey, being in the optimal plant growing and species emergence/breeding season. However, an additional survey within the LWS had to be undertaken in September due to changes to the Masterplan Allocation boundary, which is less than optimal for plant growing and species emergence/breeding seasons. Weather conditions also restricted surveying as September had the wettest month on record.

2.14 In accordance with CIEEM's Advice Note on the Lifespan of Ecological Reports and Surveys (CIEEM, 2019), this ecological report will remain valid for a period of 18 months from the date of the last survey (3rd September 2024- 3rd March 2026).

2.15 However, it should not be taken as a full and definitive survey of any protected species groups and recommendations on further surveys have been provided.

Extended Phase 1 Habitat Survey

2.16 The field survey was based on the UK habitats (UK Hab) surveying methodology (V2.0) to provide a standard record of habitats and ecological features within the allocation. The UK Hab classification system is the habitat classification that underpins the DEFRA Biodiversity Metric.

2.17 The allocation was assessed for its suitability to support protected or otherwise notable species that are likely to occur in the area. Considering the geographic location, connectivity to natural habitats in the wider landscape and the nature and extent of habitats within the allocation species specific suitability assessments were undertaken.

2.18 Specifically, for:

- Bats (*Chiroptera* spp.)
- Great Crested Newts (*Triturus cristatus* spp. And other amphibians)
- Invertebrates
- Water Vole (*Arvicola amphibius*)
- Wild Birds
- Protected Plants

2.19 Habitats within the allocation were identified and classified using UK Hab methodology and classifications and were illustrated using QGIS shown in Appendix II.

2.20 All flora and fauna observed during the surveys were noted and shown in appendix III.

Water Vole

2.21 Areas of suitable habitat within the allocation were surveyed for evidence of water vole (*Arvicola amphibius*). The following field signs were recorded during the protected species walkover survey:

- Sighting of Water Voles
- Water Vole burrows
- Water Vole “lawns”
- Water Vole feeding stations
- Water Vole latrines
- Water Vole footprints
- Runs in vegetation
- Sounds of Water Voles ‘plopping into the water’

Bat Survey

2.22 Habitats were assessed for their suitability for foraging and commuting bats, in line with the guidance provided in Collins (2016). General areas of suitability include sheltered areas and habitats with an abundance of invertebrates such as woodland, scrub, rivers, and species-rich grassland.

2.23 Trees were noted if they had potential suitability for roosting bats (Collins, 2016). This involved identifying features that are ideal for roosting bats.

2.24 There were no buildings or structures within the allocation boundary.

Nesting and Breeding Birds

2.25 Birds' nests, forage, and roosts are found in various habitats on the site, including scrub, woodland, hedgerows, trees, and arable and pastoral farmlands. Breeding Skylark (*Alauda arvensis*), Yellowhammer (*Emberiza citrinella*), and Lapwing (*Vanellus vanellus*) have been observed within these habitats.

2.26 The allocation was assessed for its suitability to support diverse assemblages and/or species of breeding and non-breeding birds that are listed on Schedule 1 of the WCA 1981 (as amended) and other notable species. Consideration was given to the allocation's connectivity to landscape features that are likely to be of particular importance to birds, such as areas of extensive woodland.

Amphibian Survey

2.27 All accessible water bodies within the allocation were assessed for their suitability as an aquatic habitat for great crested newts (*Triturus cristatus*) (GCN). Following the appropriate Habitat Suitability Index Assessment guidelines (ARG UK, 2010).

Other notable species

2.28 Other species observed during the survey were recorded and noted in Appendix IIII.

Biodiversity Net Gain Assessment

2.29 The BNG assessment has been undertaken using the Statutory Biodiversity Metric (Natural England, February 2024)¹

2.30 The aim of BNG is to ensure that development leaves the natural environment measurably better than its baseline condition. A mandatory minimum requirement of 10% BNG is required under the Environment Act 2021 (as amended), as of 12 February 2024.

2.31 Habitat parcels on-site (within the allocation) were classified based on:

- Habitat Type
- Area/Length
- Distinctiveness
- Condition

¹ The Statutory Biodiversity Metric and associated guidance can be downloaded from:
<https://publications.naturalengland.org.uk/publication/6049804846366720>

- Strategic Significance

Data Collection

2.32 Site visits to the allocation were conducted from the 8th of April to 3rd of September 2024, as part of a Preliminary Ecological Appraisal. Habitats on-site were mapped and classified using UKHab methodology and guidelines (UKHab LTD. 2023) The results were mapped on QGIS.

Calculations

2.33 All data from the habitat parcels, watercourse features and hedgerow features were entered into the Statutory Biodiversity Metric tool (an Excel spreadsheet). This metric tool creates the number of Biodiversity Units for Habitats, Hedgerows, and watercourses calculated in **Section X** of this report..

Metric Factors

Area/Length

2.34 The Biodiversity Metric assesses linear habitats such as water courses and hedgerows, which are measured in kilometres, and non-linear habitats which are measured in hectares. The area and length of the habitats were all measured using QGIS.

Distinctiveness

2.35 Each habitat in the UK Habitat Classification is assigned a score for distinctiveness within the Metric tool. Distinctiveness recognises the different characteristics of habitats in relation to their capability to support species richness and diversity, their tendency to support rare species and the rarity of the habitat.

2.36 The Biodiversity Metric also uses the habitat classification system to identify “irreplaceable habitats.” The Metric excludes ancient woodland and veteran trees as these are irreplaceable habitats and BNG cannot be achieved if there is a loss of these “irreplaceable habitats.”

Condition

2.37 The condition of each habitat is assessed using the methods set out in the Statutory biodiversity metric condition assessment. This assessment details condition criteria for each habitat type and applies a threshold for how many of these criteria are met to establish a condition score.

Strategic Significance

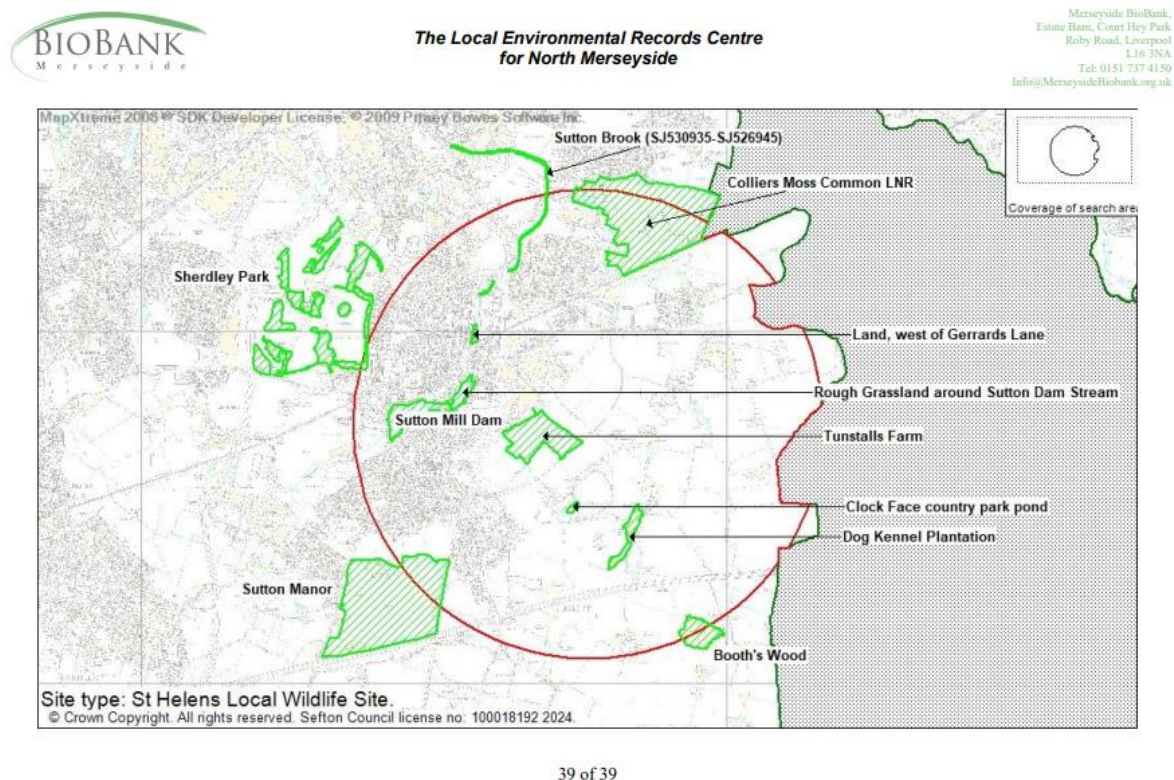
2.38 A multiplier to the unit score is applied where the habitat present or to be created matches a strategic priority for biodiversity that has been stated in a published document such as a Biodiversity Action Plan.

3.Desktop Study Results

Introduction

3.1 The desk study results are summarised below and include a review of the data provided by MAGIC and Merseyside Biobank.

Designated and Non-Statutory Nature Conservation Sites



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Figure 3. Shows LWS, LNS and NIAs within a 2km radius of the BFGV Allocation.

3.2 There are no statutory designated nature conservation sites, such as Species Areas of Conservation (SAC), Areas of Outstanding Natural Beauty, AONB or Sites of Special Scientific Interest, SSSI within 2km of the allocation area. However, there are 11 St Helens Local Wildlife Sites (LWS), 1 Local Nature Reserve (LNR) and 1 Nature improvement Area (NIA).

LWS, LNS and NIA within the 2km of the allocation:

3.3 Booth's Wood (National Grid Reference SJ547904); Deciduous plantation woodland dominated by Sycamore, Horse chestnut and Oak. A stream and ditch network runs through the woodland. The large pond in the south of the woodland is surrounded by rush pasture providing wetland habitat for several locally rare wetland species. (MEAS, 2006).

3.4 Clock Face Colliery Country Park Pond (National Grid Reference SJ536915); A pond within the country park which contains a population of great crested newts. Habitats within the country park will also provide important terrestrial habitat for this population. (MEAS, 2018)

3.5 Colliers Moss Common Local Nature Reserve (National Grid Reference SJ538941); This local nature reserve was designated in 2005 and is the site of disused colliery spoil heap. Remnants of the mossland on which the spoil heap sits remain around the perimeter of the site. A diverse range of habitats have developed on the site including acid and neutral grassland and heath; whilst lagoons provide wetland habitats and breeding sites for several dragonfly and damselfly species. (MEAS, 2006).

3.6 Dog Kennel Plantation (National Grid Reference SJ542913); A mature plantation of beech, oak and sycamore providing an important bird breeding site. (MEAS, 2006).

3.7 Land, west of Gerrards Lane (National Grid Reference SJ528930); The site is a surviving section of the valley of Sutton Mill Brook. The site is predominantly unimproved neutral grassland which contains a number of regionally and locally rare species. (MEAS, 2006).

3.8 Rough grassland around Sutton Dam stream (National Grid Reference SJ527925); This site contains a mosaic of habitats including neutral grassland, scrub, broadleaf woodland and wetland and marsh areas around Sutton Mill Brook that runs through the centre of the site. The site contains a number of nationally and regionally important species. (MEAS, 2006).

3.9 Sherdley Park and Golf Course (National Grid Reference SJ515934); The Victorian designed Sherdley Park includes several areas of relict woodlands and wetlands. The European protected species great crested newt is present, and the site offers an excellent variety of habitats for plants, invertebrates, amphibians, and mammals. (MEAS, 2006).

3.10 Sutton Brook (National Grid Reference SJ532935); A diverse stretch of Sutton Brook. Much of the diversity is because of past industrial use with Leblanc waste forming parts of the banks of the brook in sections forming a mosaic of acid, neutral and alkaline grassland. The brook and its banks contain a number of regionally and locally important plant species as well as supporting a population of Water voles. (MEAS, 2006).

3.11 Sutton Manor (National Grid Reference SJ520906); An extensive mosaic of grassland, scrub, woodland, and wetland habitats created on a former colliery. The site is owned and managed by the Forestry Commission and has a large expanse of developing plantation woodland intersected by grasslands. The geology of the site means it retains water and a large amount of wetland and marsh present. Water voles have been recorded on site and the site is well populated with bird species. (MEAS).

3.12 Sutton Mill Dam (National Grid Reference SJ523923); A water body created by the damming of Sutton Mill Brook. The site contains a number of nationally and regionally important habitats and plant species including the nationally scarce species Tasteless waterpepper (*Persicaria mitis*). (MEAS, 2006).

3.13 Tunstall's Farm (formerly Field north of Gorsey Lane) (National Grid Reference SJ534921); A group of small agricultural fields with an extensive ditch and hedgerow network. The field is now under Environmental Stewardship and is developing into a species rich meadow including,

regionally and locally important species. The ponds and ditches on site provide habitat for water vole and great crested newts. (MEAS, 2018).

3.14 The Locations of the LWS, LNR and NIA within 2km of the allocation are shown in a map in Figure 3.

3.15 Species lists associated with the LWS, LRN and NIA within 2km of the allocation are shown in Appendix III.

3.16 Many of the parcels within the allocation are under Countryside Stewardship Schemes, including The Farm Wildlife Package.

Wider Ecological Network

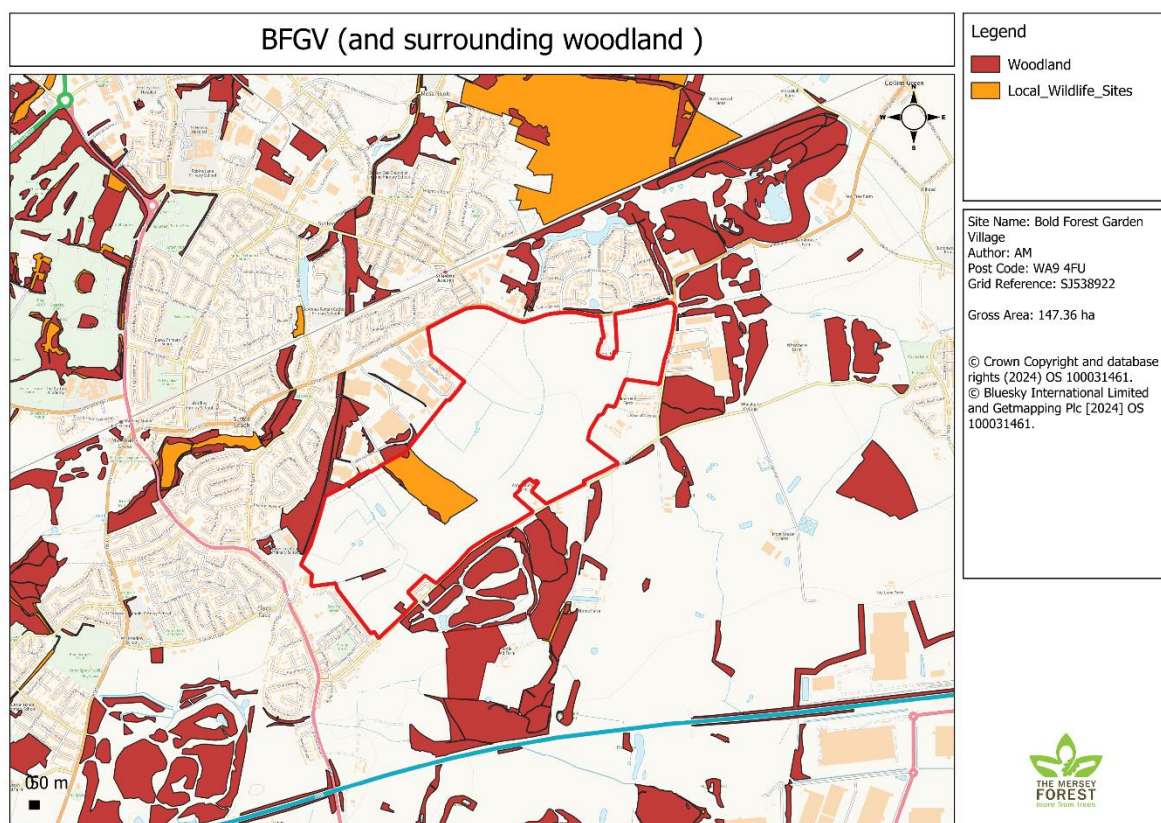


Figure 4. BFGV Allocation and 2km of surrounding woodland (2024).

3.17 As Figures 3 and 4 indicates, the allocation is part of a wider ecological network. The habitat connectivity within the surveyed parcels demonstrates a network of linked features, which are crucial given the site's position within the broader landscape, as depicted in the map. The ponds on the site are well connected to each other, forming a cohesive aquatic network that enhances their suitability for supporting species such as Great Crested Newts (GCN). However, the B classified road acts as a significant barrier, disrupting the continuity of these aquatic features and isolating them from other habitats beyond the site. The site also features a continuous network of hedgerows and lines of trees, which serve as important ecological corridors,

facilitating the movement of species both on and off the site and linking the area to surrounding habitats. Additionally, the ditches on the site contribute to habitat connectivity by creating pathways for wildlife, particularly in linking the site to the wider landscape, such as Clockface Country Park, Royal Mail Woodland and Griffin Wood and other green spaces within the search radius.

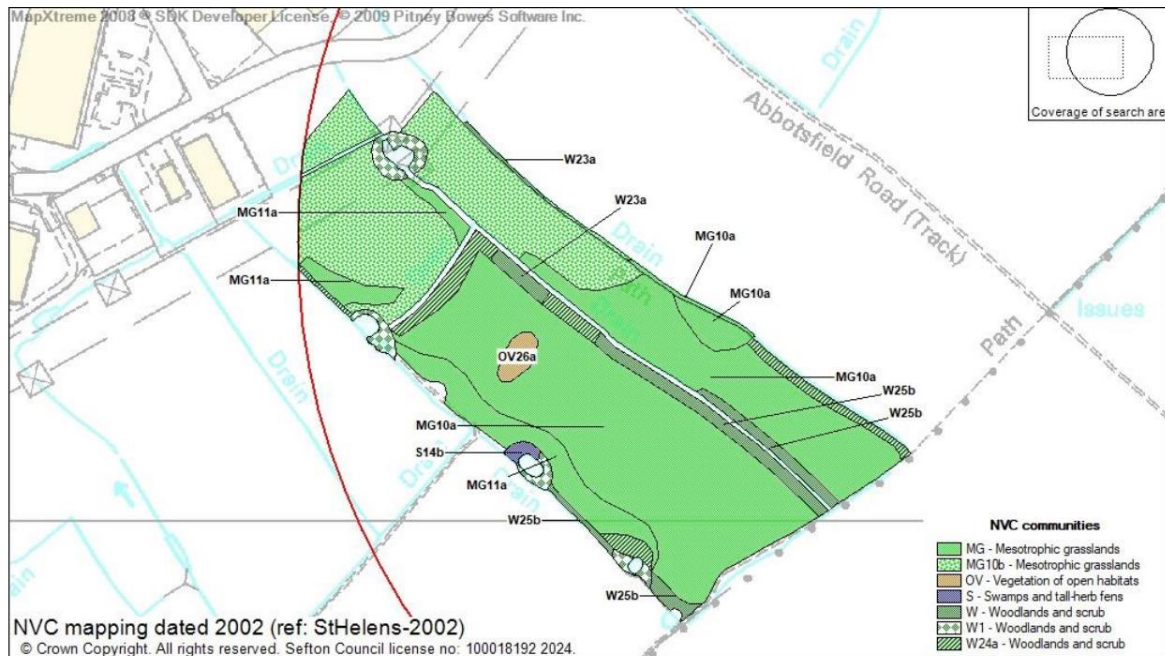


Figure 5: NVC mapping results obtained via the data search (MEAS) for the Local Wildlife Site (2002).

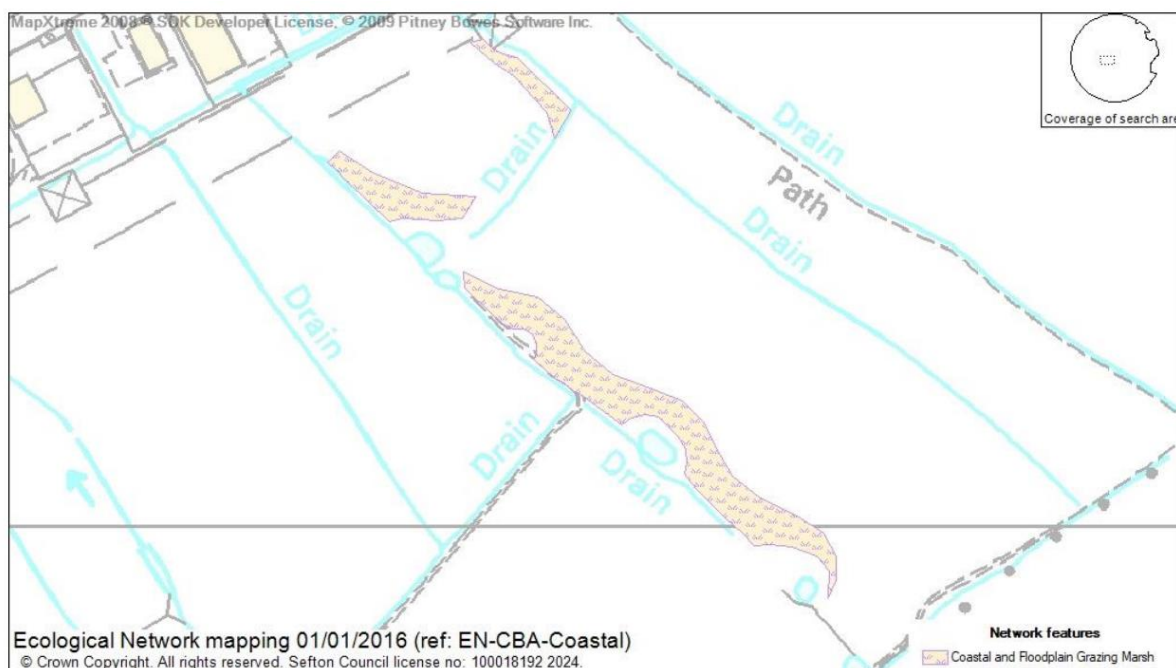


Figure 6. Ecological Network Mapping, obtained via the data search (MEAS). For the Local Wildlife Site (2016).

3.18 The LWS that is adjacent to the allocation (shown in Figures 4,5 and 6) (known as LWS 108) was assessed for its ecological importance.

3.19 A survey for Tunstalls Farm LWS (formerly field north of Gorsey Lane) was conducted by Merseyside Environmental Advisory Service (MEAS) on the 09/06/2023. Results returned the following:

- The following habitats were present on the LWS; unimproved neutral grassland; marshy grassland and standing water.
- Monitoring data for GCN is available (2016) for the LWS; however, many ponds are drying or have dried out.
- The ditches present were found to be dry and unsuitable for Water Vole.
- The overall site condition was determined to be moderate in which ponds and ditches have been lost and are drying out; there was only one field of good quality grassland present, other fields have been subject to intensive farming and grazing.
- Data for GCN and Water Vole has been unmonitored since 2016

3.20 A field assessment and BNG assessment was conducted in 2024 as part of this report, by The Mersey Forest. As of 2024, most ditches were dried out and 7/9 ponds were dried out. The habitats within the LWS consisted of mixed scrub and modified grassland, with lines of trees around the boundary of these parcels.

Data Search Species Results

Table 1: results of the desk study for BFGV and the surrounding 2km area relating to protected, BAP/LBAP, NERC Section 21 and IUCN Red List species recorded from 1919 and onwards.

Species	Details
Bats	(Protected, BAP/LBAP, NERC Section 41, and IUCN Red List Species) 158 records of various bat species were found withing and around the site location between 1988 and 2022. Bat species included, Brown Long-eared bat (<i>Plecotus auratus</i>), Common Pipistrelle (<i>Pipistrellus pipistrellus</i>), Myotis bat spp. (<i>Myotis</i>), Noctule bat (<i>Nyctalus noctule</i>), Nyctalus bat spp. (<i>Nyctalus</i>), Serotine (<i>Eptesicus serotinus</i>) and Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>).

