



Heidelberg Materials

Tytherington Quarry: 6MT Extension

Preliminary Ecological Appraisal



September 2023

Report for

Trystan Mabbitt
Consenting & Development Manager – Strategic
Projects
Heidelberg Materials
The Ridge
Chipping Sodbury
Bristol
BS37 6AY

Main contributors

Rosy Benbow

Issued by

.....
Nienke Pengelly

Approved by

.....
Andrew Brooks

WSP

Redcliff Quay
120 Redcliff Street
Bristol BS1 6HU
United Kingdom
Tel +44 (0)117 317 8950

Doc Ref. Tytherington Soil Store PEA update 190324

\\\\corp.pbwan.net\\glb-e&i\\uk\\gbsbr400-sal\\sal-fs12-
shared\\projects\\62282762 tytherington
opp229956\\deliver stage\\002 6mt plg app
eia\\ecology\\soil store area\\tytherington soilstore pea
update 190324.docx

Copyright and non-disclosure notice

The contents and layout of this report are subject to copyright owned by WSP save to the extent that copyright has been legally assigned by us to another party or is used by WSP under licence. To the extent that we own the copyright in this report, it may not be copied or used without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to you in confidence and must not be disclosed or copied to third parties without the prior written agreement of WSP. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Any third party who obtains access to this report by any means will, in any event, be subject to the Third Party Disclaimer set out below.

Third party disclaimer

Any disclosure of this report to a third party is subject to this disclaimer. The report was prepared by WSP at the instruction of, and for use by, our client named on the front of the report. It does not in any way constitute advice to any third party who is able to access it by any means. WSP excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of this report. We do not however exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability.

Management systems

This document has been produced in full compliance with our management systems, which have been certified to ISO 9001, ISO 14001 and ISO 45001 by Lloyd's Register.

Document revisions.

No.	Details	Date
01	Initial Draft	7 August 23
02	Second Draft	26 Sept. 23
03	Final Draft	19 March 23
04	Final Version	28 May 23

Contents

1.	Introduction	4
1.1	Background and Site Context	4
1.2	This report	4
2.	Methodology	5
2.1	Desk study	5
2.2	Field survey	7
2.3	Protected and otherwise notable species	7
	Bats	8
	Breeding birds	8
	Dormouse	8
	Great crested newt	8
	Otter	8
	Reptiles	9
	Water vole	9
	Other notable/ priority species	9
	Invasive non-native species	9
2.4	Survey limitations	9
3.	Results 10	
3.1	Desk study	10
	Statutory designated sites	10
	Non-statutory sites	12
	Habitats of Principal Importance	13
	Waterbodies	14
	Protected and otherwise notable species	14
3.2	Extended Phase 1 habitat survey	17
	Protected and otherwise notable species	20
4.	Summary and recommendations	23
4.1	Overview of the Survey Area	23
	Statutory designated sites	23
	Non-statutory designated sites	23
4.2	Habitats	23
4.3	Protected and important species	24

Appendix A Figures

Appendix B Scientific names of species referred to within this report

Appendix C Legislation

1. Introduction

1.1 Background and Site Context

Heidelberg Materials ('Heidelberg') is proposing to deepen and extend the existing Tytherington Quarry into an area referred to as the Soil Store, to enable the extraction of an additional 6 million tonnes (mt) of mineral. In addition to the Soil Store, there are two fields that may in due course need to be used as receptor sites for the soils and overburden from the Soil Store; these are known as the Slad Field and D-shaped Field. The Soil Store area, Slad Field and D-shaped Field (see **Figure 1.1** in **Appendix A**) are hereafter referred to as the Survey Area in this report¹.