Water Vole and other mammals	(Protected Species, BAP/LBAP Species, NERC Section 41 Species and IUCN Red List Species) Water Vole (<i>Arvicola terrestris</i>); 55 records between 1981 and 2009. Eurasian Red Squirrel (<i>Sciurus vulgaris</i>); 1 record in 2004. (BAP/LBAP Species) Brown Hare (<i>Lepus europaeus</i>); 56 records between 1972 and 2019. (& NERC Section 41 Species) (NERC Section 41 and IUCN Red List Species) Harvest Mouse (<i>Micromys minutus</i>); 2 records between 1980 and 1994. Western European Hedgehog (<i>Erinaceus europaeus</i>); 36 records between 1970 and 2021. (WCA Schedule 9 Species) Black Rat (<i>Rattus rattus</i>); 1 record in 1977 Eastern Grey Squirrel (<i>Sciurus carolinensis</i>); 34 records between 1996 and 2022
Birds	(Protected Species) The allocation is in the buffer zone for The Bird Conservation Targeting Project (BCTP), in which the allocation is important for Grey Partridge (<i>Perdix perdix</i>), Lapwing (<i>Vanellus vanellus</i>), Redshank (<i>Tringa totanus</i>), Snipe (<i>Gallinago gallinago</i>), and Tree Sparrow (<i>Passer montanus</i>) (MAGIC). 5 records of various species including Barn Owls (<i>Tyto alba</i>) (WCA Schedule 9 Species), Kingfisher (<i>Alcedo atthis</i>), Little Ringed Plover (<i>Charadrius dubius</i>), Peregrine (<i>Falco peregrinus</i>), and Quail (<i>Coturnix coturnix</i>), between 1991 and 2006. (BAP/LBAP Species) 90 records of various species between 1997 and 2008 including Corn Bunting (<i>Emberiza</i>

	calandra), Grey Partridge (<i>Perdix perdix</i>), House Martin (<i>Delichon urbicum</i>), House Sparrow (<i>Passer domesticus</i>), Lapwing (<i>Vanellus vanellus</i>), Skylark (<i>Alauda arvensis</i>), Song Thrush (<i>Turdus philomelos</i>), Starling (<i>Sturnus vulgaris</i>), and Swift (<i>Apus apus</i>). (NERC Section 41 species) Between 1919 and 2022, there have been 162 records of various bird species including Bullfinch (<i>Pyrrhula pyrrhula</i>), Corn Bunting (<i>Emberiza calandra</i>), Cuckoo (<i>Cuculus canorus</i>), Dunnock (<i>Prunella modularis</i>), Grey Partridge (<i>Perdix perdix</i>), House Sparrow (<i>Passer domesticus</i>), Lapwing (<i>Vanellus vanellus</i>), Lesser Redpoll (<i>Acanthis cabaret</i>), Linnet (<i>Linaria cannabina</i>), Reed Bunting (<i>Emberiza schoeniclus</i>), Skylark (<i>Alauda arvensis</i>), Song Thrush (<i>Turdus philomelos</i>), Spotted Flycatcher (<i>Muscicapa striata</i>), Starling (<i>Sturnus vulgaris</i>), Turtle Dove (<i>Streptopelia turtur</i>), Willow Tit (<i>Poecile montanus</i>), and Yellowhammer (<i>Emberiza citrinella</i>).
Great Crested Newt (plus other amphibians e.g. Common Toad)	(Protected Species) Common frog (<i>Rana temporaria</i>); 65 records between 1980 and 2020 Common toad (<i>Bufo bufo</i>); 69 records between 1919 and 2022 (& NERC Section 41 species) Great crested newt (<i>Triturus cristatus</i>); 76 records between 2005 and 2021 (BAP/LBAP & NERC Section 41 species) Smooth newt (<i>Lissotriton vulgaris</i>); 95 records between 1997 and 2016.
Invertebrates	(Protected Species) Small blue butterfly (<i>Cupido minimus</i>); 1 record in 2000 (& IUCN Red List Species) White-letter Hairstreak (<i>Satyrrium w-album</i>); 1 record in 1997 (& IUCN Red List Species) (BAP/LBAP Species)

Between 1996 and 2022, there have been 2,748 records of various species of dragonfly (Odonata). These species include Azure Damselfly (*Coenagrion puella*), Banded Demoiselle (*Calopteryx splendens*), Black Darter (*Sympetrum danae*), Black-tailed Skimmer (*Orthetrum cancellatum*), Blue-tailed Damselfly (*Ischnura elegans*), Broad-bodied Chaser (*Libellula depressa*), Brown Hawker (*Aeshna grandis*), Common Blue Damselfly (*Enallagma cyathigerum*), Common Darter (*Sympetrum striolatum*) (& IUCN Red List Species), Common Hawker (*Aeshna juncea*), Emerald Damselfly (*Lestes sponsa*), Four-spotted Chaser (*Libellula quadrimaculata*), Large Red Damselfly (*Pyrrosoma nymphula*), Migrant Hawker (*Aeshna mixta*), Ruddy Darter (*Sympetrum sanguineum*), and Southern Hawker (*Aeshna cyanea*).

(NERC Section 41 Species)

Wall/ Wall Brown (*Lasiommata megera*); 41 records found between 1980 and 2006 (& IUCN Red List Species)

132 records of various moth species were found between 2000 and 2021. Species included Buff Ermine (*Spilosoma luteum*), Crescent (*Helotropha leucostigma*), Dusky-lemon Sallow (*Xanthia gilvago*), Sallow (*Xanthia ictertia*), and Shoulder-striped Wainscot (*Leucania comma*).

(IUCN Red List Species)

Alder Leaf Beetle (*Agelastica alni*); 90 records between 2012 and 2022

(Nationally Notable Species)

Beetle; Helophorus strigifrons (*Helophorus strigifrons*); 1 record in 1990

Moth; Alder Signal (*Stathmopoda pedella*); 2 records in 2007

True fly (Diptera); Parasyrphus nigratarsis (*Parasyrphus nigratarsis*); 1 record in 2020

Plants

WCA Schedule 9 Species

Flat Worm ((Turbellaria); Australian Flatworm (*Australoplana alba*); 1 record in 2021

(Protected Species)

Bluebell (*Hyacinthoides non-scripta*); 21 records between 1981 and 2022 (& BAP/LBAP Species)

Purple Colt's-foot (*Homogyne alpina*); 1 record in 2012 (& IUCN Red List Species & Nationally Notable Species)

(BAP/LBAP Species)

Dune Helleborine (*Epipactis dunensis*); 2 records between 2019 and 2020 (& Nationally Notable Species & IUCN Red List Species)

(NERC Section 41 Species)

Juniper (*Juniperus communis*); 2 records between 2019 and 2020.

(IUCN Red List Species)

Common Cudweed (*Filago vulgaris*); 1 record in 2013

Common Eyebright (*Euphrasia nemorosa*); 13 records between 1980 and 1994.

Corn Spurrey (*Spergula arvensis*); 2 records between 1980 and 1983.

English Whitebeam (*Sorbus anglica*); 1 record in 2008 (& Nationally Notable Species)

Euphrasia arctica subsp. Borealis (*Euphrasia arctica* subsp. *Borealis*); 1 record in 2016

Field Woundwort (*Stachys arvensis*); 3 records between 1980 and 1992

Hoary Cinquefoil (*Potentilla argentea*); 1 record in 2019

Large-flowered Hemp nettle (*Galeopsis speciosa*); 1 record in 2011

Sainfoin (*Onobrychis viciifolia*); 2 records in 1997

Tasteless Waterpepper (*Persicaria mitis*); 2 records in 1997 (& Nationally Notable Species)

Fungus; Greyshank Bolete (*Leccinum cyaneobasileucum*); 9 records between 2015 and 2020

Lichen; Scarlet-Cup Lichen (*Cladonia coccifera* s. lat.); 2 records between 1990 and 1992.

(Nationally Notable Species)

Large-leaved Lime (*Tilia platyphyllos*); 1 record in 1999

Mudwort (*Limosella aquatica*); 1 record in 1982

White Horehound (*Marrubium vulgare*); 1 record in 1994

(WCA Schedule 9 Species)

Canadian Waterweed (*Elodea canadensis*); 9 records between 1981 and 2012

Cotoneaster horizontalis agg (*Cotoneaster horizontalis* agg); 2 records between 2005 and 2009

Curly Waterweed (*Lagarosiphon major*); 1 record in 1999

Fallopia japonica x sachalinensis = F. x bohemica (*Fallopia japonica* x *sachalinensis* = *F. x bohemica*); 1 record in 2020

Himalayan Balsam (*Impatiens glandulifera*); 19 records between 1982 and 2020

Himalayan Cotoneaster (*Cotoneaster simonsii*); 1 record in 2019

Japanese Knotweed (*Fallopia japonica*); 73 records between 1981 and 2022

Mollusc	Japanese Rose (<i>Rosa rugosa</i>); 8 records between 1992 and 2021
	<i>Lamiastrum galeobdolon</i> subsp. <i>Argentatum</i> (<i>Lamiastrum galeobdolon</i> subsp. <i>argentatum</i>); 1 record in 2010
	Montbretia (<i>Crocasmia pottsii</i> x <i>aurea</i> = <i>C. x crocosmiiflora</i>); 6 records between 1992 and 2010
	New Zealand Pigmyweed (<i>Crassula helmsii</i>); 2 records in 2022
	Nuttall's Waterweed (<i>Elodea nuttallii</i>); 4 records between 2004 and 2014
	Rhododendron ponticum (<i>Rhododendron ponticum</i>); 19 records between 1981 and 2021
	(IUCN Red List Species)
	Large Black Slug (<i>Arion (Arion) ater</i>); 4 records in 1982
	Small Amber Snail (<i>Succinella oblonga</i>); 3 records in 2019

3.21 Both historic and up to date habitat survey data was compiled by Merseyside Biobank and MEAS

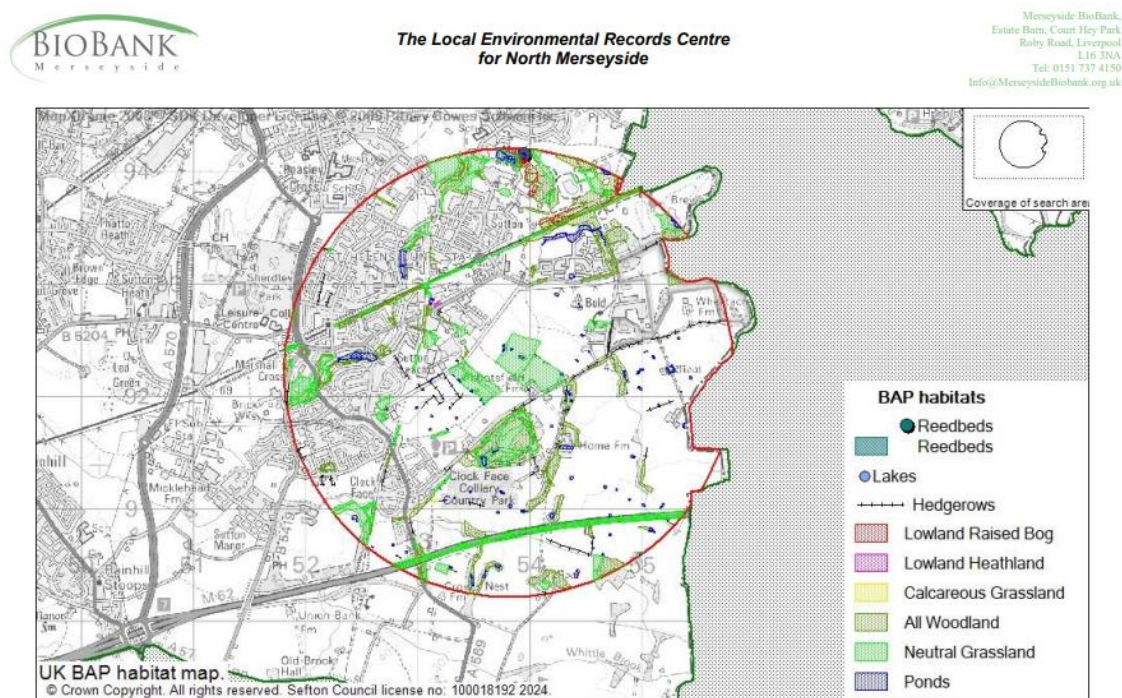
Data Search Habitat Results

Table 2: results of the desk study for the BFGV Masterplan Allocation and the surrounding 2km area, relating to BAP priority habitats.	
BAP Priority Habitat	Area (ha & km)
Coastal and Floodplain Grazing Marsh	0.59ha
Grasslands	17.33ha
Lowland Calcareous Grassland	0.07ha
Lowland Meadow	48.81ha
Lowland Heath	0.11ha
Wetlands:	

Reedbeds	31.38ha
Lowland Fens	0.53ha
Lowland Raised Bog	0.71ha
Purple Moor Grass and Rush Pastures	5.97ha
Woodland:	
Lowland Mixed Broadleaved Woodland	107.85ha
Lowland Mixed Deciduous Woodland	223.3ha
Lowland Wood Pasture and Parkland	17.05ha
Wet Woodland	0.68ha
Linear Features	(km)
Active Railway Corridor	13.83km
Dismantled Railway	4.58km
Dry Ditch	0.3km
Hedgerow	8.39km
Major Road Corridor	5.22km
River	8.3km
Ponds	10.11ha

Table 3 BAP Priority Habitats within the Masterplan Allocation Area (derived from table 2)

BAP Priority Habitat	Area (ha and km)
Water Features:	
Ponds	0.839 ha
Linear Features:	
Ditch (and dry ditch)	6.65km
Hedgerows and Lines of Trees	8.82km
	1.495km



27 of 39

Figure 7: UK BAP Habitat Map, within the allocation and the surrounding 2km (MEAS, 2024)

Field Survey Results

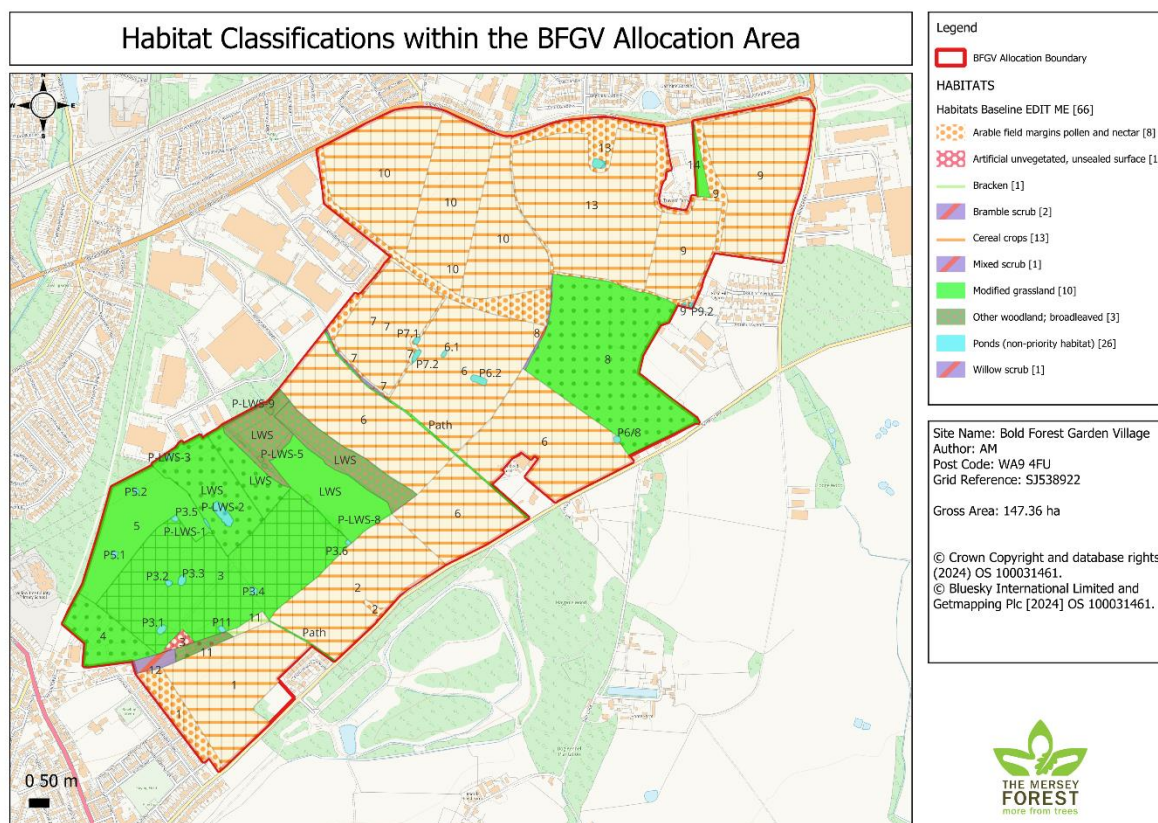


Figure 8: Habitat Classification Map within the BFGV Allocation (2024).

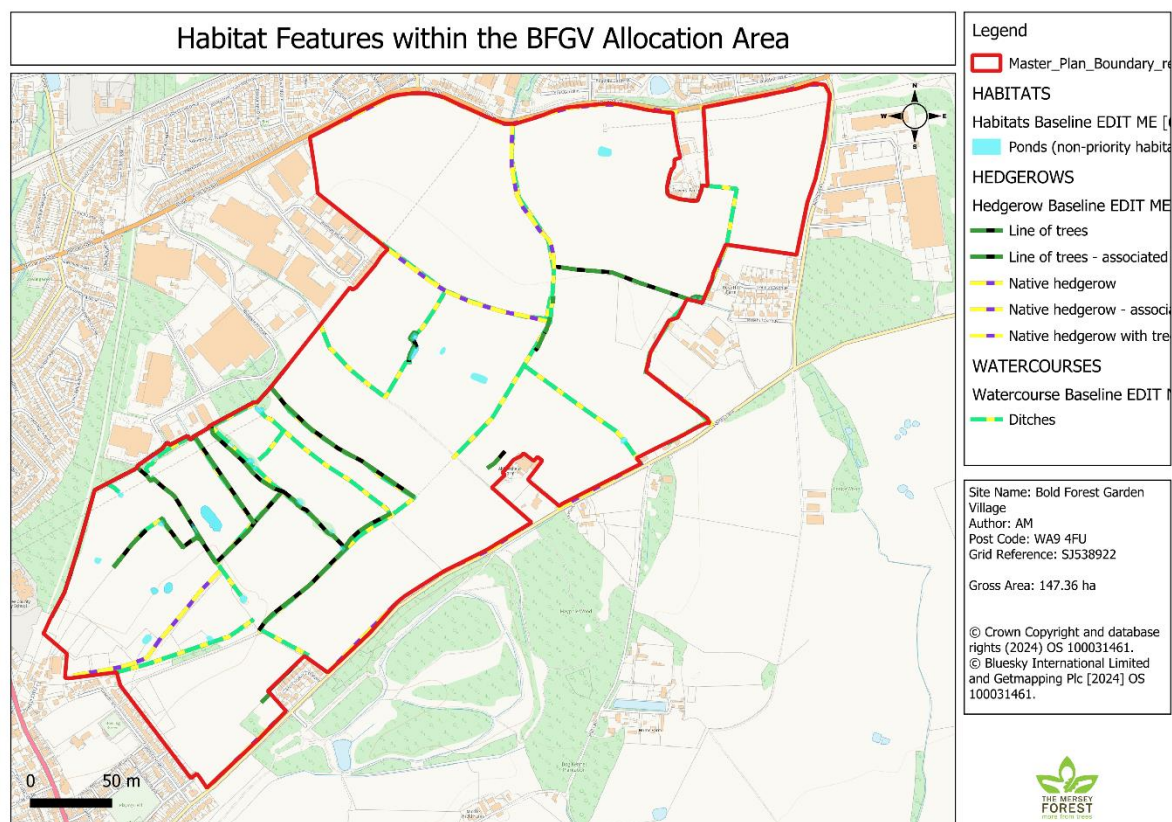


Figure 9: Habitat Features (Hedgerows, Trees, Ponds, and Ditches) within the BFGV Allocation (2024).

Table 4: results from habitat field surveys, relating to habitat and linear features present in each parcel of the allocation and the species observed during the surveys. A list of species recorded within the allocation is also included in Appendix III. Figure 2 shows parcel plan relating to parcel numbers. All features described in Table 4 are shown in Figure 8.

Parcel Number	Habitat Type/Linear Features	Species Present	Photos
1	Cereal cropland with grassland/arable buffer adjacent on the west. Line of hedgerows and a line of trees to the south of the parcel. Public Right of Way (PRoW) runs parallel to the north of the parcel.	Hedgerows are predominantly hawthorn. Species within the arable buffer; Rosebay Willowherb, Hogweed, Ragwort, Yorkshire fog, Dock, Dandelion, Nettle, Thistle.	

2	Cereal cropland with a strip of modified grassland in the middle. A ditch network runs to the north and west along the border of the parcel. A line of trees mixed with bramble scrub runs along the ditch to the north, with bramble scrub lining along the ditch to the west. A line of hedgerows runs along the south border of the parcel.	Species within the strip of modified grassland: Ragwort, phragmites, cuckooflower, buttercup, dandelion. Hedgerows are predominantly hawthorn. No water vole field signs were observed within the ditch network. Birds observed: Skylark, linnet, yellowhammer. Bramble scrub along the ditches provides suitable habitat for breeding yellowhammer.	
3	Modified grassland that has been grazed. There are 6 ponds within the allocation, with lines of trees and hedgerows surrounding the parcel. There are multiple dried-out ditches located within the parcel. There is a small patch of unsealed surface, with horse boxes and other waste.	Hedgerows are predominantly hawthorn. Goldcrest and green finches were heard within the hedgerows, and house martins were observed on-site. No amphibians were observed in the ponds or ditches. However, most ponds had high to moderate habitat suitability.	    

			   
4	Modified grassland that has been grazed by horses. Ponds no longer exist on-site; evidence suggests the pond that exists on OS maps has dried out. A ditch is located to the south of the parcel.	The ditch present within the parcel is dried out and overshadowed.	 
5	Modified grassland that has been grazed by horses. Two ponds are located on-site, with hedgerows with trees surrounding the parcel. A ditch is located on the south of the parcel.	Ponds had excellent habitat suitability for amphibians, including GCN. House martins were observed during the survey at the parcel. Ditch (ref 3-5) had optimal conditions for water vole,	

		however no field signs were observed.	
6	Cereal cropland with multiple ditches, hedgerows, lines of trees, and multiple ponds located within/bordering the parcel.	Hedgerows are predominantly hawthorn. Cropland provides suitable habitat for breeding farmland birds. Species observed: Skylark, meadow pipit, yellowhammer. A hare was observed passing through the parcel. Ponds are of moderate condition with overshading and poor water quality. One pond is overgrown with	Photographs not included for this version of the report- awaiting permission.

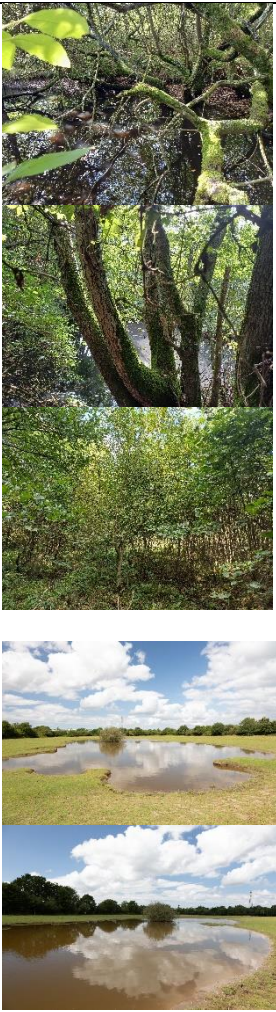
		horsetail resulting in no water within the pond. Ditches are dry and overgrown. Line of trees provide potential for roosting bats.	
7	Cropland with arable buffers present. Bramble and willow scrub present along the border. A ditch network surrounds the parcel. The ditch network to the south of the parcel contains two ponds with mature trees surrounding them.	The buffer contains species including dandelion, buttercup, meadow vetchling, and several grass species such as perennial ryegrass, Yorkshire fog, and meadow foxtail. The ditch to the east is connected to two ponds, which contain soft rush, a mature alder, and a mature oak with a large patch of lesser celandine surrounding the ponds. The ponds were of poor water quality and were overshadowed by the canopy. There was no submerged or floating vegetation within the ponds. The ditches were deemed unsuitable for water vole due to evidence of rats throughout the ditch network on the parcel. However, rat activity did not seem current, and the ditch could provide suitable habitat for water vole. Trees present within the parcel showed evidence of a nesting sparrowhawk. Other species present	

		within the parcel: Yellowhammer, tree sparrow, linnet, skylark. A large section of Japanese knotweed was observed just outside the allocation boundary to the northwest.	
8	Modified grassland used for haylage with hedgerows and ditches around the border of the parcel.	The parcel was dominated by Yorkshire fog used for haylage, with buttercups and docks sparsely spread around the parcel. A small patch was dominated by buttercups and grasses used for grazing. No field signs for water vole were observed within the ditch network. Hedgerows bordering the parcel had yellowhammer present. The lines of trees to the north and east of the parcel provide suitable foraging opportunities for bats and a commuting network. However, much of the Ash (<i>Fraxinus</i>) had ash die-back. The lines of trees, hedgerows, and ditch network present on the parcel provide foraging and commuting networks for bats. The pond present on-site to the south had limited access due to safety.	

9	Cereal cropland with arable margins. A ditch network runs on the southwest of the parcel. Hedgerows run on the border of the allocation. Two ponds are located south of the parcel.	The ditch network was dry and overgrown with vegetation. No water vole field signs were observed. Hedgerows are predominantly hawthorn, and a short line of trees was present. These areas provided suitable commuting and foraging opportunities for bats, as did the ditch network. Hedgerows provided suitable habitat for yellowhammer, which were observed on-site. The ponds were inaccessible due to safety.	
10	Cereal cropland with arable margins. Hedgerows surround the parcel to the north and south. A ditch network ran along the east of the allocation.	Hedgerows provided suitable habitat for yellowhammer and other birds observed on-site. Breeding lapwing and skylark were observed on the parcel. The ditch network has opportunities to be improved for water vole. However, no field signs were observed.	

11	Lowland mixed deciduous woodland with a large section of bracken. A pond is present on the north of the parcel in the woodland section.	The lowland deciduous woodland had many mature trees, providing suitable roosting opportunities for bats. The area also provided suitable foraging and commuting opportunities. The pond on-site was of inadequate quality to support Great Crested Newts, due to water quality and a lack of submergent or floating vegetation; however, it had optimal shade.	
12	Mixed Scrub		Permission for access was not permitted at the time of this report.
13	Cereal cropland with arable margins. A ditch runs through the parcel, with a pond located to the north. Hedgerows border the parcel.	No field signs for water vole were observed within the ditch. The pond located within the parcel was of inadequate quality, with no shading and no submerged or floating vegetation.	

14	Modified Grassland	Grass sward is mown on one half of the parcel and left to grow on the other half. Common species present are dandelions, self-heal, ragwort, soft rush, sorrel, annual blue, and Yorkshire fog. Hedgerow is predominantly hawthorn.	
15			Permission for access was not permitted at the time of this report.
LWS	The LWS is made up of grazed modified grassland and mixed woodland to the east of the LWS. There is a network of ditches throughout the LWS and 9 ponds within the LWS.	The LWS habitat is dominated by willow, with alder, purple loosestrife, ragwort, angelica, meadow pea, thistle, fleabane, cocksfoot, Yorkshire fog, meadow foxtail, tufted vetch, meadowsweet, ryegrass, creeping buttercup, meadow bedstraw, dogwood, bramble, and scattered oak trees throughout. Deadwood is also present.	