The Soil Store is located just south of the Woodleaze quarry excavation within Tytherington Quarry, 2 miles south-east of Thornbury, Gloucestershire on Itchington Road, and is centred at Ordnance Survey (OS) Grid Reference ST 65685 88066. The Soil Store is approximately 3.7 hectares (ha) in extent and primarily comprises neutral grassland, deciduous woodland and scrub. To the north of the Soil Store is the existing Woodleaze quarry excavation, to the east are arable fields beyond the M5 motorway, to the south are Itchington Road and arable fields, and to the west are grasslands and arable fields.

The Slad Field is located adjacent to the Heidelberg site office and Tytherington Road and is centred at OS Grid Reference ST 65661 88899. The Slad Field comprises improved grassland, hedges and trees. The Slad Field is surrounded by roads (Tytherington Road to the north and Itchington Road to the south), houses and trees to the west and the Heidelberg office and entrance drive to the east.

The D-shaped Field is situated between Itchington Road and the M5 motorway (south of the Soil Store) and centred at OS Grid Reference ST 65660 87842. The D-shaped Field comprises neutral grassland, and hedges with trees. To the north of the field is deciduous woodland and the Soil Store, to the east is the M5 motorway and to the south and west grasslands and arable fields.

Heidelberg has commissioned WSP UK Limited (WSP) to undertake a range of studies to support the application for the quarry extension, one of which is a Preliminary Ecological Appraisal (PEA).

1.2 This report

This report presents the PEA for the three areas within the Survey Area. Studies contributing to the PEA have comprised:

- Desk study - for records of designated sites and conservation notable habitats and species that provide context; and
- An extended Phase 1 Habitat Survey which covered the three areas (Soil Store, D-shaped Field and Slad Field).

The purpose of this work was to ascertain the baseline conditions within the Survey Area in terms of habitats and species present, or likely to be present. The methods and results of the survey are presented in **Chapters 2** and **3** respectively with any additional conclusions and recommendations presented in **Chapter 4**.

¹ The Survey Area within the PEA and the area considered by the Environmental Statement (ES) differ because the PEA was incorporating multiple options for receipt of the Soil Store soils and overburden. The ES was written after the PEA and uses a smaller Survey Area because the Slad and D-shaped field options were omitted from the proposed scope in favour of reprofiling the existing topology within the Soil Store.

2. Methodology

2.1 Desk study

A data-gathering exercise was undertaken to obtain relevant biodiversity data (see **Boxes 1 and 2**). Data were obtained from Bristol Regional Environmental Records Centre (BRERC), from the MAGIC website², aerial photographs and from Ordnance Survey mapping for the sites, habitats and species listed below. Additionally, NBN Gateway³ was checked for records of certain protected taxa.

- Statutory designated biodiversity sites of international importance within 10km of the Survey Area;
- Statutory designated biodiversity sites of national/ local importance within 5km of the Survey Area;
- Non-statutory designated biodiversity sites within 2km of the Soil Store⁴;
- Section 41 habitats⁵ and ancient woodland within 2km of the Survey Area;
- Records of legally protected/ important species within 2km of the Soil Store³; and
- European Protected Species Mitigation Licences (EPSMLs) within 2km of the Survey Area.

Additionally, water bodies within 500m of the Survey Area were identified by reference to 1:25,000 scale Ordnance Survey mapping and online aerial photography. In the absence of significant barriers to movement, 500m is the maximum distance that great crested newts (GCNs) generally move from their breeding ponds to occupy surrounding areas of suitable terrestrial habitats. Natural England (NE) therefore recommends that, where a proposed development is located within 500m of a water body, consideration be given to the potential for the water body to support breeding GCNs.

² [Magic Map Application \(defra.gov.uk\)](https://magic.defra.gov.uk/)

³ National Biodiversity Network Trust (2023). Online [<https://nbn.org.uk/the-national-biodiversity-network/archive-information/nbn-gateway/>] Accessed 12th July 2023.