		Horses have heavily grazed the grassland. Species include rushes, creeping buttercups, purple loosestrife, and thistles (both marsh and creeping). Gorse, alder, foxglove, ragwort, red bartsia, Yorkshire fog, fleabane, bracken, and common centaury are also found within this area.	
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Species list (observed during survey)

Vegetation (Observed across whole site)	Birds (Observed across whole site)	Mammals (Observed)	Invertebrates (Observed across whole site)	Local Wildlife Site (Observations)
Yorkshire Fog (<i>Holcus lanatus</i>)	Skylark - <i>Alauda arvensis</i>	Hare - <i>Lepus europaeus</i> (European Hare)	Crane fly - <i>Tipulidae</i> (family)	Crane fly - <i>Tipulidae</i> (family)
Annual Blue (<i>Poa annua</i>)	Yellowhammer - <i>Emberiza citrinella</i>	Rabbit - <i>Oryctolagus cuniculus</i> (European Rabbit)	Common Carder Bee - <i>Bombus pascuorum</i>	Common Carder Bee - <i>Bombus pascuorum</i>
Dandelion (<i>Taraxacum officinale</i>)	Linnet - <i>Linaria cannabina</i>		Peacock Butterfly - <i>Aglais io</i>	Peacock Butterfly - <i>Aglais io</i>
Creeping Buttercup (<i>Ranunculus repens</i>)	Buzzard - <i>Buteo buteo</i>		Orange Tip Butterfly - <i>Anthocharis cardamines</i>	Orange Tip Butterfly - <i>Anthocharis cardamines</i>
Ragwort (<i>Jacobaea vulgaris</i>)	House Martin - <i>Delichon urbicum</i>		Hoverflies - <i>Syrphidae</i> (family)	Hoverflies - <i>Syrphidae</i> (family)

Sorrel (<i>Rumex spp.</i>)	Goldfinch - <i>Carduelis carduelis</i>		Ladybirds - <i>Coccinellidae</i> (family)	Ladybirds - <i>Coccinellidae</i> (family)
Cranesbill (<i>Geranium spp.</i>)	Greenfinch - <i>Chloris chloris</i>		Leather Jacket Larvae - <i>Tipula spp.</i> (larval stage of crane flies)	Leather Jacket Larvae - <i>Tipula spp.</i> (larval stage of crane flies)
Phragmites (<i>Phragmites australis</i>)	Meadow Pipit - <i>Anthus pratensis</i>		Brimstone Butterfly - <i>Gonepteryx rhamni</i>	Brimstone Butterfly - <i>Gonepteryx rhamni</i>
Cuckoo flower (<i>Cardamine pratensis</i>)	Fieldfare - <i>Turdus pilaris</i>		Small White Butterfly - <i>Pieris rapae</i>	Small White Butterfly - <i>Pieris rapae</i>
Common Vetch (<i>Vicia sativa</i>)	Willow Warbler - <i>Phylloscopus trochilus</i>		Tawny Mining Bee - <i>Andrena fulva</i>	Tawny Mining Bee - <i>Andrena fulva</i>
Marsh Orchid (<i>Dactylorhiza spp.</i>)	Reed Bunting - <i>Emberiza schoeniclus</i>		Red-tailed Bumblebee - <i>Bombus lapidarius</i>	Red-tailed Bumblebee - <i>Bombus lapidarius</i>
White Clover (<i>Trifolium repens</i>)	Lapwing - <i>Vanellus vanellus</i>		Grasshopper - <i>Acrididae</i> (family)	Fox - <i>Vulpes vulpes</i>
Creeping Bent (<i>Agrostis stolonifera</i>)	Wren - <i>Troglodytes troglodyte</i>			Willow - <i>Salix spp.</i>
Hawkbit (<i>Leontodon spp.</i>)	Great Tit <i>Parus major</i>			Drooping Sedge - <i>Carex pendula</i>
Soft Rush (<i>Juncus effusus</i>)	Blue Tit <i>Cyanistes caeruleus</i>			Hybrid Bluebell - <i>Hyacinthoides × massartiana</i>
Perennial Rye (<i>Lolium perenne</i>)	Chaffinch <i>Fringilla coelebs</i>			Reed Bunting - <i>Emberiza schoeniclus</i>
Nettles (<i>Urtica dioica</i>)	Blackbird <i>Turdus merula</i>			Willow Warbler - <i>Phylloscopus trochilus</i>
Cleavers (<i>Galium aparine</i>)	Woodpigeon <i>Columba palumbus</i>			Wren - <i>Troglodytes troglodytes</i>
Hairy Willowherb (<i>Epilobium hirsutum</i>)	Robin <i>Erithacus rubecula</i>			Yellowhammer - <i>Emberiza citrinella</i>
Fringed Willowherb (<i>Epilobium ciliatum</i>)	Jackdaw <i>Corvus monedula</i>			Whitethroat - <i>Sylvia communis</i>
Common Field-speedwell (<i>Veronica persica</i>)	Starling <i>Sturnus vulgaris</i>			Alder - <i>Alnus spp.</i>
Gorse (<i>Ulex europaeus</i>)	Dunnock <i>Prunella modularis</i>			Dogwood - <i>Cornus spp.</i>
Lesser Celandine (<i>Ficaria verna</i>)	Magpie <i>Pica pica</i>			Bramble - <i>Rubus fruticosus agg.</i>
Lesser Knapweed (<i>Centaurea nigra</i>)	Carrion Crow <i>Corvus corone</i>			Oak - <i>Quercus spp.</i>
Groundsel (<i>Senecio vulgaris</i>)				Gorse - <i>Ulex spp.</i>
Herb Robert (<i>Geranium robertianum</i>)				Purple Loosestrife - <i>Lythrum salicaria</i>
Red Clover (<i>Trifolium pratense</i>)				Ragwort - <i>Jacobaea vulgaris</i>

Common Toadflax (<i>Linaria vulgaris</i>)				Angelica - <i>Angelica sylvestris</i>
Meadow Fescue (<i>Festuca pratensis</i>)				Meadow Pea - <i>Lathyrus pratensis</i>
Sweet Vernal Grass (<i>Anthoxanthum odoratum</i>)				Thistle - <i>Cirsium</i> spp. (e.g., <i>Cirsium arvense</i> for creeping thistle)
Mayweed (<i>Matricaria</i> spp.)				Fleabane - <i>Pulicaria dysenterica</i>
Blackthorn (<i>Prunus spinosa</i>)				Cocksfoot - <i>Dactylis glomerata</i>
Hawthorn (<i>Crataegus monogyna</i>)				Yorkshire Fog - <i>Holcus lanatus</i>
Bramble (<i>Rubus fruticosus</i>)				Meadow Foxtail - <i>Alopecurus pratensis</i>
Goat Willow (<i>Salix caprea</i>)				Tufted Vetch - <i>Vicia cracca</i> purchased 11. Meadowsweet - <i>Filipendula ulmaria</i>
Oak (<i>Quercus</i> spp.)				Ryegrass - <i>Lolium</i> spp.
Alder (<i>Alnus</i> spp.)				Creeping Buttercup - <i>Ranunculus repens</i>
Sycamore (<i>Acer pseudoplatanus</i>)				Meadow Bedstraw - <i>Galium saxatile</i>
Japanese Knotweed (<i>Reynoutria japonica</i> (syn. <i>Fallopia japonica</i> , <i>Polygonum cuspidatum</i>))				Rushes - <i>Juncus</i> spp.
Water Lily (<i>Nymphaea</i> spp.)				Marsh Thistle - <i>Cirsium palustre</i>
Duckweed (<i>Lemna</i> spp.)				Foxglove - <i>Digitalis purpurea</i>
				Red Bartsia - <i>Odontites vernus</i>
				Bracken - <i>Pteridium aquilinum</i>
				Common Centaury - <i>Centaureum erythraea</i>

Hedgerows, Trees, and Scrub Assessment

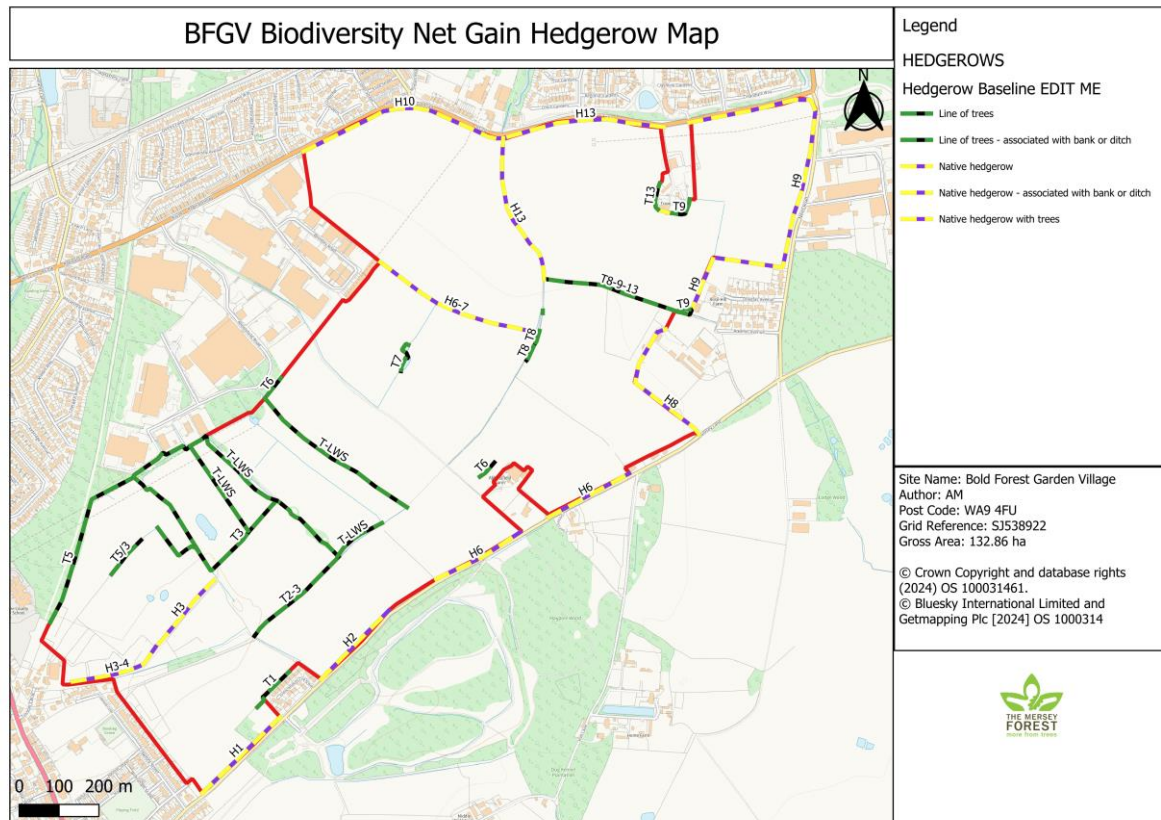


Figure 10. Hedgerows and tree lines within the BFGV Allocation. (2024)

3.22 Hedgerows were assessed against the Hedgerow Regulations 1997, to advise on ecologically important hedgerows, in terms of species composition (hedgerows were hawthorn/blackthorn mix), length (all hedgerows are either connected to other hedgerows or to a feature such as ponds, ditches or woodland, they are all 20m or longer as outlined in the hedgerow regulations). Longer hedgerows like the ones on site typically provide more substantial habitats for wildlife, supporting greater biodiversity, and provide a continuous ecological network for species to move through the landscape (important for bats, birds and small mammals).

3.23 Based on this alone they have strong ecological significance. However, to be legally classified as 'important' and protected, they must be at least 30 years old and meet at least one of the following criteria:

- Marks all of part of a parish boundary that existed before 1850.
- Contain an archaeological feature such as a scheduled monument.
- Is completely or partly in or next to an archaeological site on a Historic Environment Record (HER).
- Marks the boundary of an estate or manor or looks to be related to any building or other feature that's part of the estate or manor that existed before 1600.
- Is part of a field system or looks to be related to any building or other feature associated with the field system that existed before 1845.

- Contains protected species listed in the Wildlife and Countryside Act 1981.
- Contains species that are endangered, vulnerable and rare and identified in the British Red Data books.
- Includes woody species and associated features as specified in Schedule 1, Part II Criteria, paragraph 7(1) of the Hedgerow Regulations - the number of woody species needed to meet the criteria is one less in northern counties.

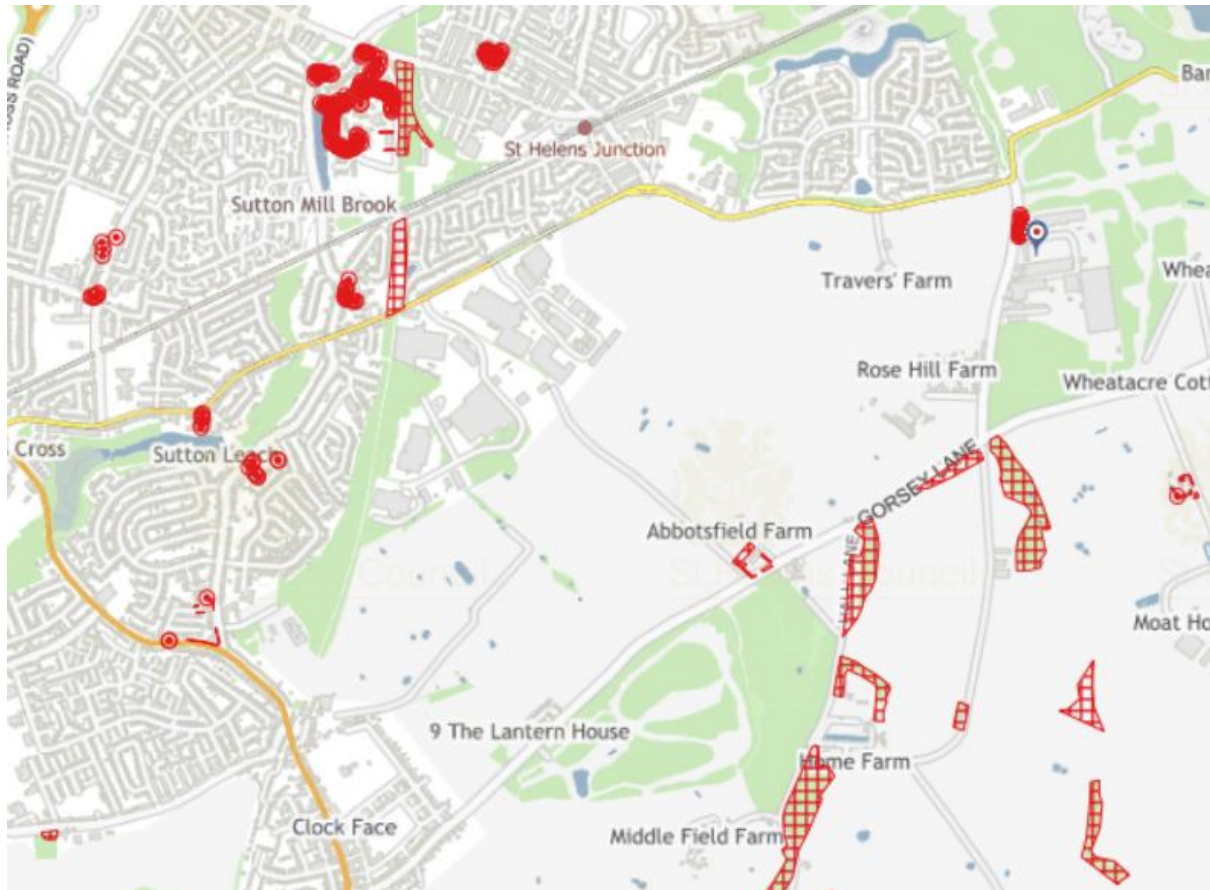


Figure 11. TPOs active within the BFGV allocation area and surrounding area. (St Helens Borough Council, <https://maps.sthelens.gov.uk/mycouncil.aspx>).

3.24 No Tree preservation orders are active within the boundary of the BFGV allocation area, according to St Helens online mapping system. However, TPOs are present off-site, on Neills Road (ref. TPO 167) and at the boundary of the Abbotsfield Farm dwelling located along Gorsey Lane (ref. TPO 21).

3.25 There are no ancient woodlands within the BFGV allocation area. However, Clockface Country Park, Royal Mail Woodland and Griffin Wood are in close proximity to the allocation, which are shown in Figure 4.

3.26 The allocation area has a mix of tree species including Pedunculate oak, Turkey oak, White willow, Scots pine, Leyland cypress, Black poplar, Goat willow and silver birch.

3.27 The trees and tree groups within the allocation are at an early to mature stage of growth and are in fair physiological and structural condition. (BS5837 Standard).

3.28 The allocation area has isolated patches of willow and bramble scrub, which are particularly important for invertebrates, birds, and mammals such as Yellowhammers, Whitethroats, Hedgehogs, Rabbits, Butterflies, Moths, Bees and Wasps.

Protected and notable species

Water Vole (*Arvicola terrestris*)

3.29 No ditches on the allocation had field signs indicating water vole presence.

3.30 The ditches had suitability for water vole; however, most were completely dry, except for the parcel 5, (ditch reference 3-5), which had optimal water levels, vegetation and surrounding terrestrial habitat. The vegetation within the other ditches provided optimal foraging opportunities, as did the surrounding terrestrial habitat, with many ditches bordered by arable buffers of long grasses and vascular plants. Ditches within the LWS were partially dried out.

3.31 A repeat survey should be conducted within 1 year.

Bats (*Chiroptera*)

3.32 Habitats within the allocation boundary were assessed for commuting and foraging bats in accordance with current guidelines (Collins, 2016) with habitats having negligible, low, moderate, or high suitability.

3.33 The extensive ditch and hedgerow network, which was present in all parcels across the allocation, had moderate suitability based on table 5a of the Collins (2016) guidelines.

Table 5a Criteria for habitat suitability assessment (based on Collins, 2016).

Habitat Suitability	Description
Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	Habitat that could be used by a small number of commuting bats, such as hedgerows but is not very well connected to the surrounding landscape. Suitable, but isolated habitats such a lone tree or a patch of scrub could be used by a small number of foraging bats.

Moderate	Continuous habitat connected to the wider landscape such as lines of trees and scrub could be used by bats for commuting Habitat that is connected to the wider landscape such as trees, scrub, grassland, or water could be used by bats for foraging.
High	Continuous, high-quality habitats that is well connected to the wider landscape such as streams, hedgerows, lines of trees and woodland edge, could be extensively used by commuting bats. High quality habitat that is well connected to the wider landscape such as broadleaved woodland or tree-lined water course could be extensively used by foraging bats. Site is close to and connected to known roosts.

Table 5b: Criteria for roosting suitability assessment (Collins, 2016).

Habitat Suitability	Description
Negligible	Negligible habitat features on site likely to be used by roosting bats
Low	A structure with one or more potential roost sites. These do not provide enough space, shelter, or protection to be used on a regular basis or by a large number of bats. A tree of sufficient size and age to contain potential roost features, but with none seen from the ground or features seen only with very limited roosting potential.
Moderate	A structure of tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, and condition.
High	A structure f tree with one or more potential roost sites that are obviously suitable for use by a large number of bats or on a regular basis and potentially for a longer period of time.

3.34 Parcels 11 and 12 had multiple mature trees with moderate habitat suitability for roosting bats. However, parcel 12 had restricted access and was assessed from the PRow. The scrub habitat within the LWS provided suitable roosting sites for bats.

3.35 Woodland patches surround ponds in parcels 6, 7, 8 and 9 had low to moderate habitat suitability for roosting bats, measured by the criteria in Table 5b.

3.36 Line of trees in parcel 6 have moderate roost suitability, measured by the criteria in Table 5b.

3.37 The allocation is part of an important ecological corridor for bats due to its strategic location within the landscape, enabling their movement between various roosting and foraging sites. As illustrated in Figure 4, the corridor's connectivity is supported by the surrounding woodland, which offers continuous cover and foraging opportunities for bat species. Additionally, Figure 3 highlights several designated sites within a 2km radius that enhance the habitat diversity and foraging opportunities for bats in the area. This corridor is crucial in linking Clock Face Country Park and Griffin Wood.

3.38 Data search records from MEAS indicated high bat activity within and in the surround areas of the allocation, with 158 records between 1988 and 2022 and the habitat suitability for both foraging, commuting and roosting bats. Further surveys including dusk emergence and transect surveys of potential commuting/foraging habitats should be completed, along all ditch and hedgerow networks across the allocation and in parcels with suitable roosting opportunities.

Nesting and Breeding Birds

3.39 Many records of bird species within the area were provided by the data search from MEAS. Records included birds within the allocation and in the surrounding 2km of the allocation. Table 1 provides a list of these birds.

3.40 Bird species observed during the survey are outlined in appendix III, which included Yellowhammer (*Emberiza citronella*), Skylark (*Alauda arvensis*), Lapwing (*Vanellinae*) and Willow Warbler (*Phylloscopus trochilus*).

3.41 Suitable habitat for nesting birds that may be affected by the proposed development includes trees, hedgerows, dense scrub, and cropland.

Great Crested Newts (*Triturus cristatus*) and other amphibians

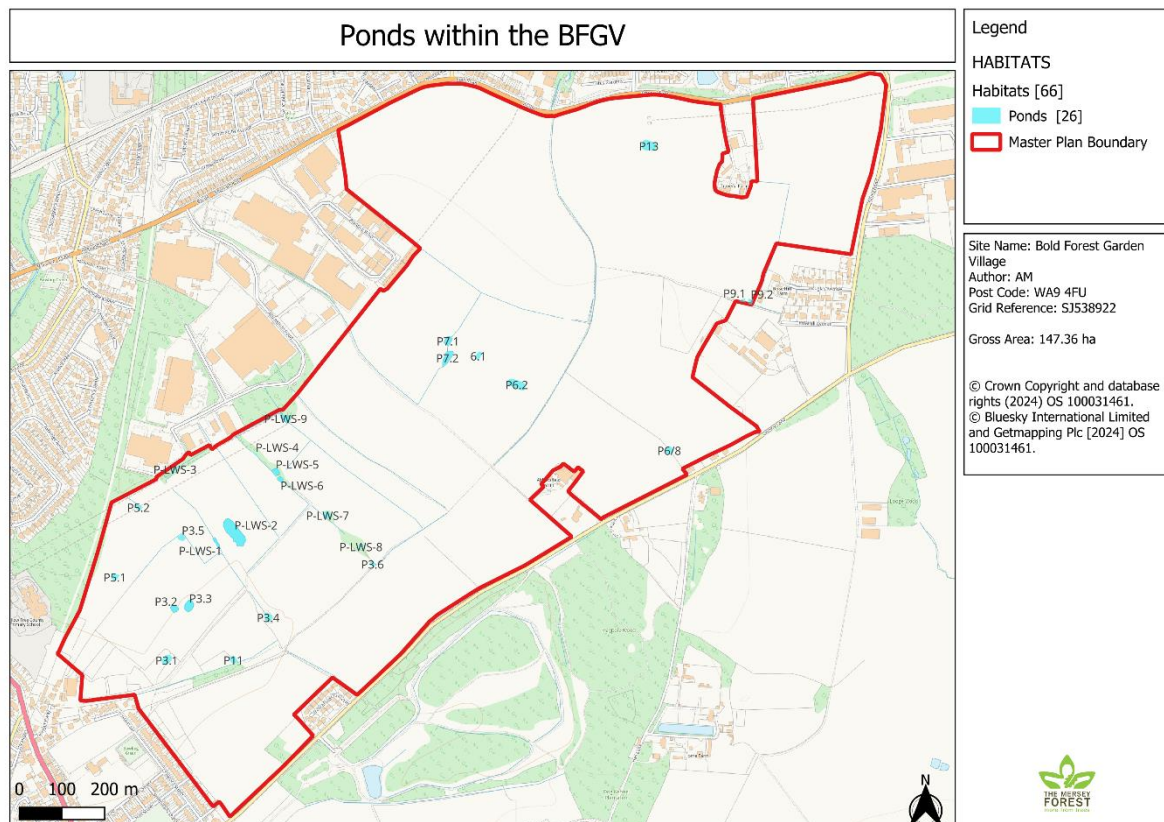


Figure 12. Ponds within the BFGV Allocation (2024).

3.42 A data search produced by MEAS, indicated 76 records of GCN, within the allocation and a 2km radius around, between 2005 and 2021.

3.43 Records of GCN were found within the LWS adjacent to the allocation, which may have facilitated the movement of this species within the wider allocation boundary. However, the 2024 surveys of the ponds within the LWS found that only 2 out of 9 ponds were still present.

3.44 The 16 out of the 18 ponds located in the allocation were assessed for habitat suitability for GCN using the ARG UK habitat suitability index (HSI).

Table 6a: Indicating HSI score for ponds in the allocation. (Figure

Pond Reference	HSI Score	Notes
P3.1 Parcel 3	0.585 Below Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site. Pond has a relatively good habitat for GCNs. It is well-shaded with moderate water quality. The presence of waterfowl and fish may pose some risk to the species, but overall, it has sufficient terrestrial habitat and nearby ponds for connectivity.
P3.2 Parcel 3	0.475 Poor Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site. Pond has poor water quality and is relatively overshadowed. The surrounding habitat and pond networks are present and suitable. But conditions are unfavourable for GCN.
P3.3 Parcel 3	0.490 Poor habitat suitability	eDNA and/or GCN absence/presence survey does not need to be conducted for this pond. The pond is shallow, with poor water quality, no submerged or floating vegetation or shade. *OS maps indicate the body of water as a pond, however during surveys it resembles surface water.
P3.4	0.530	eDNA and/or GCN absence/presence survey should be conducted due to

Parcel 3	Below Average Habitat Suitability	historical evidence of previous presence on site. Pond has poor water quality, and little to no submerged and floating vegetation. Surround terrestrial habitat offered suboptimal opportunities for foraging and shelter.
P3.5 Parcel 3	0.598 Below Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site. Pond has good water quality and is not overshadowed. There is suitable vegetation within the pond for breeding.
P3.6 Parcel 3	0.558 Below Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site. Pond has good water quality and is not overshadowed. There is suitable vegetation within the pond for breeding.
P5.1 Parcel 5	0.585 Below Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site. Pond has good water quality and is not overshadowed. There is suitable vegetation within the pond for breeding.
P5.2 Parcel 5	0.558 Below Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site.