⁴ The desk study was undertaken focussed on the Soil Store, prior to the inclusion of the Slad Field and D-shaped Field. As a result desk study search distances from these two fields are reduced in respect of Non-statutory designated sites and protected/notable species, albeit still greater than 1km. As a result it is considered that the data obtained provide sufficient context and that the desk study does not therefore require extension.

⁵ See Box 1 for definition)

Box 1 – Designated Biodiversity Sites, and Priority Habitats and Species**Statutory Biodiversity Sites**

- **European Sites:** Important biodiversity Sites designated under international law or treaties. European Sites are any **Special Area of Conservation (SAC)**; any classified **Special Protection Area (SPA)**. The term 'European Site' is term is also commonly used when referring to potential SPAs (pSPAs), to which the provisions of Article 4(4) of *Directive 2009/147/EC* (the 'new wild birds' directive') apply; and to **proposed SACs** (pSACs) and listed **Ramsar Sites**, to which the provisions of the Habitats Regulations are applied as a matter of Government policy (NPPF para. 181) when considering development proposals that may affect them.
- **Sites of Special Scientific Interest (SSSIs):** Nationally important Sites notified under the *Wildlife and Countryside Act 1981* (as amended) that provide the best examples of the UK's flora, fauna, or geological or physiographical features (note, this assessment focuses on those Sites notified for their biodiversity interest).
- **National Nature Reserves (NNRs):** Nationally important Sites notified under the *National Parks and Access to the Countryside Act 1949* and the *Wildlife and Countryside Act 1981* (as amended); in practice most NNRs are SSSIs also.
- **Local Nature Reserves (LNRs):** Locally important Sites that are designated under the *National Parks and Access to the Countryside Act 1949* with the objective of encouraging their use for the study, research or enjoyment of nature.

Non-statutory Biodiversity Sites

Non-statutory biodiversity Sites in South Gloucestershire are known as Sites of Nature Conservation Interest (SNCI) and are safeguarded in local planning and development policies from inappropriate development.

Other important habitats or species

Species or habitats of "principal importance for the conservation of biodiversity" are those listed by Natural England pursuant to Section 41 of the *Natural Environment and Rural Communities Act 2006* (as amended). They are commonly referred to as 'Section 41' habitats and species, or 'Priority' habitats and species.

Other conservation-notable habitats and species would include:

- Species listed as being of conservation concern in the relevant UK Red Data Book (RDB) or the Birds of Conservation Concern Red List (Stanbury *et al*, 2021);
- Ancient woodland (i.e., areas that have been under continuous woodland cover since at least 1600 listed on the Ancient Woodland Inventory (AWI));
- Nationally Rare and Nationally Scarce species in the UK, which are species recorded from, respectively, 1-15 and 16-100 hectads (10x10km squares of the UK national grid);
- Populations of birds comprising at least 1% of the relevant British breeding/wintering population (where data are available);
- Habitats and species listed in the Gloucestershire Biodiversity Action Plan (LBAP); and
- Other species or assemblages such as large populations of animals considered uncommon or threatened in a wider context.

Box 2 – Legally Protected and Controlled Species**Legal Protection**

Many species of animal and plant receive some degree of legal protection. For the purposes of this report, legal protection refers to:

- Species included on Schedules 5 and 8 of the *Wildlife and Countryside Act 1981* (as amended), excluding species that are only protected in relation to their sale (see Sections 9[5] and 13[2] of the Act);
- Species included on Schedules 2 and 5 of the *Conservation of Habitats and Species Regulations 2017* (as amended); and
- Badgers, which are protected under the *Protection of Badgers Act 1992*.

Legal Control

Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) lists species of animal that it is an offence to release or allow to escape into the wild (for example grey squirrel) and species of plant that it is an offence to plant or otherwise cause to grow in the wild (for example, Japanese knotweed).

2.2 Field survey

An Extended Phase 1 habitat survey of the Soil Store was undertaken by a suitably qualified ecologist⁶ from WSP on 28th June 2023, with surveys of the Slad Field and D-shaped Field undertaken on 7th September 2023 by the same ecologist.

During the survey, distinct habitats were identified, and any features of interest subjected to a more detailed description were target noted (TN)⁷. As the standard Phase 1 habitat survey methodology is mainly concerned with vegetation communities, the survey was extended⁸ to allow for the provision of information on other ecological features, including identification of the presence or potential presence of legally protected and otherwise notable species.

It should be noted that while every effort has been made to provide a comprehensive description of the Survey Area, this survey is intended to identify habitat types and does not constitute a full botanical survey.

Species are referred to by common name in the main text of the report, with scientific names provided in **Appendix B**.

2.3 Protected and otherwise notable species

The methodologies used to establish the presence or potential for presence of specific species and/ or species groups are summarised below. These relate to those species or biological taxa that the desk study and habitat types present indicated could occur within the Survey Area.

Appendix C summarises relevant legislation relating to these species.

⁶ Rosy Benbow MCIEEM Principal Consultant Ecologist

⁷ Joint Nature Conservation Committee (2010). *Handbook for Phase 1 habitat survey- a technique for environmental audit*. JNCC, Peterborough.

⁸ Institute of Environmental Assessment (1995). *Guidelines for Baseline Ecological Assessment*. E&FN Spon, London.

Bats

A general assessment of the potential for the habitats within the Survey Area to support roosting, foraging and commuting bats was made. During the survey an initial assessment of the trees bordering the Survey Area was undertaken to determine if further, more detailed, roost assessments would be required of features with the potential to support roosting bats. This survey followed good practice for ground level tree assessments and identification of potential roosting features (PRFs) (Bat Conservation Trust, 2023).

Breeding birds

The Survey Area was assessed for suitability to support nesting birds within the habitats present.

Dormouse

Hedgerows, scrub and woodland habitats within or bordering the Survey Area were assessed for their suitability to support populations of dormice. This included an assessment of the suitability of the Survey Area for foraging by dormice, e.g. availability of hazel and honeysuckle, and the connectivity between habitats within the Survey Area and other suitable habitat in the wider landscape.

Great crested newt

The potential of the Survey Area to provide suitable aquatic and terrestrial habitat and that could support a population of GCN was assessed. This involved considering the provision of potential breeding and foraging habitats, as well as the provision of potential refugia e.g. log piles, hedgerows, grassland, ruderal and scrub habitat.

Otter

The potential of the Survey Area to support otter was assessed. Suitable habitats may include the presence of any drainage ditches, streams, rivers, water bodies and other foraging habitat. Water

of a significant depth and the presence of fish are important for foraging; however, otters will use sub-optimal habitat to commute through.

Reptiles

The suitability of the habitats within the Survey Area were assessed for potential to provide sheltering, foraging and breeding by the four widespread reptile species: slow worm, viviparous lizard, grass snake and adder. These native reptile species generally require open areas with mixed-height vegetation, such as heathland, rough grassland, open scrub or (in the case of grass snake) water body margins. Suitable well drained and frost-free areas are needed so that they can survive the winter.

Water vole

Watercourses on and bordering the Survey Area were assessed for their suitability to support water vole. Water voles generally prefer wide swathes of riparian vegetation both growing from the bank and in the water which to forage and shelter. Earth banks are generally required for burrows and the species prefers slow-flowing water more than 1m deep⁹.

Other notable/ priority species

An assessment was made of the potential for the Survey Area to support any other species considered to be of value for biodiversity conservation, including those that were identified as occurring within the local area during the desk study.

Invasive non-native species

The presence of any legally controlled, non-native, invasive plant species (see **Box 2**), such as Japanese knotweed, giant hogweed and Himalayan balsam, was noted.

2.4 Survey limitations

A building and an associated field are located towards the southern end of the D-shaped Field on land outside of Heidelberg's ownership. Access was not possible to this area during the survey visit. However, this is not considered a limitation to the assessment as these areas will be retained. All other areas were accessed.