		Pond has good water quality and is not overshadowed. There is suitable vegetation within the pond for breeding.
P6.1 Parcel 6	No water within the pond and overgrown with horsetails. Potential ghost pond, with opportunity to be restored.	No eDNA and/or GCN surveys required due to no longer being an active pond. *OS maps indicate the body of water as a pond, however during surveys the pond appeared dry and rarely fills with enough water.
P6.2 Parcel 6	0.564 Below Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site. Pond had limited view and water quality is poor. However, there is no risk from waterfowl or fish. The pond has less than favourable terrestrial habitat and permanence.
P6/8 Parcel 6	0.593 Below Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site. Pond has moderate water quality and moderate shading. However, there are no submerged or floating vegetation. Surrounding terrestrial habitat is moderate due to one half being optimal grassland, but the other being cropland.
P7.1 Parcel 7	0.599 Below Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of

		previous presence on site and HIS score. Pond has poor water quality and is overshadowed. However, shows opportunity for a suboptimal habitat, with suitable terrestrial habitat and a network of ponds surrounding.
P7.2 Parcel 7	0.688 Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site and due to HIS score, indicating excellent pond suitability. Pond has poor water quality and is overshadowed. However, shows opportunity for a suboptimal habitat, with suitable terrestrial habitat, pond size and a network of ponds surrounding.
P9.1 Parcel 9	Restricted Access	Restricted Access. eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site.
P9.2 Parcel 9	Restricted Access	Restricted Access. eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site.
P11 Parcel 11	0.558 Below Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site and due to HIS score.

		Pond has poor water quality and little to no submerged/floating vegetation. However, shading and the surrounding terrestrial habitat is optimal.
P13 Parcel 13	0.441 Below Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site. Pond has poor water quality, with no shade and little to no submerged and floating vegetation. Surround terrestrial habitat offered suboptimal opportunities for foraging and shelter.
Average HSI Score	0.562	Average habitat suitability

Table 6b: Habitat suitability index scores for ponds within the LWS.

P-LWS-1	0.289 Poor Habitat Suitability	No eDNA and/or GCN surveys required due to no longer being an active pond. No water, overshadowed. However connected to a ditch network that connects ponds.
P-LWS-2	0.679 Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site. No shading, poor water quality and lack of vegetation around edge of pond and within.
P-LWS-3	Pond appeared to be dried out.	No eDNA and/or GCN surveys required due to no longer being an active pond.

P-LWS-4	Pond appeared to be dried out.	No eDNA and/or GCN surveys required due to no longer being an active pond.
P-LWS-5	Pond appeared to be dried out.	No eDNA and/or GCN surveys required due to no longer being an active pond.
P-LWS-6	Pond appeared to be dried out.	No eDNA and/or GCN surveys required due to no longer being an active pond.
P-LWS-7	0.511 Below Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site and due to HSI score. Pond has moderate water quality and optimal surrounding terrestrial habitat. However, there is no submerged/floating vegetation and pond has the potential to dry out.
P-LWS-8	Pond appeared to be dried out.	No eDNA and/or GCN surveys required due to no longer being an active pond.
P-LWS-9	0.593 Below Average Habitat Suitability	eDNA and/or GCN absence/presence survey should be conducted due to historical evidence of previous presence on site and due to HSI score. Pond has moderate water quality and optimal surrounding terrestrial habitat. However, there is no submerged/floating vegetation and pond has the potential to dry out.

3.45 Given the barrier of a B classified road to the north, Gorsey Lane to the south and Neil's Road to the east between the allocations boundaries, it is unlikely that great crested newts will migrate off site.

3.46 The risk of the proposed development to great crested newts is moderately high, due to average pond suitability based on HSI scores. Any development that will impact the ponds and the surrounding 250m away from the ponds can have a negative impact on any breeding newts and other amphibians.

3.47 Further surveys such as eDNA and/or absence/presence surveys should be conducted for all ponds in the allocation, with the exception of ponds 'P3.3' and 'P6.1.' eDNA or further testing is not required for pond 'P3.3' and 'P6.1' due to their lack of water and lack of vegetation around the ponds edge.

3.48 Further surveys such as eDNA and/or absence/presence surveys should be conducted for ponds P-LWS-7 and P-LWS-9 as indicated by Figure 12, due to potential habitat suitability. However, all other ponds are partially or completely dried out.

3.49 HSI scores should not be used alone for evidence of GCN presence, they are only a guideline for pond suitability. Surveys should be completed for the ponds in the LWS due to the proximity to the proposed masterplan development.

3.50 Species observed during the survey were noted in appendix III.

Invertebrates

3.51 The presence of scrub, hedgerows, and grassland in the allocation results in the recommendation for a scoping survey for invertebrates to be completed.

3.52 Invertebrates observed during the survey were noted in Appendix III and found within the data search in Table 1.

Fish

3.53 As of 2024, ponds within the allocation have been identified as potentially suitable supporting Tench (*Tinca tinca*). These species thrive in ponds with a muddy bottom and stable water conditions, of which the ponds within the allocation have. Other than this, waterbodies in the allocation were deemed unsuitable to support any other fish or aquatic species.

3.54 A data search produced by MEAS, indicated 3 records of *Barbus barbus* in 2009, 4 records of *Anguilla anguilla* in 2000 and 3 records of *Rhodeus sericeus* between 1982 and 2009.

Invasive Flora

3.55 Japanese Knotweed was observed near the PRow adjacent the parcel 7, and to the west of parcel 7 adjacent to the allocation boundary.

3.56 Records indicate WCA schedule 9 species recorded in and within a 2km radius of the allocation; these species include Canadian Waterweed, *Cotoneaster horizontalis* agg., Curly Waterweed, *Fallopia japonica* x *sachalinensis* = *F. x bohemica*, Himalayan Balsam, Himalayan

Cotoneaster, Japanese Knotweed, Japanese Rose, *Lamiastrum galeobdolon* subsp. *argentatum*, Montbretia, New Zealand Pigmyweed, Nuttall's Waterweed and *Rhododendron ponticum*.

Invasive Fauna

3.57 No invasive fauna was recorded during the field survey.

3.58 Records indicate WCA schedule 9 species recorded in and within a 2km radius of the allocation; these species include Barn Owl, *Rhodeus sericeus*, Australian flatworm, Black Rat, and Eastern Grey Squirrel.

4. Discussion and Recommendations

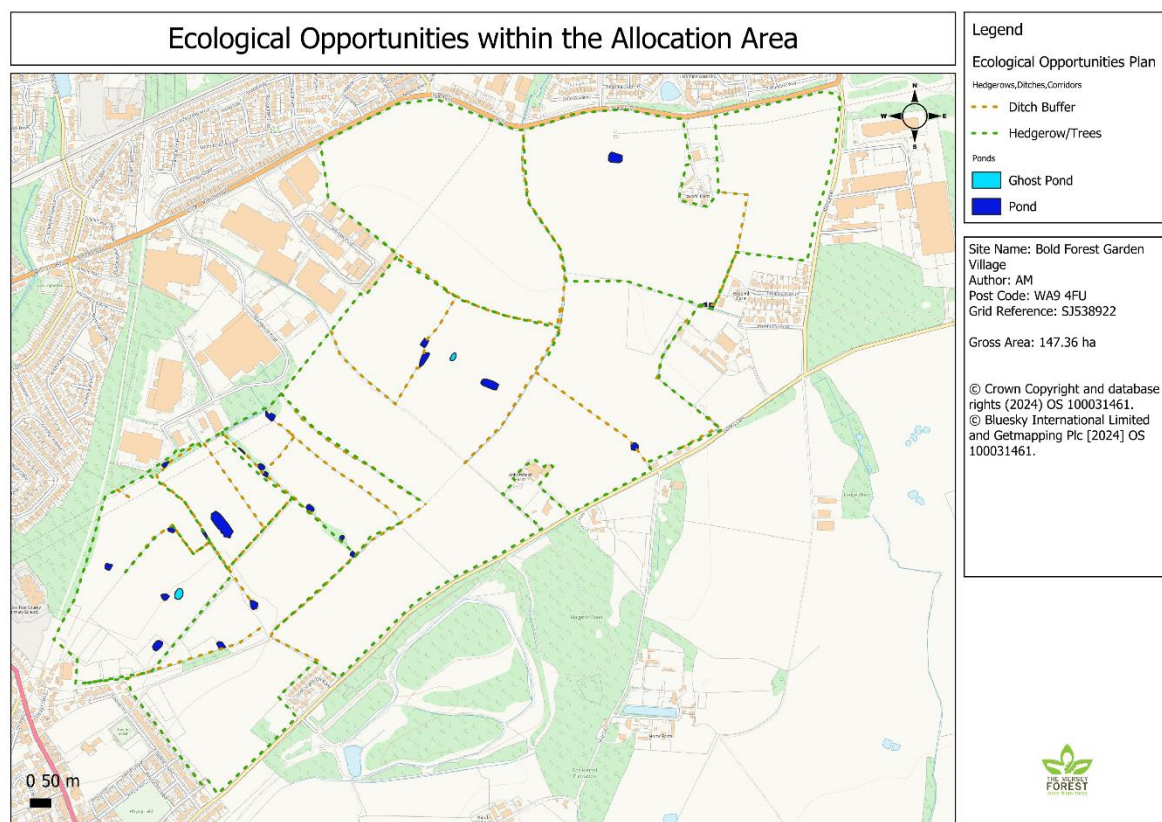


Figure 13. Ecological opportunities within the allocation area (2024).

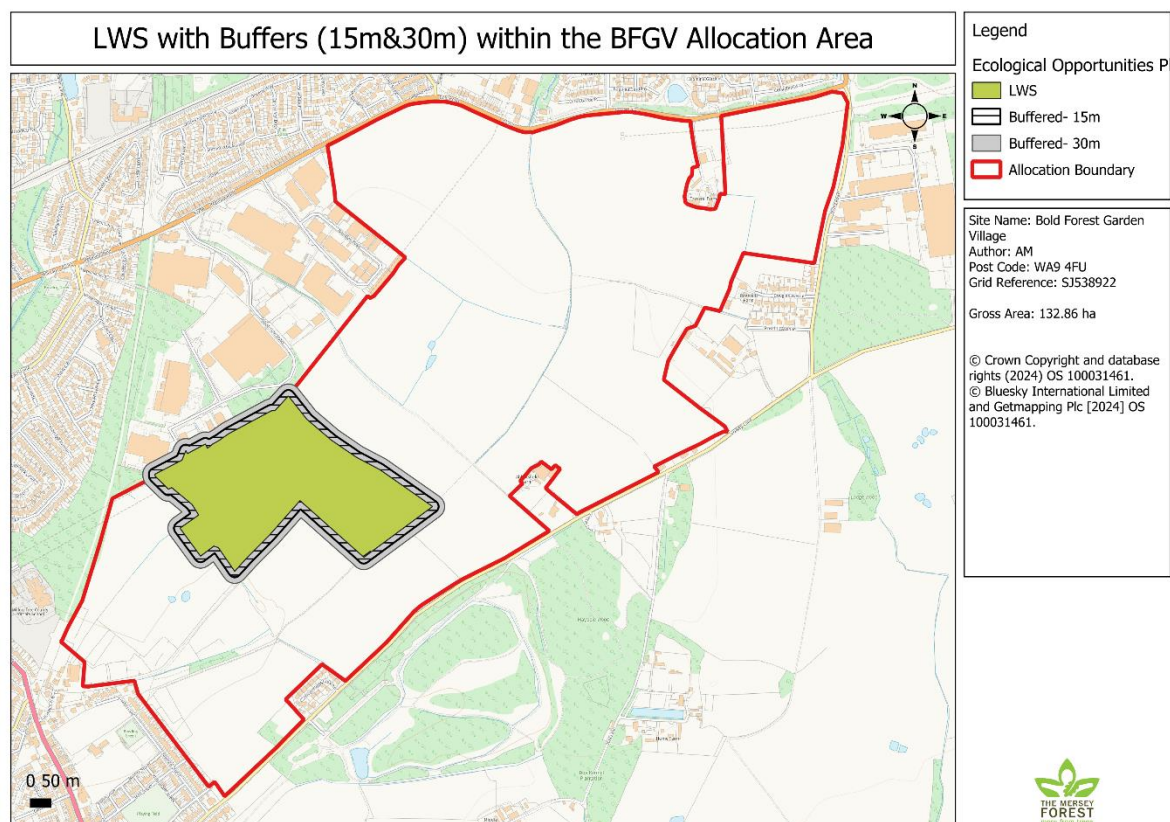


Figure 14. Buffer zones (15 meters and 30 meters) around the LWS in the allocation area (2024)

Ditches

4.1 Ditches of ecological importance should be preserved with a buffer zone of at least 15 meters on either side of the bank, as shown in Figure 13. Increasing floristic biodiversity within the riparian buffer zone would further enhance shelter and foraging opportunities for species present on site.

4.2 All ponds present within the allocation should be retained and enhanced; this includes the 'ghost ponds' which provide opportunity for pond restoration. They have the potential to provide habitat for Great Crested Newts (GCN) and other amphibians. Enhancement of these ponds will contribute towards achieving a 10% net gain in biodiversity. Existing and ghost ponds with enhancement and restoration opportunities are shown in Figure 13.

4.3 Existing ponds should be retained and enhanced. Over-shaded ponds should have some thinning and pruning around them. To improve habitat, a variety of aquatic and marginal plants should be introduced to provide suitable egg-laying substrates, shelter, and foraging opportunities. Recommended species include Water Milfoil (*Myriophyllum spicatum*), Hornwort (*Ceratophyllum demersum*), Frogbit (*Hydrocharis morsus-ranae*), Water Mint (*Mentha aquatica*), Water Forget-me-not (*Myosotis scorpioides*), and Ragged Robin (*Lychnis flos-cuculi*).

4.4 Potential ghost ponds are present in parcels 3 and 6. These ghost ponds refer to former ponds that have been filled in or buried often for agricultural or development purposes. These

ghost ponds present on the allocation have the potential to be restored, contributing towards a 10% net gain.

4.5 Connectivity between aquatic and terrestrial habitats should be retained and enhanced. Buffer zones and wildlife corridors should be created.

Hedgerows, Trees, and Scrub

4.6 Hedgerow removal should be avoided. If removal is unavoidable, any loss should be compensated for on-site with hedgerows of at least equivalent length using native species. Works should be undertaken outside of the nesting bird season to avoid disturbance (March to September).

4.7 Under the Management of Hedgerows (England) Regulations 2024, a 2-metre buffer strip must be maintained around hedgerows, free from cultivation, pesticides, and fertilisers. Hedgerow cutting is also prohibited from March 1st to August 31st to protect nesting birds.

4.8 There are no active TPO within the allocation itself, however trees are in a fair condition according to BS5837 standards. Increasing tree cover across the site would benefit the existing trees and tree groups within the allocation. This could be achieved through new woodland planting or establishing lines of trees that connect the existing woodland throughout the site. Additionally, planting trees around the perimeter of the allocation would link the on-site woodland to adjacent woodlands, such as Clockface Country Park.

4.9 Hedgerows and mature trees should be retained whenever possible. If retention is not feasible, any losses should be compensated for by planting native species.

4.10 Existing trees, hedgerows, shrubs, and scrub should be preserved. Any removal should be compensated with native species planting to support breeding birds. Existing hedgerows are shown in Figure 13, along with any existing lines of trees.

4.11 A variety of nesting boxes should be installed on buildings and retained trees to provide alternative nesting sites. These should cater to different bird species.

4.12 Additional hedgerows should be created, and woodland planting should be implemented to provide food and shelter for wildlife. Additional hedgerows should be used instead of fencing, particularly to connect isolated areas like ponds and woodlands or along pathways. This would help link fragmented habitats, allowing wildlife to move freely between them.

4.13 Although hedgerows can be gappy in places, infill hedgerow planting would improve their continuity and enhance green connectivity across the landscape.

4.14 Woodland parcel 11 and woodland present in the LWS would benefit from woodland management such as thinning to support greater biodiversity and support more pollinators.

Local Wildlife Site

4.15 Figure 14 shows buffer zones that should be enforced. There is a lack of protected species within LWS, however a buffer zone of 15 to 30m should be enforced around the LWS to prevent damage.

Bats

4.16 Mature trees present, particularly in parcels 3,5,6, 7, 11,12 and the LWS should be protected due to their suitability for roosting bats. Foraging and commuting routes for bats along ditches, hedgerows, and lines of trees should be retained to avoid displacing bats and reducing allocation connectivity.

4.17 Bat-friendly lighting strategies should be employed to minimise light pollution. This includes installing low-intensity, directional lighting

4.18 If bat roosts are to be disturbed, a bat license must be obtained. Alternative roosting structures, such as bat boxes, should be installed.

4.19 Linear features such as hedgerows, lines of trees, and ditches should be maintained and enhanced to support commuting and foraging bats.

Water Vole and Other Mammals

4.20 No field signs of water vole were observed. However, ditches should be retained and enhanced by increasing water levels, clearing small amounts of vegetation, and improving water quality. These actions will enhance habitat suitability for water voles and contribute towards a 10% net gain in biodiversity.

4.21 Hedgehog-friendly gardens with gaps in fences should be created, and hedgerows should be maintained to support hedgehog movement and habitat.

4.22 Brown Hare- Preserve existing habitats such as grasslands, arable field margins, and hedgerows, which are crucial for brown hares. These areas provide essential resources for foraging and breeding. Where habitat loss is unavoidable, recreate similar habitats within the allocation or nearby areas to ensure continuity of resources and connectivity. Enhance habitats by creating new grasslands and field margins with native plants that support both food and shelter needs. Implement wildlife-friendly management practices, such as delaying mowing to protect young hares

4.23 Rabbits- Maintain and manage existing habitats like grasslands, scrub, and arable margins, which are vital for rabbit foraging and burrowing. When habitat loss occurs, create compensatory or new habitats with suitable vegetation and soil conditions for burrowing. Enhance rabbit habitats by ensuring the availability of loose, sandy soils for burrowing and promoting vegetation such as grasses and low shrubs.

Nesting Birds

4.24 To avoid impacting nesting birds, development should be undertaken outside the usual breeding season (March – August inclusive). If this is not possible, a check for active nests and nesting birds should be conducted prior to the commencement of works. Any active nests should be identified and protected until the nesting attempt is completed, in compliance with relevant legal requirements.

Invertebrates

4.25 Hedgerows, scrub, and species-diverse grasslands provide suitable habitats for numerous invertebrates. The clay soil present on-site also provides suitable habitats for nesting bees.

4.26 Enhancement measures should include the planting of native species to support a diverse range of pollinators.

Flora

4.27 There is limited protection for certain flora. No specific surveys or mitigation measures are proposed at this time, but general habitat protection and enhancement efforts will benefit overall floral biodiversity.

4.28 In accordance with the requirements of the NPPF and BSI 42020:2013, proposed ecological enhancements should aim to achieve a net gain in biodiversity.

4.29 Recommendations for further survey work:

Bats

- Summer Roost Surveys: Conduct evening emergence surveys or dawn roost surveys between May and August, with multiple visits required. These surveys should target areas identified as having potential roosting opportunities.
- Activity Surveys: Perform surveys along a transect of hedgerows and/or ditches to assess foraging and commuting behaviour. Multiple visits are necessary, and these surveys should be conducted between April and October.

Great Crested Newts

- HSI Identified Ponds: Further surveys are needed for ponds identified by the Habitat Suitability Index (HSI). These can be either eDNA or presence/absence surveys.
- eDNA Surveys: Should be conducted between 15th April and 30th June.
- Presence/Absence Surveys: Should occur from mid-March to June, with a minimum of 4 and a maximum of 6 visits. At least half of these visits should be between mid-April and mid-May.

Breeding Birds

- Survey: A breeding birds survey has been completed, with a species list provided in the appendix. This survey should be repeated in one year, covering the period from February to August, with multiple visits required.

Wintering Birds

- Survey: Conduct a wintering birds survey between mid-October and mid-March, with the primary survey period from November to February for most species.

Invertebrates

- Repeat Survey: A more detailed invertebrates' study should be conducted, covering both terrestrial and freshwater species.
- Terrestrial Invertebrates: Survey between April and September.
- Freshwater Invertebrates: Survey standing water areas on the site between June and August.

Water Voles

- Survey: A previous water vole survey was conducted between April and August, with two visits and no field signs detected. A repeat survey should be conducted during the optimal period from mid-April to late September, with two survey visits required.

5. Ecological Constraints

Potential Constraints

5.1 Identified Habitats and Species as Potential Ecological Constraints:

- Ponds (UKBAP and LBAP)
- Hedgerows (UKBAP and LBAP)
- Bats
- Great Crested Newts (GCN) and Common Toads
- Water Vole
- Nesting Birds
- Invertebrates
- Fauna

Bats

5.2 The allocation provides optimal foraging opportunities throughout, particularly in areas where ditches are lined by hedgerows, scrub, and lines of trees. These features are spread across the allocation. Their removal could reduce floral diversity and invertebrate populations, negatively impacting foraging bats. Additionally, the removal of these foraging routes could decrease habitat connectivity for bats within the allocation.

5.3 Multiple areas in the allocation are suitable for roosting bats. Parcels 11; which is predominantly lowland mixed woodland with numerous mature trees, and parcels 3,5,6 and 7 which contain mature trees around a pond and in a line, are particularly significant. Observations from the PRow indicated Parcel 12 had the potential for optimal habitat features, however access to this parcel was restricted. Removal of these trees could disturb or destroy potential and existing bat roosts.

5.4 Bats are classified as European Protected Species (EPS), Wildlife and Countryside Act (WCA) species, UK Biodiversity Action Plan (UKBAP) species, and Local Biodiversity Action Plan (LBAP) species.

Birds

5.5 The cropland, hedgerows, trees, scrub, and grassland within the allocation provide excellent nesting and breeding grounds for several bird species observed during the survey. Nesting birds may pose a constraint during the breeding season (March to September inclusive), and avoidance measures have been detailed to mitigate this impact.

5.6 Birds are protected under UKBAP, LBAP, WCA, and Birds of Conservation Concern (BoCC) regulations

Mammals (Brown Hare and Rabbits)

5.7 Grasslands, arable field margins, and hedgerows in the allocation are important habitats for the brown hare. Loss of these habitats could lead to reduced foraging areas and connectivity.

5.8 Brown hares are UKBAP and LBAP species.

Great Crested Newt (GCN) and other amphibians

5.9 The allocation includes ponds that provide suitable habitat and breeding grounds for GCN and other amphibians. Disturbance to any terrestrial and aquatic habitats suitable for GCN and other amphibians could impact their populations.

5.10 GCNs are protected as EPS, under WCA, UKBAP, and LBAP.

Water Vole

5.11 An extensive ditch network on the allocation provides suboptimal habitat for water voles. While no burrows were recorded, removal and disturbance of these supporting habitats could reduce connectivity and destroy potential water vole habitats.

5.12 Water voles are protected under WCA, UKBAP, and LBAP

6. Biodiversity Net Gain (BNG) assessment

6.1 Habitat types have been classified using the UK Hab Classification System (UKHab LTD. 2023). With areas being calculated using QGIS. The information has been used to calculate the baseline habitat units for the allocation using the Statutory Biodiversity Metric (Natural England, February 2024).

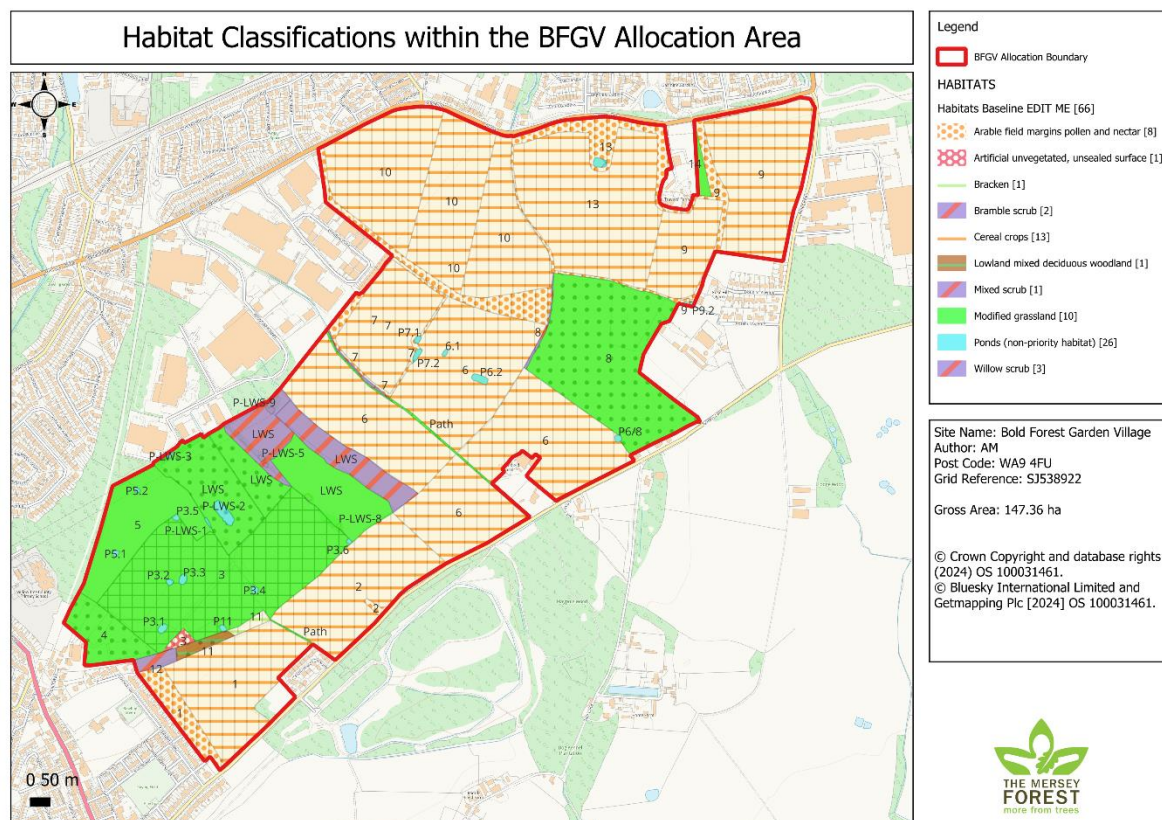


Figure 15: BNG and habitat classification map. (2024).