⁹ Strachan, R., Moorhouse, T. and Gelling, M. (2011). *Water vole Conservation Handbook. Third edition*. Wildlife Conservation Research Unit, Oxford.

3. Results

3.1 Desk study

Statutory designated sites

There is one site of statutory international importance within 10km of the Survey Area. This is the Severn Estuary RAMSAR, Special Protection Area (SPA) and Special Area of Conservation (SAC). Details are provided in **Table 3.1** below and the location is indicated in **Figure 3.1, Appendix A**.

There are four statutory designated sites of national importance within 5km, however these are all designated for geological, not ecological, reasons and hence are not included within this report.

There are no national nature reserves within 5km.

Table 3.1 Statutory designated sites of international importance within 10km of the Survey Area

Site	OS Grid reference and approximate area	Approximate distance and direction from the Survey Area	Summary of interest features
Severn Estuary SAC, SPA and RAMSAR	ST 53266 83716 16,942 ha.	6.9km north-west at the closest point	<p>The estuary has the second highest tidal range in the world and consists of an extensive intertidal zone comprising intertidal mudflats, sand banks, saltmarsh, shingle, and rocky platforms. Flora and fauna communities typical of extreme physical conditions occur at the site.</p> <p>The qualifying interest features for each designation are listed below.</p> <p>SAC H1110. Sandbanks which are slightly covered by sea water all the time; Subtidal sandbanks H1130. Estuaries H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats H1170. Reefs H1330. Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>); Atlantic salt meadows S1095. <i>Petromyzon marinus</i>; Sea lamprey S1099. <i>Lampetra fluviatilis</i>; River lamprey S1103 <i>Alosa fallax</i>; Twaite shad</p> <p>SPA A037 <i>Cygnus columbianus bewickii</i>; Bewick's swan (Non-breeding) A048 <i>Tadorna tadorna</i>; Common shelduck (Non-breeding) A051 <i>Anas strepera</i>; Gadwall (Non-breeding) A149 <i>Calidris alpina alpina</i>; Dunlin (Non-breeding) A162 <i>Tringa totanus</i>; Common redshank (Non-breeding)</p>

Site	OS Grid reference and approximate area	Approximate distance and direction from the Survey Area	Summary of interest features
			<p>A394 <i>Anser albifrons albifrons</i>; Greater white-fronted goose (Non-breeding) Waterbird assemblage.</p> <p>RAMSAR Ramsar criterion 1 Due to immense tidal range (second largest in world), this affects both the physical environment and biological communities. Habitats Directive Annex I features present on the pSAC include:</p> <ul style="list-style-type: none"> • H1110 Sandbanks which are slightly covered by sea water all the time • H1130 Estuaries • H1140 Mudflats and sandflats not covered by seawater at low tide • H1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) <p>Ramsar criterion 3 Due to unusual estuarine communities, reduced diversity and high productivity.</p> <p>Ramsar criterion 4 This site is important for the run of migratory fish between sea and river via estuary. Species include Salmon (<i>Salmo salar</i>), sea trout (<i>S. trutta</i>), sea lamprey (<i>Petromyzon marinus</i>), river lamprey (<i>Lampetra fluviatilis</i>), allis shad (<i>Alosa alosa</i>), twaite shad (<i>A. fallax</i>), and eel (<i>Anguilla anguilla</i>). It is also of particular importance for migratory birds during spring and autumn.</p> <p>Ramsar criterion 8 The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon (<i>Salmo salar</i>), sea trout (<i>S. trutta</i>), sea lamprey (<i>Petromyzon marinus</i>), river lamprey (<i>Lampetra fluviatilis</i>), allis shad (<i>Alosa alosa</i>), twaite shad (<i>A. fallax</i>), and eel (<i>Anguilla anguilla</i>) use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. The site is important as a feeding and nursery ground for many fish species particularly allis shad (<i>Alosa alosa</i>) and twaite shad (<i>A. fallax</i>) which feed on mysid shrimps in the salt wedge.</p> <p>Ramsar criterion 5 Assemblages of international importance: Wintering waterfowl</p> <p>Ramsar criterion 6 – species/populations occurring at levels of international importance. Species with peak counts in winter including Tundra swan (<i>Cygnus columbianus bewickii</i>), Greater white-fronted goose (<i>Anser albifrons albifrons</i>), Common shelduck (<i>Tadorna tadorna</i>), Gadwall (<i>Anas strepera strepera</i>), Dunlin (<i>Calidris alpina alpina</i>), Common redshank (<i>Tringa totanus tetanus</i>).</p>