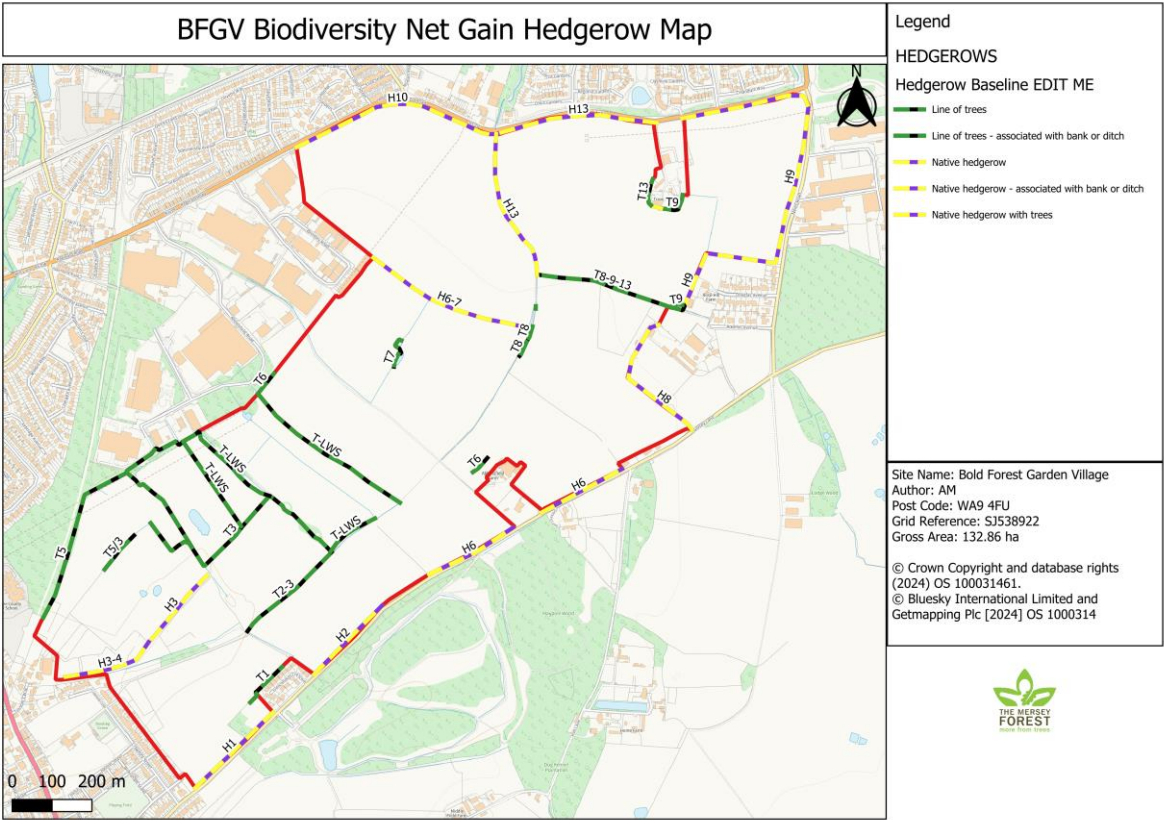


Figure 16: BNG and hedgerow classification map. (2024)

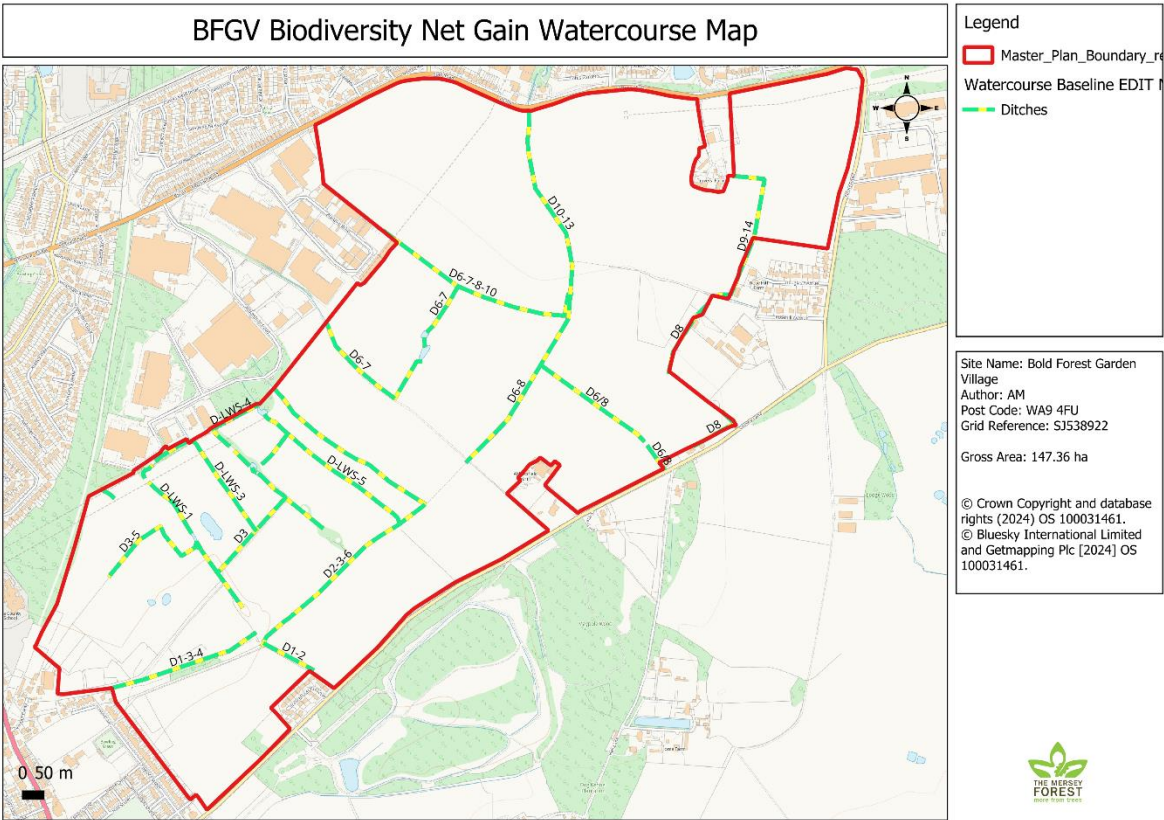


Figure 17: BNG and watercourse classification map. (2024)

6.2 A total of 14 out of 15 habitat parcels were mapped as shown in Figure 2, classified, and measured by area (hectares), 18 ponds were mapped, classified, and measured by area (hectares). A total of 24 hedgerows and lines of trees was mapped, classified, and measured by length (kilometres). A total of 11 watercourse features was mapped, classified, and measured by length (kilometres). Figure 15 shows the habitat parcels as mapped, Figure 16 shows the hedgerow parcels and Figure 17 shows the watercourse features as mapped.

6.3 Habitats within the LWS within the allocation area also underwent a BNG assessment in which 9 ponds were mapped and classified, 2 interconnected hedgerows and lines of trees were mapped and classified, and 12 water course features were mapped and classified. This is also shown in Figures 15,16 and 17.

6.4 The habitats on the allocation are described in detail within this PEA report. It is predominantly agricultural land, comprised on cereal crops and land left to fallow. The allocation boundary is surrounded by hedgerows. Most parcels are separated by a hedgerow and/or ditch.

6.5 Key ecological features of the allocation are grassland, ponds, hedgerows, and ditches. Tunstall's farm (Local Wildlife Site) is located adjacent to the north of the allocation.

6.6 Net project biodiversity units are as follows:

Table 7a: results from the habitat Baseline – 352.07 Units		
Habitat Group	Existing Area	Units
Cropland	98.37ha	234.95
Grassland	32.65ha	105.31
Heathland and shrub	0.62ha	4.89
Lakes (ponds)	0.54ha	3.97
Woodland and forest	0.40ha	3.71

Table 7b: results from the hedgerow Baselines – 55.84 units		
Hedgerow Type	Existing Length	Units
Native hedgerows with trees- associated with bank or ditch	1.21km	22.47

Native hedgerow with trees	0.21km	1.86
Native hedgerow	3.24km	19.81
Line of trees	1.34km	5.87
Line of trees- associated with bank or ditch	1.32km	5.83

Table 7c: Results from the watercourse Baseline – 22.10 Units

Watercourse Type	Existing Length	Units
Ditches	5.3km	22.10

Table 8: Habitat, Hedgerow and Watercourse baseline units from the BNG Assessment of the LWS.

Habitat Type	Existing Area	Units
Modified Grassland	3.5505	7.10
Other Broadleaved Woodland	4.4909	39.52
Hedgerow Type	Existing Length	Units
Line of trees associated with bank/ditch	0.731	3.22
Line of trees	0.592	2.60
Watercourse Type	Existing Length	Units
Ditches	1.359	5.86

6.7 Metric calculations for parcel 12 have been given a default moderate condition based on the surrounding habitats, and it is recommended they be reassessed when possible. Parcel 15 could not be accessed or assessed for its habitat type or condition and has been excluded from the calculation.

Feasibility of BNG

6.8 Based on headline results as indicated by Tables 6,7 and 9, to achieve 10% net gain 388.10 habitat units are required, 61.43 hedgerow units are required, and 24.31 watercourse units are

required. However, including the LWS in calculations results 440.82 habitat units are required, 67.83 hedgerow units are required, and 30.75 watercourse units are required.

6.9 The existing habitats are currently in poor to moderate condition. While some onsite enhancements are feasible, offsite enhancements may also be necessary. Potential opportunities exist on neighbouring Local Wildlife Sites (LWS) and other designated areas. Opportunities exist in the neighbouring LWS in forms of pond and ditch enhancement, grassland enhancement and potential woodland and scrub planting.

Onsite Enhancement Opportunities

- There are opportunities to enhance ditches, hedgerows, and ponds on site, and all should be retained. There may be opportunities to create new ponds on the allocation to increase the ecological network.
- The ditches experience minor encroachment from adjacent agricultural fields and extensive grazing by horses. While there may be small levels of pollution from pesticides, the presence of arable buffers between the ditches and agricultural land helps to mitigate some of this pollution. Despite these buffers, there is still noticeable impact on the riparian zone, particularly in areas with heavy horse grazing.
- There are opportunities for woodland and scrub enhancements and creation, by planting native species and creating new habitat areas.
- Retained modified grassland can be enhanced to become species-rich lowland meadows through appropriate management and reseeded with native wildflowers and grasses.
- Green infrastructure will contribute towards the required 10% net gain; this can be in the form of green roofs, walls, and SUDS (sustainable urban drainage systems).

7. Conclusion

7.1 The allocation consists of land that is a mix of arable cropland, grassland, and small patches of lowland mixed deciduous woodlands, with hedgerows and ditches surrounding most parcels. There are 13 designated conservation sites within 2km of the allocation and include NIA, LNR and LWS. The closest non-statutory conservation designation is Tunstall's farm, LWS 108.

7.2 The allocation was assessed as having low to moderate habitat suitability for roosting bats and has moderate suitability for commuting and foraging bats. Despite no field signs for water vole being present on the allocation, the ditches on the allocation have the potential for enhancement which could encourage recolonisation by water vole. The mix of habitats and field and desk top study indicates high potential for breeding birds. And pond HSI and desktop study indicates good pond suitability and good to moderate potential for Great Crested Newts.

7.3 Any proposed removal of ponds, ditches, hedgerows, and woodlands will cause significant disturbance to any species within these habitat features. Thus, it has been recommended that these habitat features remain intact and are enhanced. Any proposed construction will cause disturbances to potential roosts and bat populations on the allocation, and it has been

recommended that buffer zones be established, linear features be retained and enhanced, new corridors be created, artificial roosts be installed, and bat-friendly lighting strategies be used such as low-intensity lights and directing lights downward to avoid spillover into bat habitats.

7.4 To ensure this, it is crucial to retain hedgerows and mature trees wherever possible. If retention is not feasible, any losses should be compensated by planting native species. Ditches of ecological importance should be preserved with a minimum 15-meter buffer zone on both sides, and increasing floristic diversity within these riparian zones will enhance habitat quality for species present.

7.5 For species support, native plantings should be implemented to benefit a diverse range of pollinators. Existing trees, hedgerows, shrubs, and scrub must be preserved, with any necessary removals compensated by planting native species to support breeding birds. A variety of nesting boxes should be installed on buildings and retained trees to accommodate different bird species. Additional hedgerows and woodland plantings should be created to provide essential food and shelter for wildlife.

7.6 To address potential impacts on bats, if bat roosts are disturbed, a bat license must be obtained, and alternative roosting structures, such as bat boxes, should be installed. Linear features like hedgerows, lines of trees, and ditches should be maintained and enhanced to support commuting and foraging bats. Employing bat-friendly lighting strategies will minimize light pollution, using low-intensity, directional lighting.

7.7 Existing ponds should be retained and improved by thinning vegetation, introducing a range of aquatic and marginal plants to enhance habitats. Restoration of potential ghost ponds, identified in parcels 3 and 6, should be considered to contribute towards a 10% net gain in biodiversity. Connectivity between aquatic and terrestrial habitats must be preserved and enhanced through the creation of buffer zones and wildlife corridors. Lastly, hedgehog-friendly gardens with gaps in fences should be established, and hedgerows maintained to support hedgehog movement and habitat.

7.8 Further ecological surveys are needed for various species across different times of the year. For bats, summer roost surveys should be conducted from May to August, including both evening emergence and dawn roost surveys, with multiple visits to assess potential roosting sites. Activity surveys along hedgerows and/or ditches to observe foraging and commuting behaviour should be performed from April to October, requiring multiple visits. For Great Crested Newts, ponds identified by the Habitat Suitability Index (HSI) need additional surveys, including eDNA analysis between April 15 and June 30, and presence/absence surveys between mid-March and June, with a minimum of four and a maximum of six visits, half of which should occur from mid-April to mid-May. Breeding bird surveys, which have already been conducted and documented in the appendix, should be repeated within a year, from February to August, with multiple visits. Wintering bird surveys should take place from mid-October to mid-March, with peak surveys from November to February. A more detailed invertebrate study is required, covering both terrestrial and freshwater invertebrates, with terrestrial surveys from April to September and freshwater surveys from June to August. Although a water vole survey

conducted from April to August yielded no field signs, a repeat survey during the same period (mid-April to late September) with two visits is necessary.

7.9 A detailed tree survey is recommended for the entire allocation area to determine health, age and size and each tree should be categorized into the different grades set by the BS5837 standards.

7.10 The entire survey period was impacted by weather conditions, affecting the observation of many species that should have been recorded, even though habitat surveys were still possible. It is recommended to repeat the surveys when the current ones are no longer valid under the stated guidelines

8. References

Amphibian and Reptile Groups of the United Kingdom (2010) Great Crested Newt Habitat Suitability Index, ARG UK.

British Standards Institute (2013) Biodiversity – Code of Practice for Planning and Development

British Standards Institution (2012) BS5837:2012 Trees in relation to design, demolition, and construction – Recommendations. BSI Standards Limited.

Bold Forest Park Action Plan (2017) St Helens Council

Chartered Institute of Ecology and Environmental Management (2019) Advice Note on the Lifespan of Ecological Reports and Surveys. CIEEM.

Chartered Institute of Ecology and Environmental Management (April 2013) Guidelines for Preliminary Ecological Appraisal. CIEEM, Winchester.

Chris Bennet (2006). Sherdley Park, MEAS.

Collins, J. (ed.) (2016) Bat surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey; A technique for environmental audit. Reprinted by JNCC, Peterborough

Rachael Porter (2006). Booth's Wood, MEAS.

Rachael Porter (2006). Colliers Moss Common, MEAS.

Rachael Porter (2006). Dog Kennel Plantation, MEAS.

Rachael Porter (2006). Land west Gerrards Lane, MEAS.

Rachael Porter (2006). Rough grassland Sutton Dam stream, MEAS.

Rachael Porter (2006). Sutton Brook, MEAS.

Rachael Porter (2006). Sutton Mill Dam, MEAS.

Rachael Rhodes (2018). Clock Face Country Park Pond, MEAS.

Rachael Rhodes (2018). Tunstalls Farm, MEAS.

St Helens Borough Council. My Council. St Helens Borough Council,
<https://maps.sthelens.gov.uk/mycouncil.aspx>. Accessed 20/08/2024

UKHab LTD (2023). UK Habitat Classification Version 2.0 (at <https://www.ukhab.org/>)

Appendices

Appendix I Allocation Location Plan:

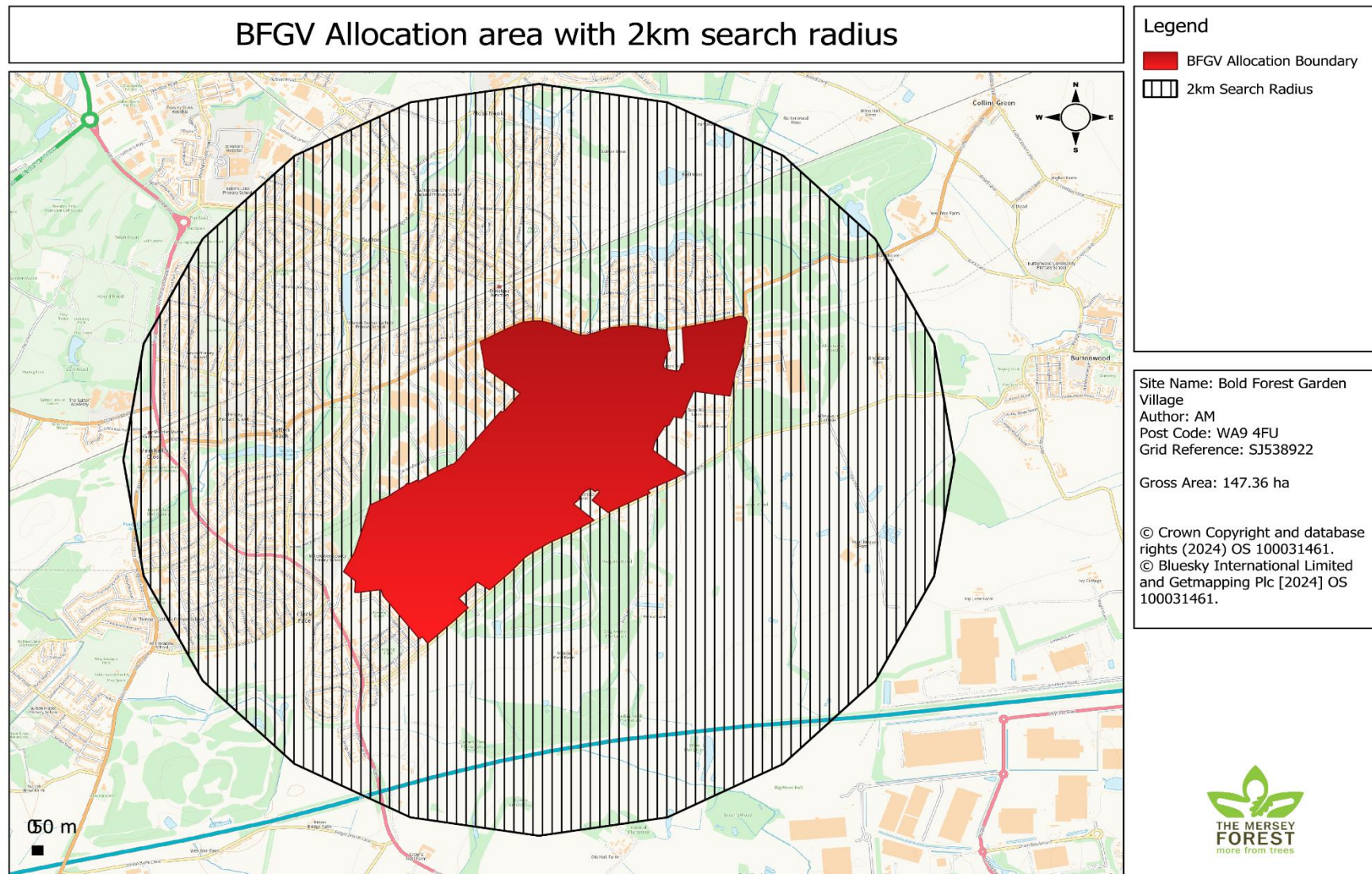


Figure A1: Aerial image of the allocation and the 2km radius (red line shows the allocation boundary) (2024)

Appendix II Ecological features, Habitat Maps and Designated site maps

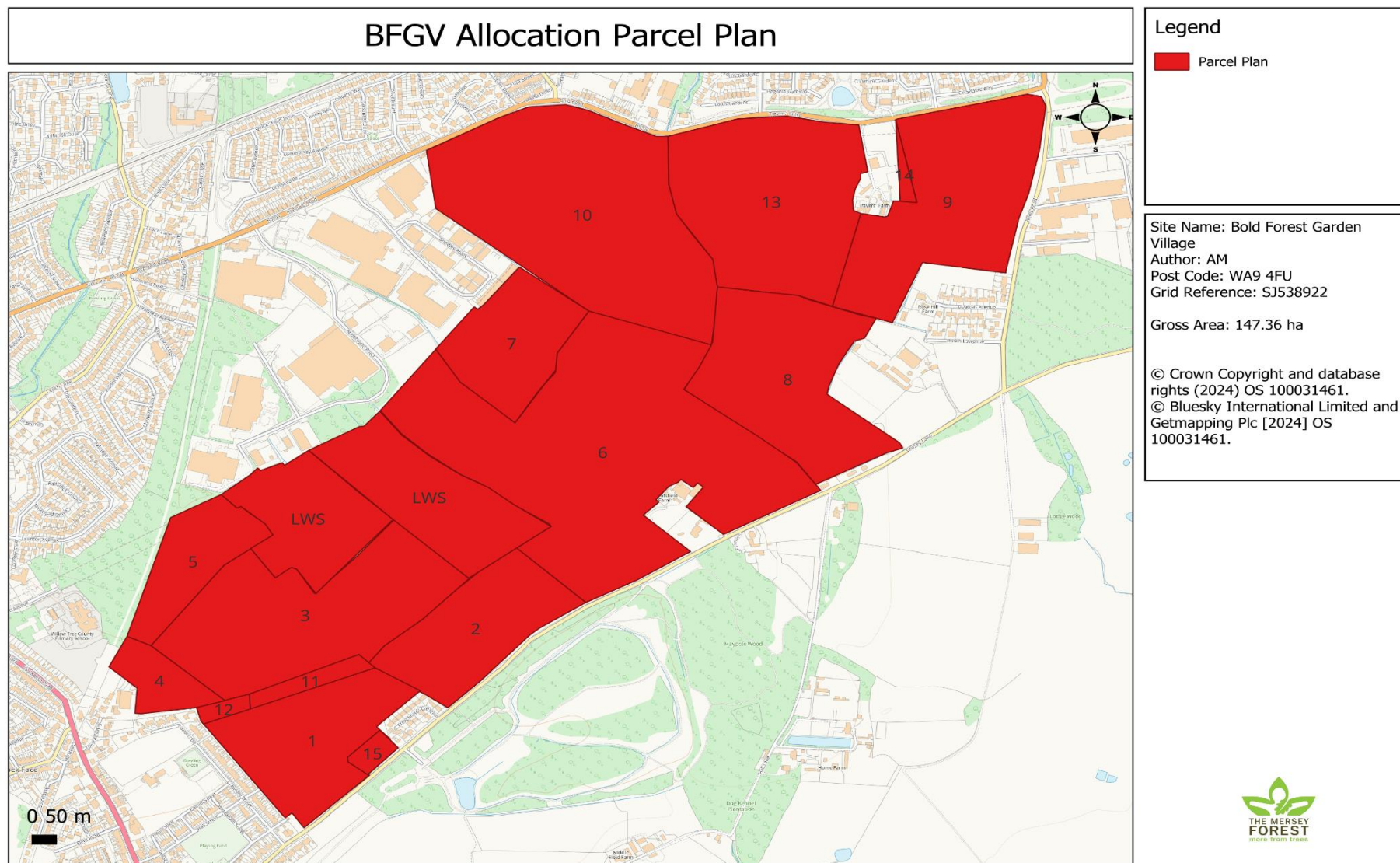
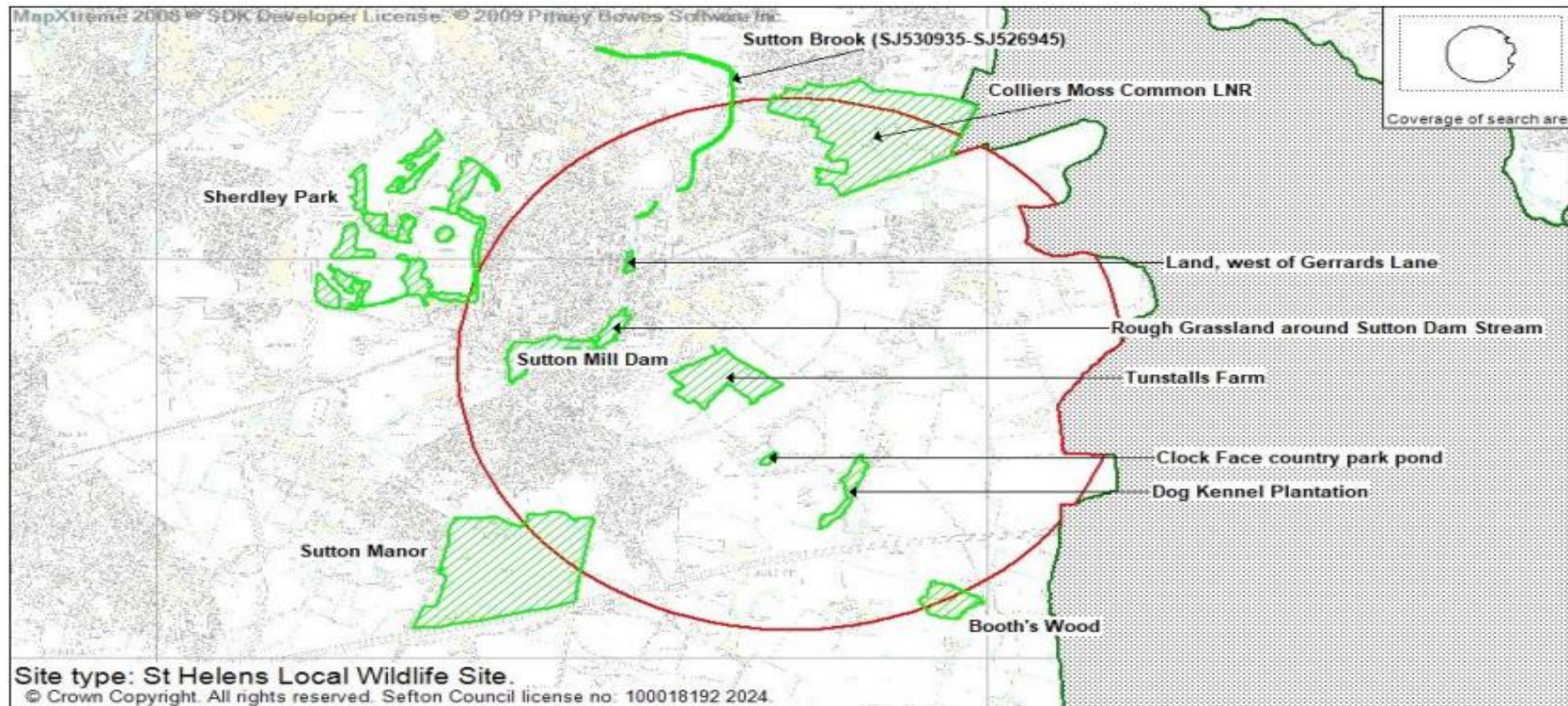


Figure A2: BFGV Allocation Parcel Plan (Label shown parcel number) (2024).



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Figure A3: LWS, LNS AND NIAs within a 2km radius of the BFGV Allocation.

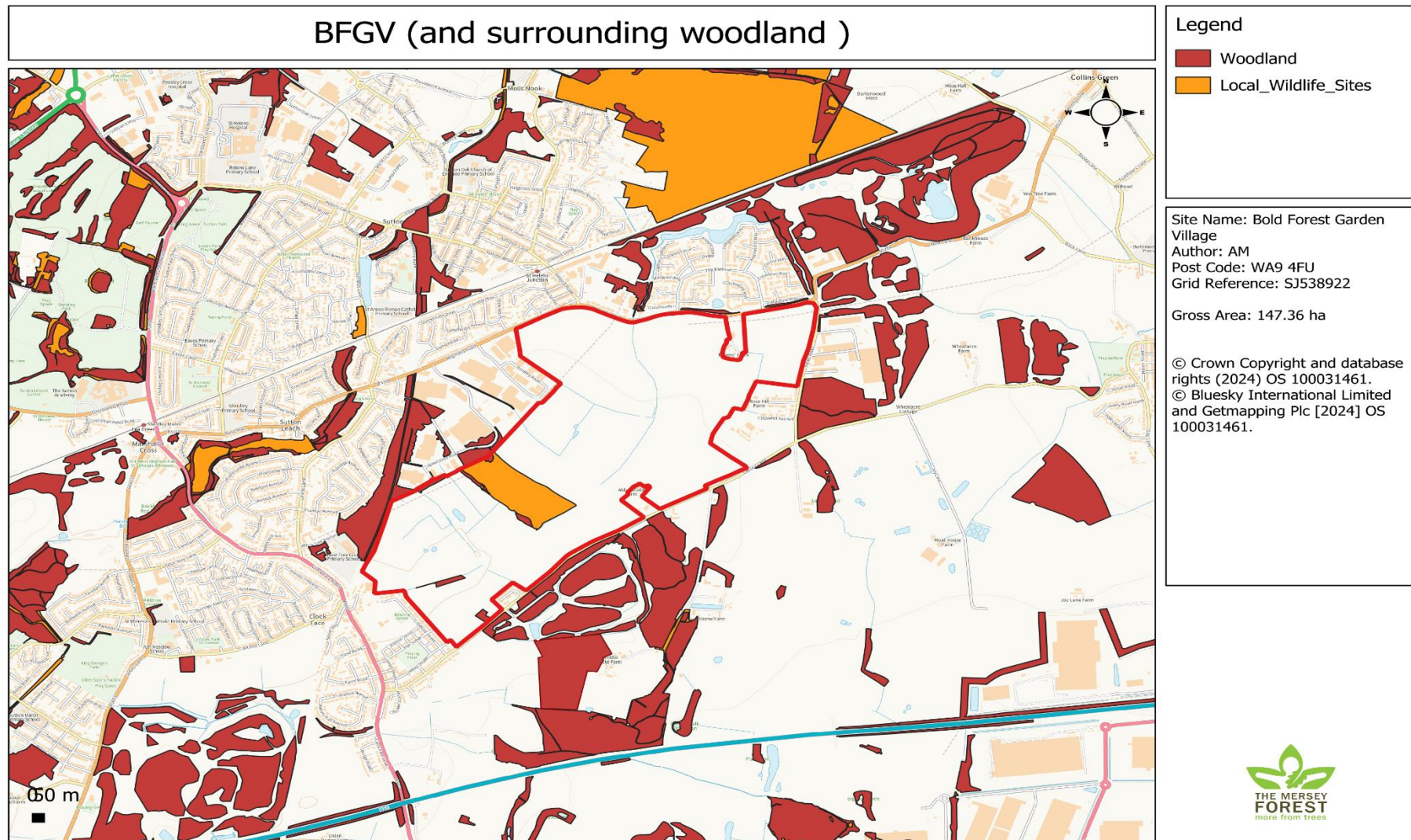


Figure A4: BFGV Allocation and 2km of the surrounding woodland (2024).



Figure A5: NVC mapping results obtained via the data search (MEAS) for the Local Wildlife Site. (2002).

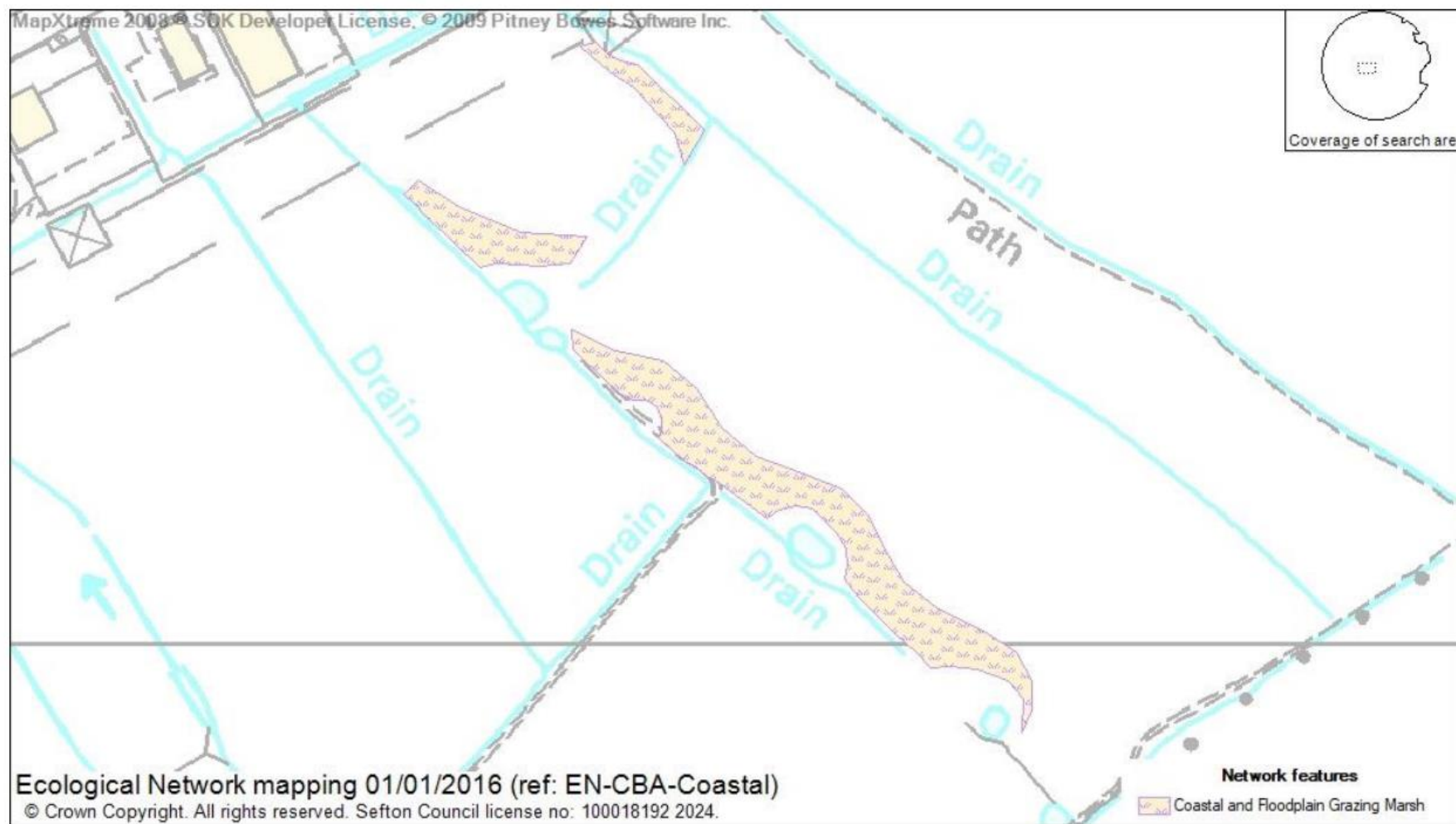
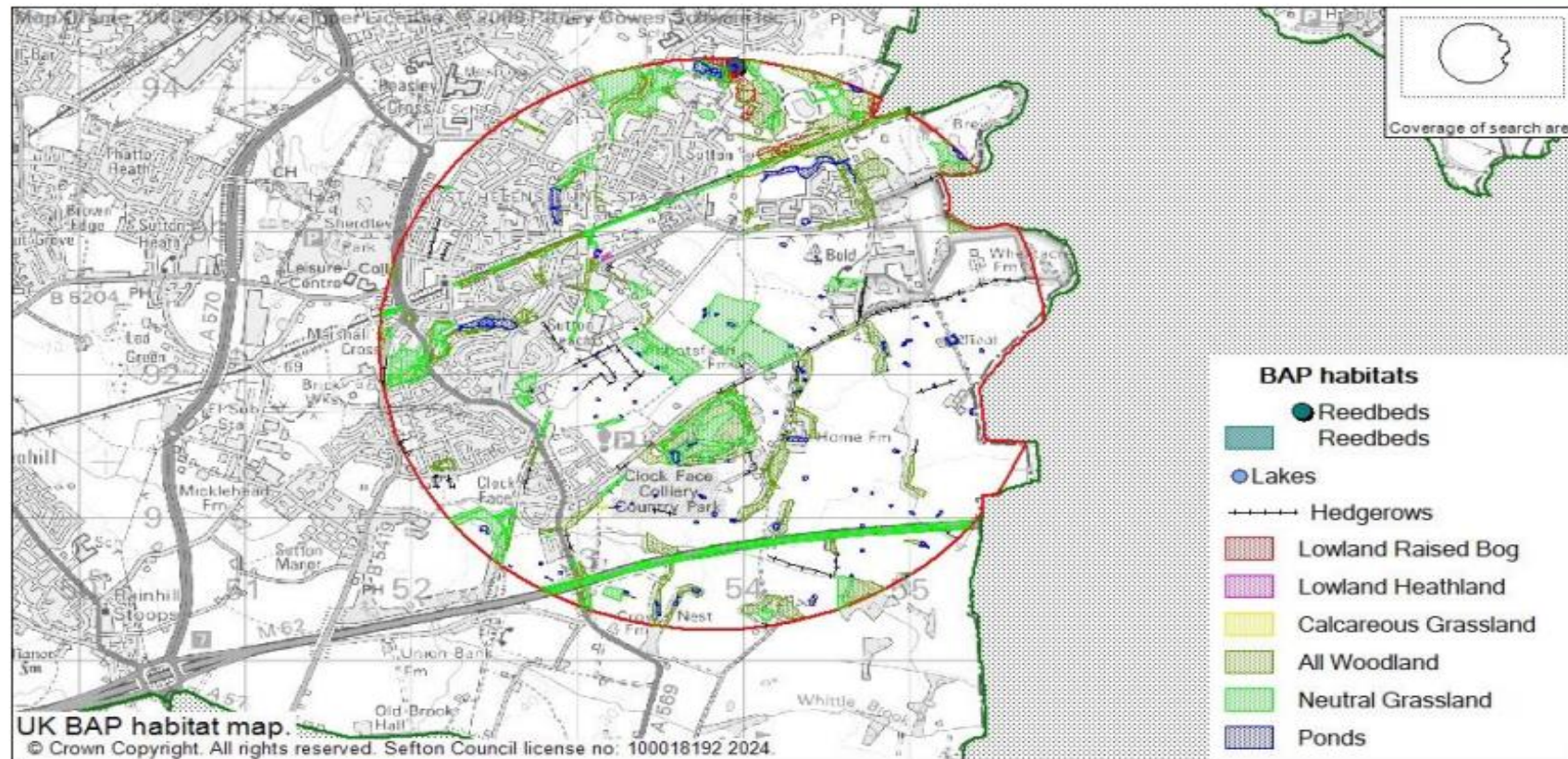


Figure A6: Ecological Network Mapping, obtained via the data search (MEAS). For the Local Wildlife Site (2016).



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Figure A7: UK BAP Habitat Map, within the allocation and the surrounding 2km (MEAS, 2024).

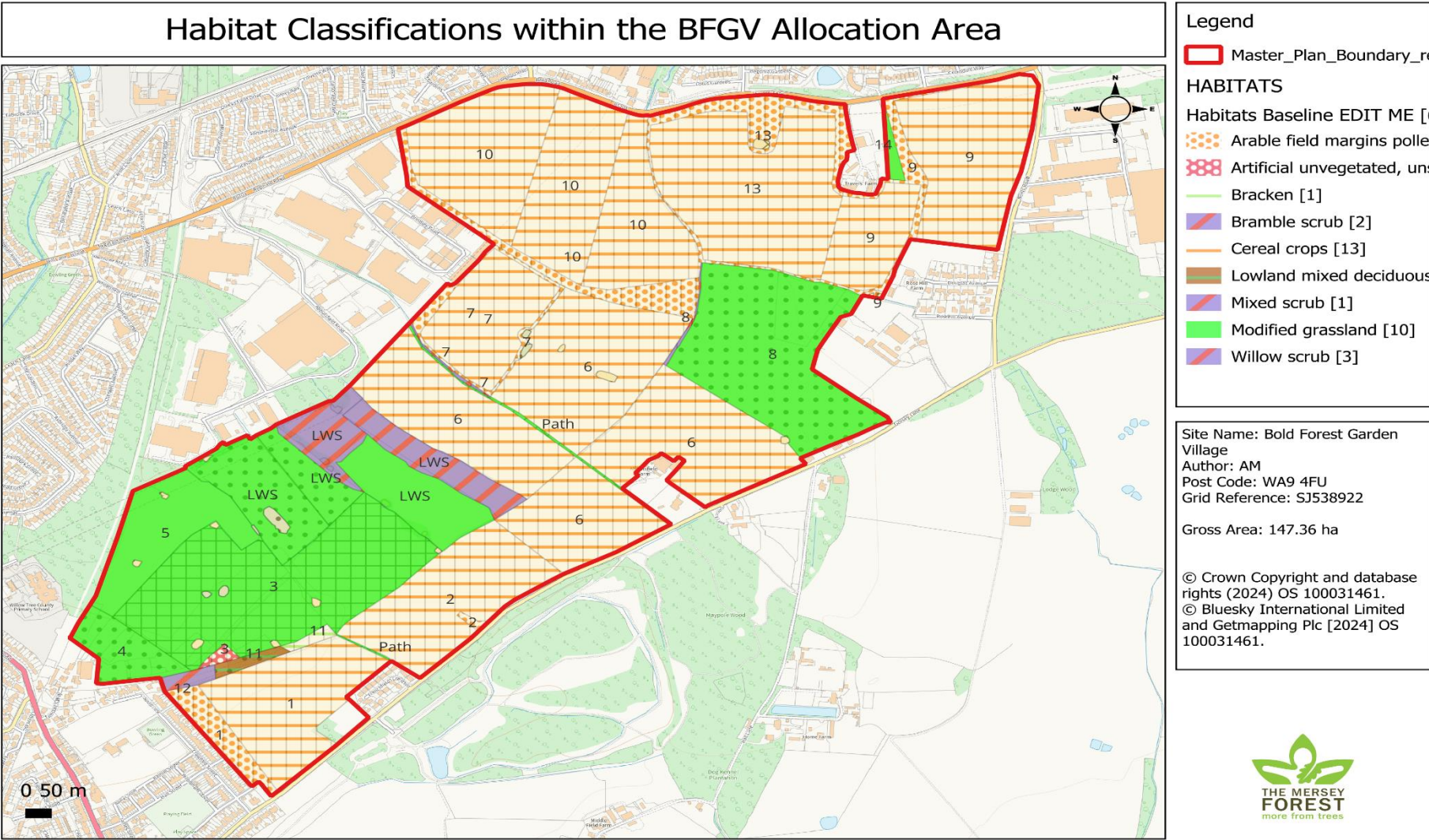


Figure A8: Habitat Classification Map within the BFGV Allocation (2024)

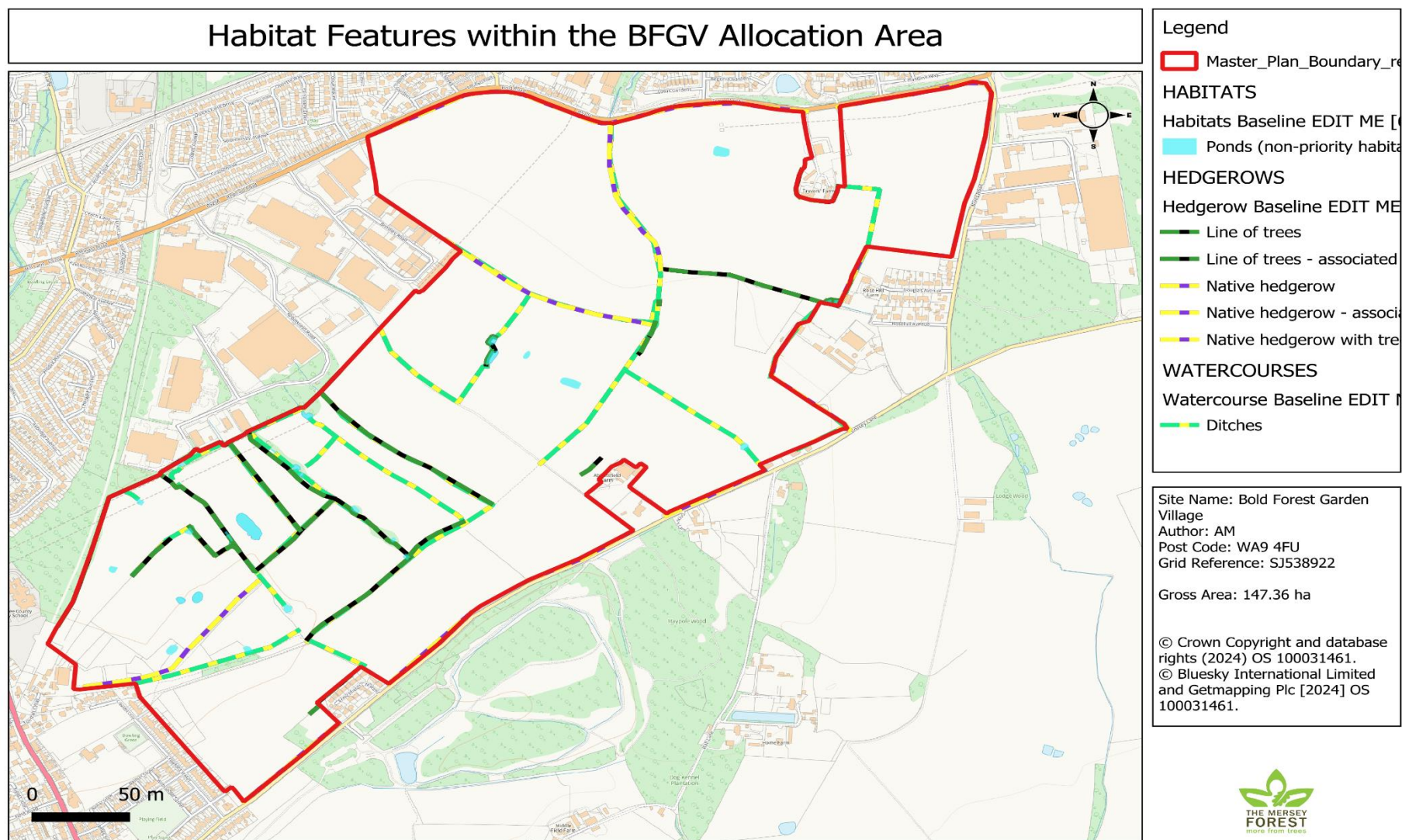


Figure Ag: Habitat Features (Hedgerows, Trees, Ponds, and Ditches) within the BFGV Allocation (2024)

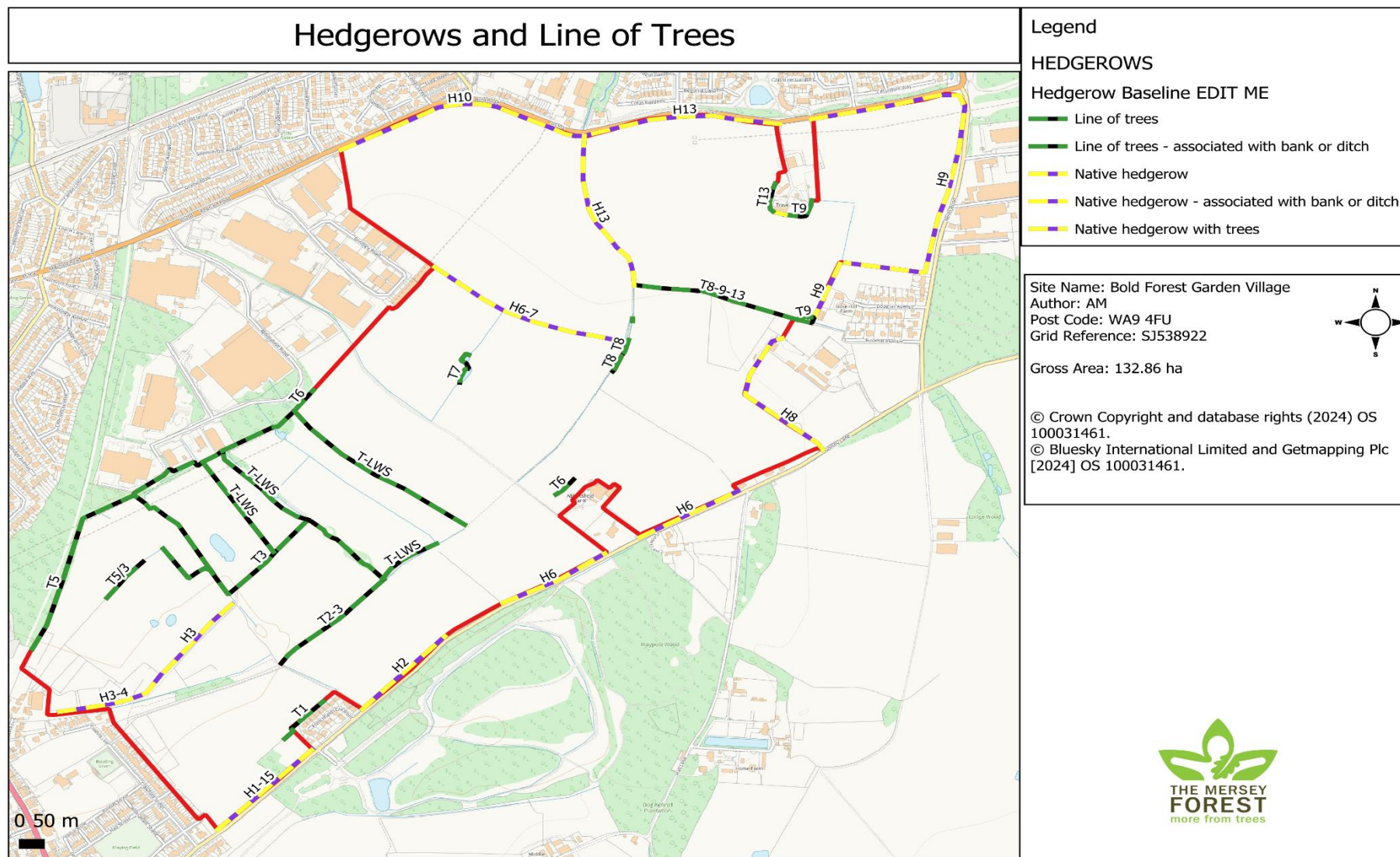


Figure A10: Hedgerows and tree lines within the BFGV Allocation. (2024)

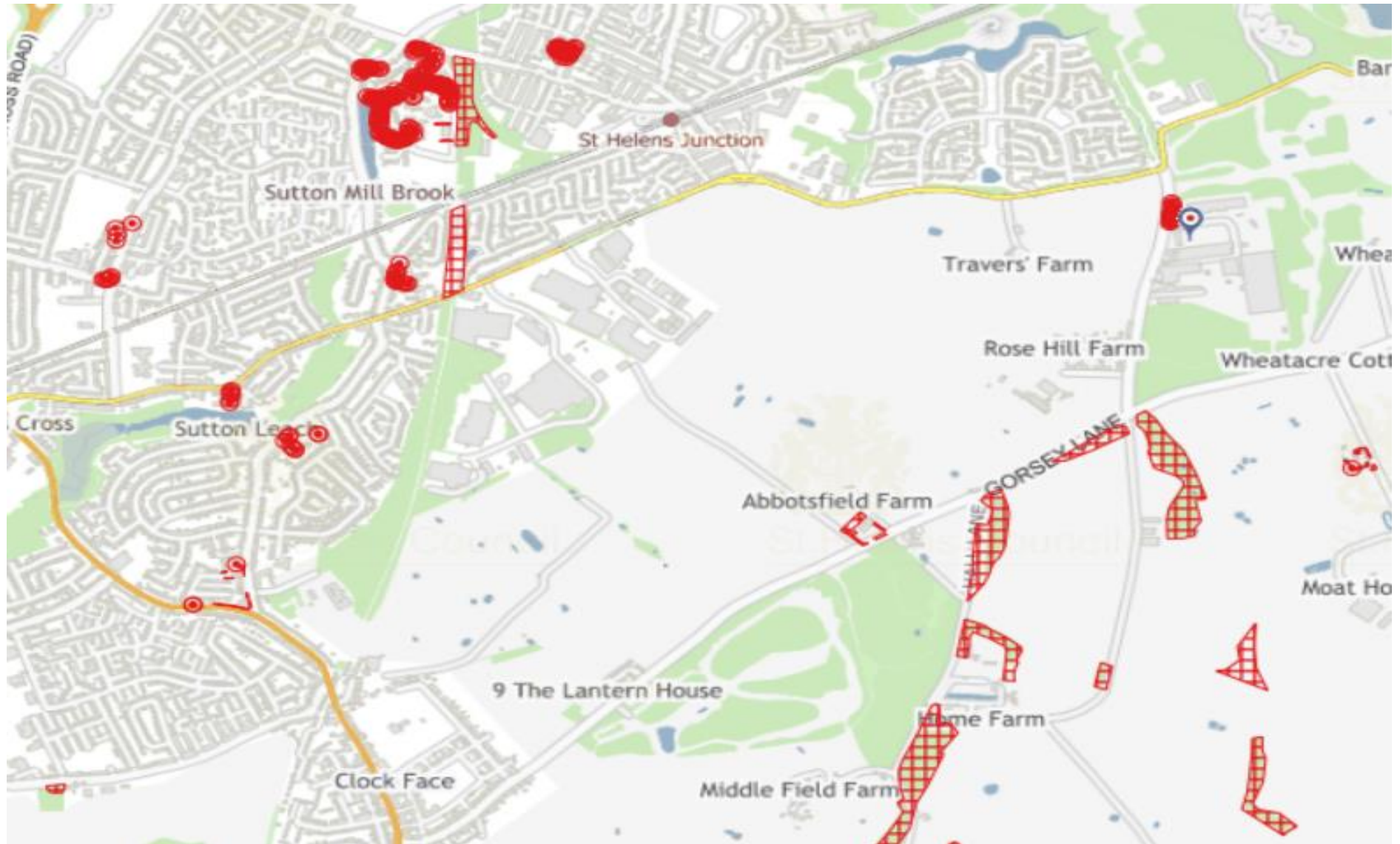


Figure A11: TPOs active within the BFGV allocation area and surrounding area (St Helens Borough)

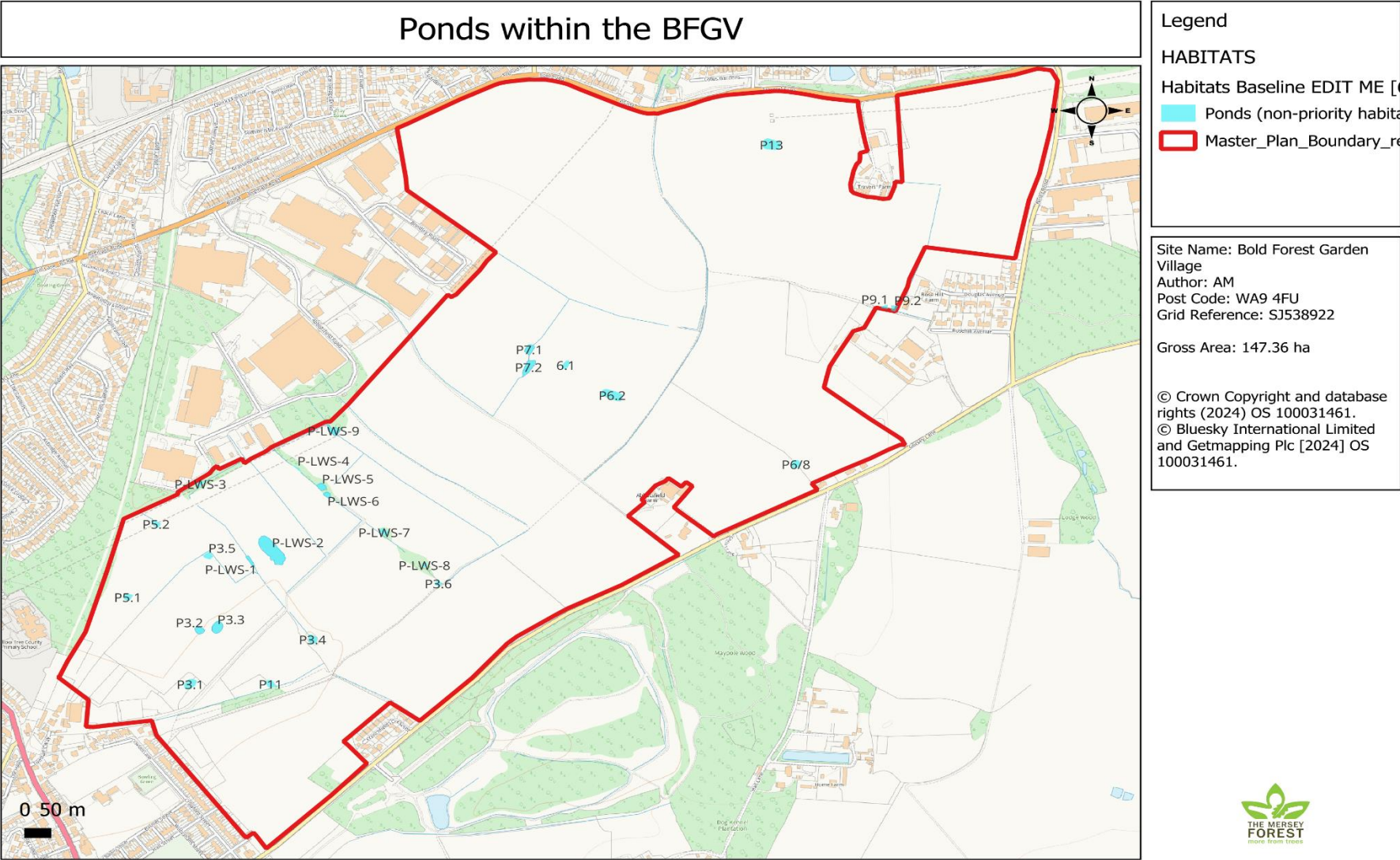


Figure A12: Ponds within the BFGV Allocation (2024).

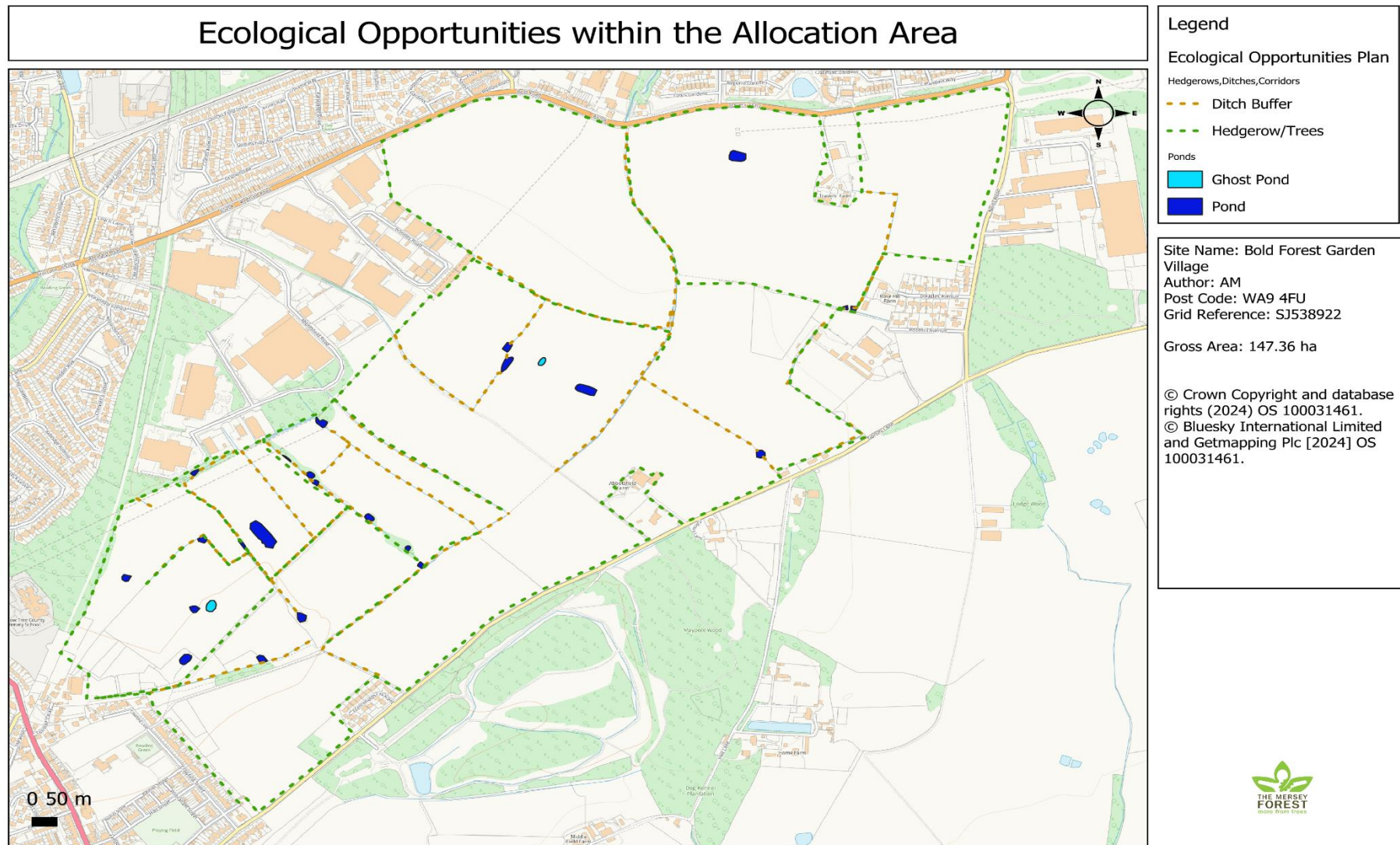


Figure A13: Ecological Opportunities within the allocation area (2024).

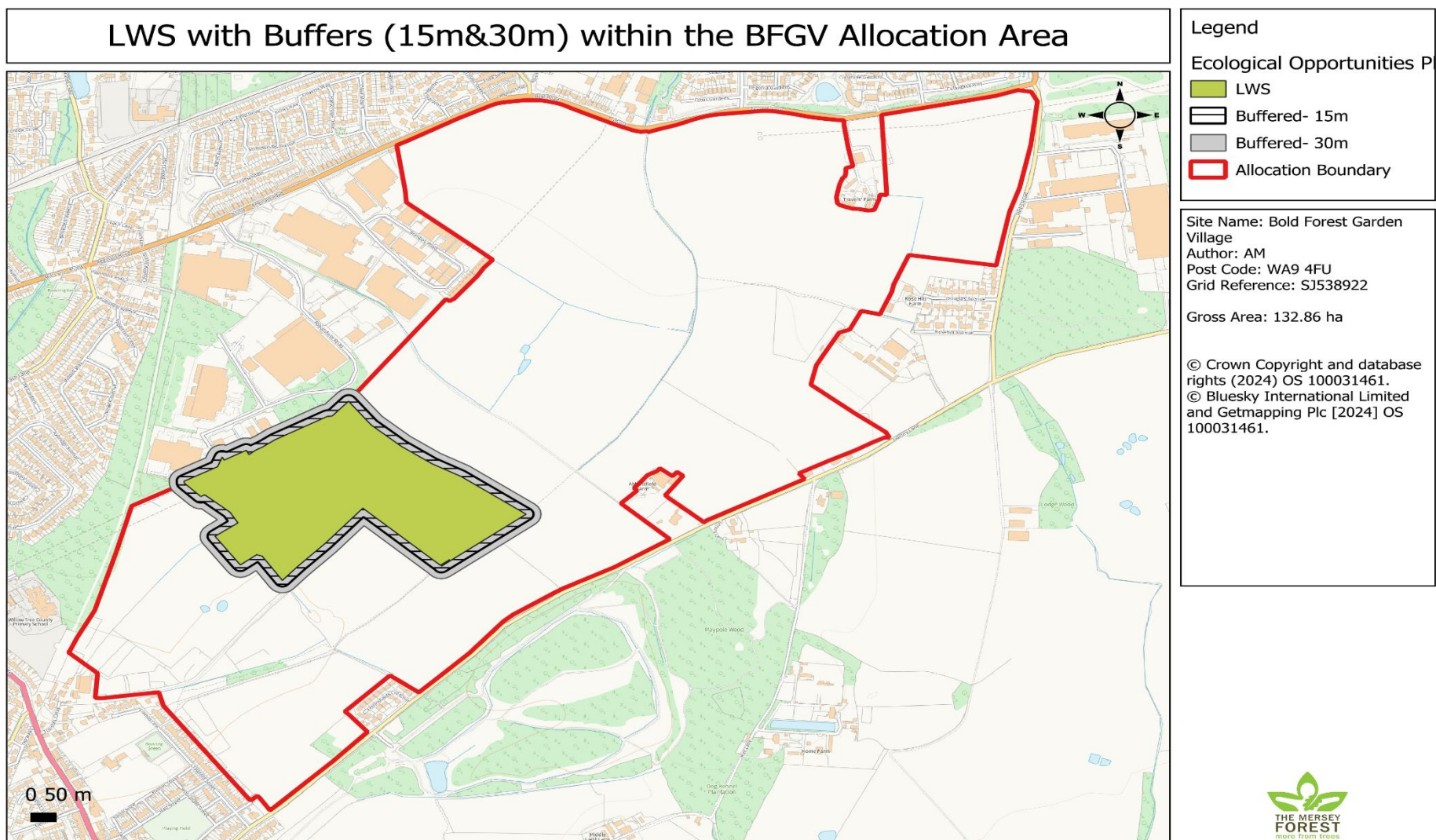
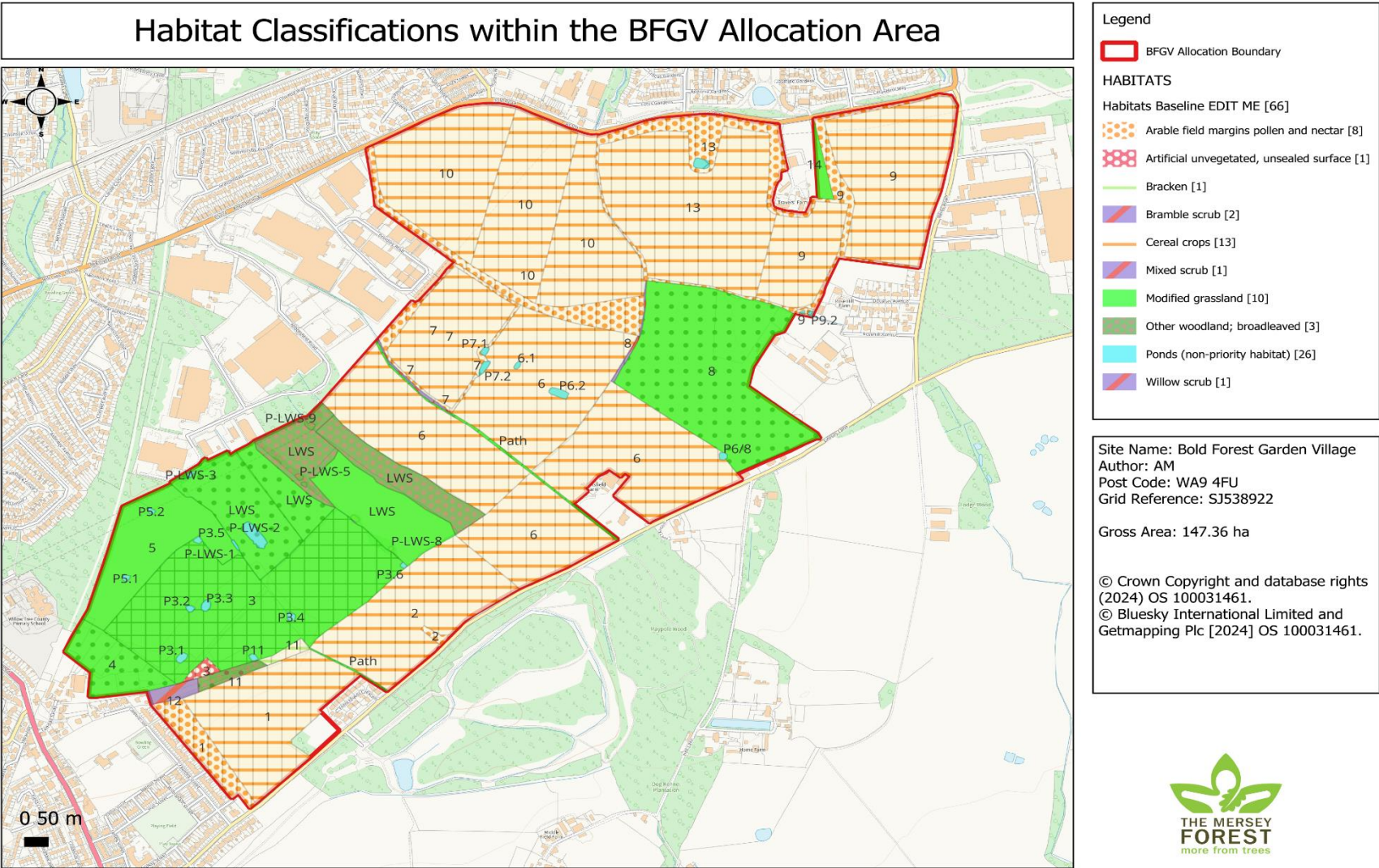


Figure A14: Buffer Zones (15m and 30m) around the LWS in the allocation area (2024).



A15: BNG and habitat classification map (2024).

Figure

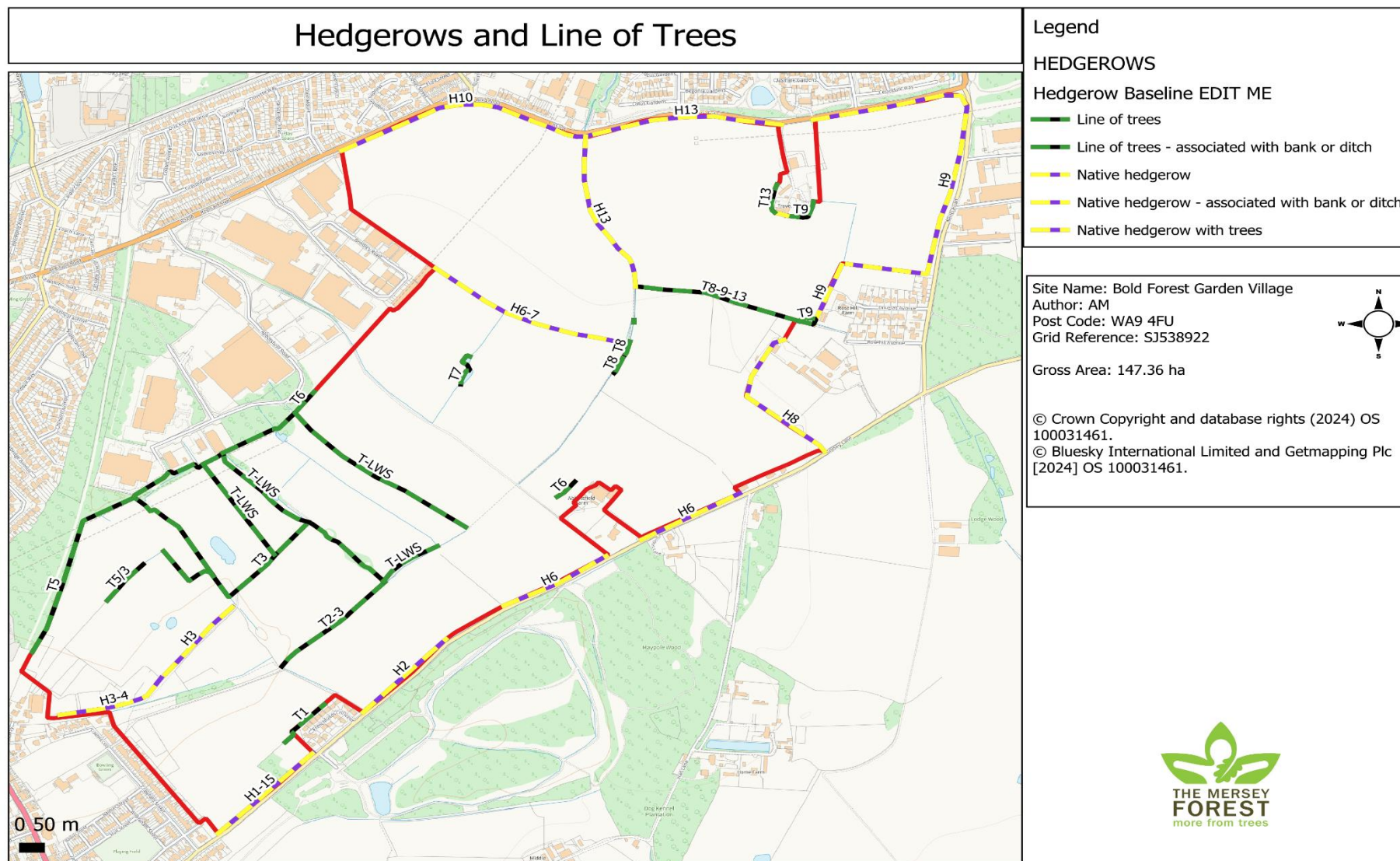


Figure A16: BNG and hedgerow classification map (2024).

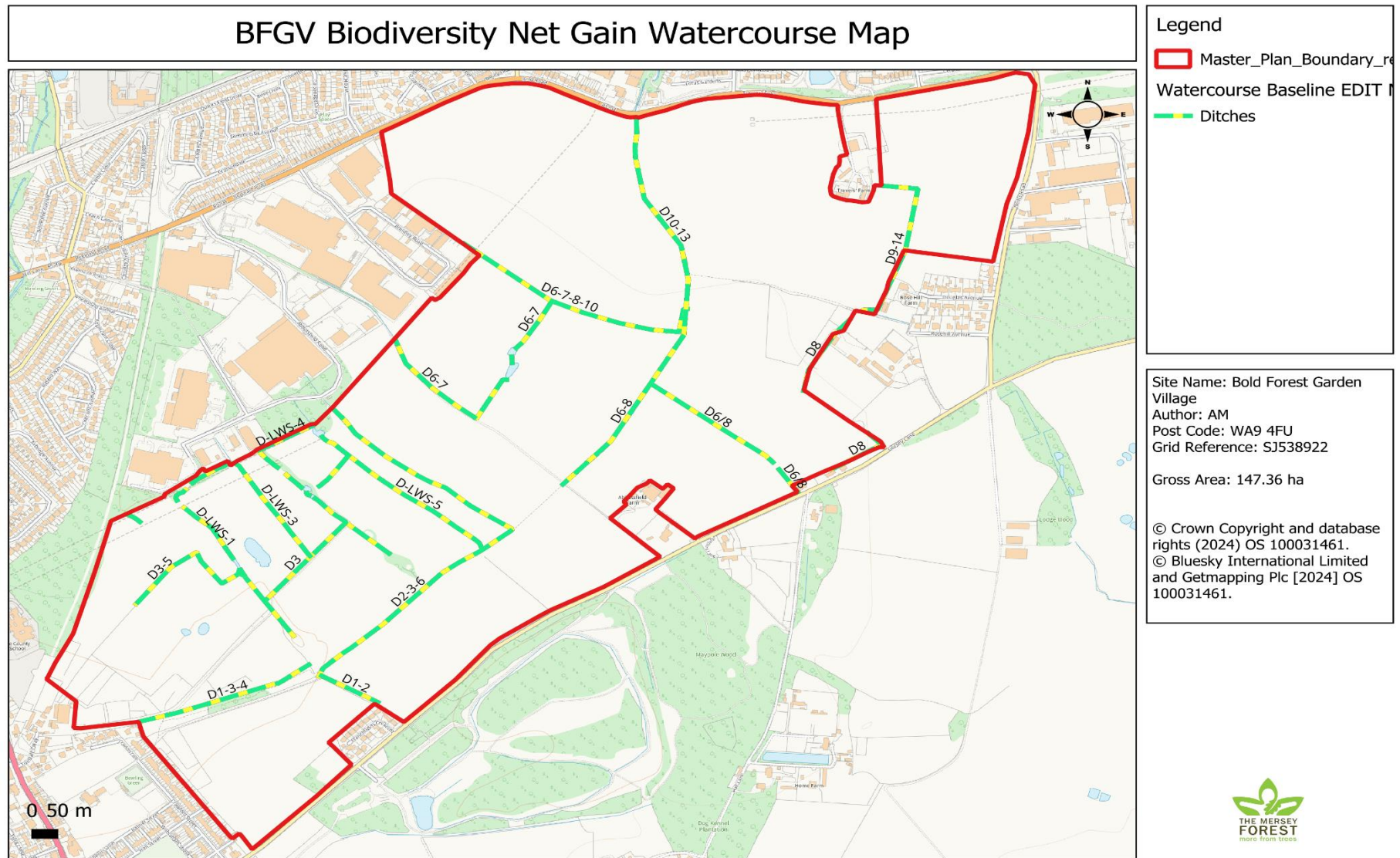


Figure A17: BNG and watercourse classification map (2024).

Appendix III Species List:

MEAS/Biobank designated sites with species list- 2km within allocation location:

Designation	Site Name	National Grid Reference	Habitats and Plants and Animals
Booth's Wood	LWS	SJ547904	1 Priority BAP habitat (Single species dominant swamp) 2 Regionally important habitats (Marshy grassland, Standing water) 1 WCA schedule 8 species, Species of Conservation Concern and Regionally Important Species (English bluebell, <i>Hyacinthoides non-scripta</i>) 3 Locally rare species (Sea Club-rush <i>Bolboschoenus maritimus</i>, Hybrid

			rush <i>Juncus kern-reichgeltii</i> Grey Club-rush, <i>Schoenoplectus tabernaemontani</i>)
Clock face Colliery country park pond	LWS	SJ536915	2 Priority BAP and Regionally important habitats (Standing water, unimproved neutral grassland) Amphibians: 1 WCA schedule 5 species and Habitat regulations 2010 schedule 2 species (Great crested newt, <i>Triturus cristatus</i>).
Colliers Moss Common	LNR and LWS	SJ538941	5 Priority BAP habitats (Unimproved acid grassland, Unimproved neutral grassland, Single species dominant swamp, Swamp tall fen vegetation, Acid dry dwarf shrub heath).

			1 Priority Habitat Directive habitat (Acid dry dwarf shrub heath) 7 Regionally Important habitats (Unimproved acid grassland, Unimproved neutral grassland, Marshy grassland, standing water, Swamp tall fen vegetation, Acid dry dwarf shrub heath, Raised bog). 1 Locally uncommon habitat (Acid dry dwarf shrub heath) 49 Locally rare species (Lichens , (<i>Caloplaca citrina</i>, <i>Caloplaca holocarpa</i>, <i>Candelariella aurella</i>, <i>Candelariella reflexa</i>, <i>Cladonia chlorophaea</i>, <i>Cladonia coccifera</i>, <i>Cladonia digitata</i>, <i>Cladonia fimbria</i>, <i>Cladonia floerkeana</i>, <i>Cladonia furcata</i>,
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			<i>Cladonia macilenta</i> , <i>Hypogymnia tubulosa</i> , <i>Lecanora albescens</i> , <i>Lecanora</i> <i>conizaeoides</i> , <i>Lecanora dispersa</i> , <i>Lecanora expellens</i> , <i>Lecanora muralis</i> , <i>Lecidella stigmatea</i> , <i>Lepraria incana</i> , <i>Micaria denigrate</i> , <i>Parmellia revoluta</i> , <i>Parmellia subaurifera</i> , <i>Parmellia subrudecta</i> , <i>Parmellia sulcata</i> , <i>Phaeophyscia</i> <i>orbicularis</i> , <i>Physcia</i> <i>airolia</i> , <i>Physcia</i> <i>tenella</i> , <i>Placynthiella</i> <i>uliginosa</i> , <i>Platismatia</i> <i>glauca</i> , <i>Porpidia</i> <i>crustulata</i> , <i>Pseudevernia</i> <i>furfuracea</i> , <i>Ramalina</i> <i>farinacea</i> , <i>Rhizocarpon</i> <i>obscuratum</i> , <i>Sarcogyne regularis</i> , <i>Trapelia coarctata</i> , <i>Trapeliopsis</i> <i>granulosa</i>), Mosses <i>(Polytrichum</i>
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			<i>piliferum</i>, <i>Drepanocladus fluitans</i>, <i>Drepanocladus revolvens</i>), Green-ribbed Sedge (<i>Carex binervis</i>), Hybrid orchid (<i>Dactylorhiza fuchsia x purpurella</i>), Round-leaved Sundew (<i>Drosera rotundifolia</i>) Broad-leaved Helleborine (<i>Epipactus helleborine</i>) Marsh Helleborine (<i>Epipactus palustris</i>) Cross-leaved heath (<i>Erica tetralix</i>) Hare's-tail Cottongrass (<i>Eriophorum vaginatum</i>) Oakmoss lichen (<i>Evernia prunastri</i>) Common Fumitory (<i>Fumaria officinalis</i>) Small Sweet-grass (<i>Glyceria declinata</i>) Odonata
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			2 North Merseyside rare or scarce species Black darter (<i>Sympetrum danae</i>), Common hawker (<i>Aeshna juncea</i>)
Dog Kennel Plantation	LWS	SJ542913	1 Regionally important habitat (Standing water) 1 Locally rare species (A moss, <i>Tortula muralis</i>)
Land, west of Gerrards Lane	LWS	SJ528930	1 Priority BAP and Regionally important habitat (Unimproved neutral grassland). 1 Regionally important species (Alder Buckthorn <i>Frangula alnus</i>) 3 Locally rare species (Winter-cress, <i>Barbarea vulgaris</i>, Alder Buckthorn, <i>Frangula alnus</i>, Glaucous Dog-rose)

			<i>Rosa caesia</i> Ssp. <i>glauca</i>)
Rough grassland around Sutton Dam stream	LWS	SJ527925	2 Priority BAP Habitats (and 1 Regionally important habitat) (Single species dominant swamp and Unimproved neutral grassland). 1 WCA Schedule 8 species, Species of Conservation Concern and Regionally important species (English Bluebell, <i>Hyacinthoides non-scripta</i>) 1 Regionally Important Species (Common comfrey, <i>Symphytum officinale</i>)
Sherdley Park and Golf Course	LWS	SJ515934	3 Priority Bap (and 2 Regionally Important Habitats) (Unimproved acid grassland, Unimproved neutral

			grassland, Single species dominant swamp). 2 Regionally Important Habitats (Marshy grassland, Standing water) Plants 1 Nationally rare species (to be confirmed (2003 record) (Northern Yellowcress <i>Rorippa islandica</i>) 1 WCA Schedule 8 species, Species of conservation concern and regionally important species (English bluebell <i>Hyacinthoides non-scripta</i>) 3 Regionally Important Species (Greater Pond-sedge, <i>Carex riparia</i>, Northern Marsh-orchid, <i>Dactylorhiza</i>
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			<i>purpurella</i>, Adder's tongue fern, <i>Ophioglossum vulgatum</i>) 4 Locally Rare Species (Wood Sedge, <i>Carex sylvatica</i>, Entire-leaved Cotoneaster, <i>Cotoneaster integrifolius</i>, Orchid hybrid, <i>Dactylorhiza fuchsii</i> x <i>purpurella</i>, Adder's tongue fern, <i>Ophioglossum vulgatum</i>) Animals 1 WCA Schedule 5 species and Habitat Directive species (Great crested newt, <i>Triturus cristatus</i>)
Sutton Brook	LWS	SJ532935	3 Regionally Important Species (Yellow-wort, <i>Blackstonia perfoliate</i>, Ploughman's-spikenard, <i>Inula</i>

			<i>conyzae</i>, A moss <i>Thlaspi arvense</i>) 7 Locally Rare Species (A liverwort, <i>Aneura pinguis</i>, A moss <i>Barbula fallax</i>, Hoary Willowherb, <i>Epilobium parviflorum</i>, Bell Heather, <i>Erica cinerea</i>, Ploughman's-spikenard <i>Inula conyzae</i>, A moss, <i>Thlaspi arvense</i>, Common vetch subspecies <i>Vicia sativa Ssp. nigra</i>) Animals (Water vole, <i>Arvicola terrestris</i>)
Sutton Manor	LWS	SJ520906	4 Regionally Important habitats (Standing water, Unimproved neutral grassland, Swamp, Scrub)

			1 Nationally Important and WCA Schedule 5 Species (Water vole, <i>Arvicola terrestris</i>)
Sutton Mill Dam	LWS	SJ523923	4 Priority BAP habitats (Unimproved neutral grassland, Single species dominant swamp, Swamp tall fen vegetation, Eutrophic standing water) 4 Regionally Important habitats (Unimproved neutral grassland, Marshy grassland, Swamp tall fen vegetation, Standing water) 1 Nationally scarce species Tasteless Waterpepper (<i>Persicaria mitis</i>) 1 WCA Schedule 8 species, Species of conservation concern and regionally

			important (English Bluebell, <i>Hyacinthoides non-scripta</i>) 2 Regionally Important Species (Burnet Rose, <i>Rosa pimpinellifolia</i>, Smooth Tare, <i>Vicia tetrasperma</i>). 6 Locally rare species (Fool's Parsley, <i>Aethusa cynapium</i>, Tasteless Waterpepper, <i>Persicaria mitis</i>, Burnet Rose, <i>Rosa pimpinellifolia</i>, Purple Willow, <i>Salix purpurea</i>, Heath Groundsel (<i>Senecio sylvaticus</i>, Smooth Tare, <i>Vicia tetrasperma</i>)
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Tunstall's Farm (formerly Field north of Gorsey Lane)	LWS	SJ534921	1 Priority BAP habitat (Unimproved neutral grassland) 3 Regionally important habitats (Unimproved neutral grassland, Marshy grassland, Standing water) Plants 1 Regionally important species (Common comfrey, <i>Symphytum officinale</i>, Fen Bedstraw, <i>Galium uliginosum</i>) Amphibians 1 WCA Schedule 5 and Habitat Regulations Schedule 2 Species (Great crested newt, <i>Triturus cristatus</i>) Mammals 1 WCA Schedule 5 species
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			(Water Vole, <i>Arvicola terrestris</i>).
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Species list; observed within the allocation and LWS during field study (2024):

Vegetation (Observed across whole site)	Birds (Observed across whole site)	Mammals (Observed)	Invertebrates (Observed across whole site)	Local Wildlife Site (Observations)
Yorkshire Fog (<i>Holcus lanatus</i>)	Skylark - <i>Alauda arvensis</i>	Hare - <i>Lepus europaeus</i> (European Hare)	Cranefly - <i>Tipulidae</i> (family)	Cranefly - <i>Tipulidae</i> (family)
Annual Blue (<i>Poa annua</i>)	Yellowhammer - <i>Emberiza citrinella</i>	Rabbit - <i>Oryctolagus cuniculus</i> (European Rabbit)	Common Carder Bee - <i>Bombus pascuorum</i>	Common Carder Bee - <i>Bombus pascuorum</i>
Dandelion (<i>Taraxacum officinale</i>)	Linnet - <i>Linaria cannabina</i>		Peacock Butterfly - <i>Aglais io</i>	Peacock Butterfly - <i>Aglais io</i>
Creeping Buttercup (<i>Ranunculus repens</i>)	Buzzard - <i>Buteo buteo</i>		Orange Tip Butterfly - <i>Anthocharis cardamines</i>	Orange Tip Butterfly - <i>Anthocharis cardamines</i>
Ragwort (<i>Jacobaea vulgaris</i>)	House Martin - <i>Delichon urbicum</i>		Hoverflies - <i>Syrphidae</i> (family)	Hoverflies - <i>Syrphidae</i> (family)
Sorrel (<i>Rumex spp.</i>)	Goldfinch - <i>Carduelis carduelis</i>		Ladybirds - <i>Coccinellidae</i> (family)	Ladybirds - <i>Coccinellidae</i> (family)
Cranesbill (<i>Geranium spp.</i>)	Greenfinch - <i>Chloris chloris</i>		Leather Jacket Larvae - <i>Tipula spp.</i> (larval stage of crane flies)	Leather Jacket Larvae - <i>Tipula spp.</i> (larval stage of crane flies)
Phragmites (<i>Phragmites australis</i>)	Meadow Pipit - <i>Anthus pratensis</i>		Brimstone Butterfly - <i>Gonepteryx rhamni</i>	Brimstone Butterfly - <i>Gonepteryx rhamni</i>

Cuckooflower (<i>Cardamine pratensis</i>)	Fieldfare - <i>Turdus pilaris</i>		Small White Butterfly - <i>Pieris rapae</i>	Small White Butterfly - <i>Pieris rapae</i>
Common Vetch (<i>Vicia sativa</i>)	Willow Warbler - <i>Phylloscopus trochilus</i>		Tawny Mining Bee - <i>Andrena fulva</i>	Tawny Mining Bee - <i>Andrena fulva</i>
Marsh Orchid (<i>Dactylorhiza spp.</i>)	Reed Bunting - <i>Emberiza schoeniclus</i>		Red-tailed Bumblebee - <i>Bombus lapidarius</i>	Red-tailed Bumblebee - <i>Bombus lapidarius</i>
White Clover (<i>Trifolium repens</i>)	Lapwing - <i>Vanellus vanellus</i>		Grasshopper - <i>Acrididae</i> (family)	Fox - <i>Vulpes vulpes</i>
Creeping Bent (<i>Agrostis stolonifera</i>)	Wren - <i>Troglodytes troglodyte</i>			Willow - <i>Salix</i> spp.
Hawkbit (<i>Leontodon spp.</i>)	Great Tit <i>Parus major</i>			Drooping Sedge - <i>Carex pendula</i>
Soft Rush (<i>Juncus effusus</i>)	Blue Tit <i>Cyanistes caeruleus</i>			Hybrid Bluebell - <i>Hyacinthoides × massartiana</i>
Perennial Rye (<i>Lolium perenne</i>)	Chaffinch <i>Fringilla coelebs</i>			Reed Bunting - <i>Emberiza schoeniclus</i>
Nettles (<i>Urtica dioica</i>)	Blackbird <i>Turdus merula</i>			Willow Warbler - <i>Phylloscopus trochilus</i>
Cleavers (<i>Galium aparine</i>)	Woodpigeon <i>Columba palumbus</i>			Wren - <i>Troglodytes troglodytes</i>
Hairy Willowherb (<i>Epilobium hirsutum</i>)	Robin <i>Erithacus rubecula</i>			Yellowhammer - <i>Emberiza citrinella</i>
Fringed Willowherb (<i>Epilobium ciliatum</i>)	Jackdaw <i>Corvus monedula</i>			Whitethroat - <i>Sylvia communis</i>
Common Field-speedwell (<i>Veronica persica</i>)	Starling <i>Sturnus vulgaris</i>			Alder - <i>Alnus</i> spp.

Gorse (<i>Ulex europaeus</i>)	Dunnock <i>Prunella modularis</i>			Dogwood - <i>Cornus</i> spp.
Lesser Celandine (<i>Ficaria verna</i>)	Magpie <i>Pica pica</i>			Bramble - <i>Rubus fruticosus</i> agg.
Lesser Knapweed (<i>Centaurea nigra</i>)	Carrion Crow <i>Corvus corone</i>			Oak - <i>Quercus</i> spp.
Groundsel (<i>Senecio vulgaris</i>)				Gorse - <i>Ulex</i> spp.
Herb Robert (<i>Geranium robertianum</i>)				Purple Loosestrife - <i>Lythrum salicaria</i>
Red Clover (<i>Trifolium pratense</i>)				Ragwort - <i>Jacobaea vulgaris</i>
Common Toadflax (<i>Linaria vulgaris</i>)				Angelica - <i>Angelica sylvestris</i>
Meadow Fescue (<i>Festuca pratensis</i>)				Meadow Pea - <i>Lathyrus pratensis</i>
Sweet Vernal Grass (<i>Anthoxanthum odoratum</i>)				Thistle - <i>Cirsium</i> spp. (e.g., <i>Cirsium arvense</i> for creeping thistle)
Mayweed (<i>Matricaria</i> spp.)				Fleabane - <i>Pulicaria dysenterica</i>
Blackthorn (<i>Prunus spinosa</i>)				Cocksfoot - <i>Dactylis glomerata</i>
Hawthorn (<i>Crataegus monogyna</i>)				Yorkshire Fog - <i>Holcus lanatus</i>
Bramble (<i>Rubus fruticosus</i>)				Meadow Foxtail - <i>Alopecurus pratensis</i>
Goat Willow (<i>Salix caprea</i>)				Tufted Vetch - <i>Vicia cracca</i> purchased 11. Meadowsweet - <i>Filipendula ulmaria</i>
Oak (<i>Quercus</i> spp.)				Ryegrass - <i>Lolium</i> spp.
Alder (<i>Alnus</i> spp.)				Creeping Buttercup - <i>Ranunculus repens</i>
Sycamore (<i>Acer pseudoplatanus</i>)				Meadow Bedstraw - <i>Galium saxatile</i>
Japanese Knotweed (<i>Reynoutria japonica</i> syn.				Rushes - <i>Juncus</i> spp.

<i>Fallopia japonica</i> , <i>Polygonum cuspidatum</i>)				
Water Lily (<i>Nymphaea</i> spp.)				Marsh Thistle - <i>Cirsium palustre</i>
Duckweed (<i>Lemna</i> spp.)				Foxglove - <i>Digitalis purpurea</i>
				Red Bartsia - <i>Odontites vernus</i>
				Bracken - <i>Pteridium aquilinum</i>
				Common Centaury - <i>Centaureum erythraea</i>

Appendix IV Legislation and Policy:

- **The European Council Birds Directive (CEC, 1979):** Establishes a framework for conserving and managing wild bird populations across Europe. Special Protected Areas (SPAs) are designated under this directive to safeguard vulnerable bird species listed in Annex 1 and regularly migrating species.
- **The Wildlife and Countryside Act (WCA) 1981 (as amended):** serves as primary legislation for protecting animals, plants, and certain habitats in the UK. It implements the Bern Convention, Birds Directive, and Habitats Directive, listing protected species and habitats in Schedules 1, 5, and 8.
 - Schedule 1 Part 1 – Birds which are protected by special penalties at all times from being intentionally killed, injured, or taken and whose eggs, nests or dependent young are also protected from being disturbed. Schedule 5 Section 9 Part 1 (killing/injuring) – Animals which are protected from being intentionally killed or injured. Schedule 5 Section 9 Part 1 (taking) – Animals which are protected from being taken. Schedule 5 Section 9 Part 4a – Animals which are protected from intentional damage to, destruction of, or obstruction of access to any structure or place used for shelter or protection. Schedule 5 Section 9 Part 4b – Animals which are protected from intentional disturbance while occupying a structure or place used for shelter or protection. Schedule 5 Section 9 Part 4c – Animals which are protected from their access to any structure or place which they use for shelter or protection being obstructed. Schedule 6 - Animals which are protected from being killed or taken by certain methods under Section 11(1).

The methods listed are self-locking snares, bows, crossbows, explosives (other than ammunition for a firearm), or live decoys. Schedule 8 – Plants and fungi which, subject to exceptions, are protected from: intentional picking, uprooting or destruction; selling, offering for sale, possessing, or transporting for the purpose of sale; advertising for buying or selling. Schedule 9 – Plant and animal species that are prohibited from introducing into the wild as they may cause ecological or environmental harm or where they pose a threat to the native habitats and species. Under Schedule 9 of the Wildlife & Countryside Act 1981 (as amended) it is a criminal offence to cause any of 48 non-native plant species (6/4/2010) and (non-native animals) to spread into the wild where they cause damage to the environment/ economy/health/lifestyle. The site owner has a responsibility to: ➤ Prevent invasive, non-native plants on their land spreading into the wild and causing a nuisance. ➤ Prevent harmful weeds on their land spreading onto a neighbour's property

- **The Environmental Protection Act 1990:** allows for the potential classification of soil and other waste containing viable propagules of invasive non-native plant species as controlled waste. This classification has been applied to Japanese Knotweed, meaning that waste containing this species must be disposed of following the duty of care outlined in section 34 of the Act. The Environment Agency has issued guidance to assist in complying with this duty of care.
 - Any Schedule 9 plant material or soil containing root or rhizome fragments may also be classified as 'controlled waste' under the Environmental Protection Act 1990 (EPA).
 - Infringement of the EPA can result in an unlimited fine, in addition to potential criminal prosecution under the Wildlife & Countryside Act.
 - Owners may be held liable for costs incurred from the spread of contaminated soil into adjacent properties or from disposal of contaminated soil off-site during development, which later leads to spread on another site.
- **The European Habitats and Species Directive (CEC, 1992):** Aims to maintain or restore biodiversity by requiring Member States to preserve natural habitats and species listed in the Annexes at a favourable conservation status. It provides robust protection for habitats and species of European significance.
- **The Protection of Badgers Act 1992:** Safeguards badgers and their setts from harm or disturbance, making it illegal to interfere with them.
- **The Hedgerow Regulations 1997:** Protect important hedgerows from removal without prior approval from the relevant Local Authority unless part of a planning permission.
- **The Countryside and Rights of Way (CRoW) Act 2000:** Strengthens wildlife enforcement measures and enhances protection for Sites of Special Scientific Interest (SSSI).
- **The Initial List of Species of Principal Importance (Section 74 of CRoW Act 2000):** was released by DEFRA under Section 74 of the Countryside and Rights of Way (CRoW) Act 2000 and mirrored the UK BAP list at that time. However, the CRoW Act Section 74 list has since been replaced by the Section 41 list, reflecting updated priorities and conservation needs.

- **Circular 06/2005 Biodiversity and geological conservation:** Provides administrative guidance on planning and nature conservation laws in England, complementing the National Planning Policy Framework (NPPF) and Planning Practice Guidance.
- **The Natural Environment and Rural Communities (NERC) Act 2006:** Introduced amendments to both the Wildlife and Countryside Act 1981 and the Countryside and Rights of Way (CROW) Act 2000. Notably, it extended the biodiversity duty established by the CROW Act to encompass public bodies and statutory undertakers. The Act also addresses concerns regarding pesticides harmful to wildlife, enhances protections for birds, and addresses issues related to invasive non-native species. Additionally, it modifies enforcement powers concerning wildlife protection and extends time limits for prosecuting certain wildlife offenses.
 - Section 41 of the Act mandates the Secretary of State to publish a list of flora and fauna species deemed of principal importance for conserving biodiversity in England. This list guides decision-makers, including public bodies and local authorities, in fulfilling their duty under section 40 of the NERC Act 2006 to consider biodiversity conservation in their normal functions. Originally, the UK Biodiversity Action Plan (BAP) list of 1149 species, published in 2007, was utilized to compile a subset known as the 'England Biodiversity List,' consisting of species requiring action in England under the UK BAP. The inclusion of the Hen Harrier on this list underscores the importance of continued conservation efforts to prevent further declines in its population.
 - Sixty-five habitats are listed as principal importance for biodiversity conservation under section 41 (England) of the NERC Act (2006), guiding public bodies in conservation efforts through National and Local Biodiversity Action Plans.
 - Section 40 of the Natural Environment and Rural Communities (NERC) Act imposes a legal duty on Planning Authorities to 'have regard' to the conservation of biodiversity when considering planning applications.
 - Section 41 of the NERC Act requires the Secretary of State to publish a list of species and habitats of principal importance for conserving biodiversity in the UK. Such Biodiversity Action Plan (BAP) Habitats and Species (2007) do not offer the species any specific protection but help to highlight the species importance at a national level. Local Planning Authorities use this list to identify the species and habitats that should be afforded priority when applying the requirements of the National Planning Policy Framework (NPPF)
- **The UK Post-2010 Biodiversity Framework:** succeeding the UK BAP, outlines strategic approaches to biodiversity conservation, reflecting changes in strategic thinking.
- **The European Red List (2010):** a collaboration between the IUCN and the European Commission, assesses around 6,000 European species, identifying those threatened with extinction at the European level. This informs targeted conservation efforts.
- **"The Natural Choice: Securing the Value of Nature" (2011) (Natural Environment White Paper):** Outlines the government's vision for landscape and ecosystem services, emphasizing the importance of biodiversity conservation.

- **"Biodiversity 2020" (2011):** Is a national strategy for England's wildlife and ecosystem services, aligned with the objectives outlined in the Natural Environment White Paper, aiming to enhance biodiversity conservation efforts.
- **The Anti-social Behaviour, Crime and Policing Act 2014:** Empowers local authorities or the Police to issue community protection notices against individuals whose behaviour negatively impacts the quality of life in the locality, providing a flexible tool to address persistent unreasonable behaviour, including issues caused by widespread species like Japanese knotweed.
- **The Conservation of Habitats and Species Regulations 2017:** Consolidate and update previous regulations, transposing the Habitats Directive and elements of the Birds Directive into law in England, Wales, and to a limited extent, Scotland, and Northern Ireland. These regulations aim to protect biodiversity by conserving natural habitats and species of wild fauna and flora, establishing rules for their management and exploitation.
- **The National Planning Policy Framework (NPPF) 2019:** sets out planning policies for England, emphasizing minimizing impacts on biodiversity and achieving net gains in biodiversity. Local planning authorities are tasked with promoting preservation, restoration, and recreation of priority habitats and species, ensuring net gains in biodiversity through development projects.