Non-statutory sites

There are 10 non-statutory designated sites which are all Sites of Nature Conservation Interest (SNCI) within 2km of the Soil Store (**Figure 3.2, Appendix A**). The interest features of these sites are summarised in **Table 3.2**.

Table 3.2 Non-statutory designated sites within 2km of the Survey Area

Site	Grid Reference	Approximate distance and direction from the nearest Survey Area	Summary of interest features
Ramsoak Cottage Field SNCI	ST 65993 87952	55m east	Site of calcareous grassland with green-winged orchid (<i>Anacamptis morio</i>), cut-leaved selfheal (<i>Prunella laciniata</i>), tor-grass (<i>Brachypodium pinnatum</i>), quaking-grass (<i>Briza media</i>), autumn lady's-tresses (<i>Spiranthes spiralis</i>), large thyme (<i>Thymus pulegiodes</i>), common milkwort (<i>Polygala vulgaris</i>) and common calamint (<i>Clinopodium ascendens</i>).
Tytherington Tunnel SNCI	ST 66134 88491	360m south-east	Site of calcareous grassland of quaking-grass, giant fescue (<i>Festuca arundinacea</i>), early purple orchid (<i>Orchis mascula</i>) and wild strawberry (<i>Fragaria vesca</i>).
Tytherington Castle Quarry SNCI	ST 66520 88278	590m east	Site of calcareous grassland, broadleaved woodland and scrub. Including wood melick (<i>Melica uniflora</i>), crown vetch (<i>Securigera varia</i>), common centaury (<i>Centaureum erythraea</i>), ploughman's spikenard (<i>Inula conyza</i>), great mullein (<i>Verbascum Thapsus</i>) and common calamint.
Common Alm/ Gypsies Platt SNCI	ST 66237 87098	860m south-east	Site is composed of calcareous and neutral grassland and broadleaved woodland. Bluebells, purple moor-grass (<i>Molinia caerulea</i>), pepper-saxifrage (<i>Silene silaus</i>), dyer's greenweed (<i>Genista tinctoria</i>), sneezewort (<i>Achillea ptarmica</i>), saw-wort (<i>Serratula tinctoria</i>) and great burnet (<i>Sanguisorba officinalis</i>) recorded on site.
Land at Tytherington Quarry SNCI	ST 66514 88936	605m east	Site of calcareous grassland comprising blue fleabane (<i>Erigeron acer</i>), annual pearlwort (<i>Sagina apetala</i>), thyme-leaved sandwort (<i>Arenaria serpyllifolia</i>), yellow-wort (<i>Blackstonia perfoliate</i>), common calamint, green field speedwell (<i>Veronica agrestis</i>), common stork's-bill (<i>Erodium cicutarium</i>), long-stalked crane's-bill (<i>Geranium columbinum</i>) and grass vetchling (<i>Chrysoteuchia culmella</i>).

Site	Grid Reference	Approximate distance and direction from the nearest Survey Area	Summary of interest features
Tytherington Church Quarry SNCI	ST 66938 88478	1,155m north-east	Site contains calcareous grassland, broadleaved woodland and scrub. Species include thyme-leaved sandwort, carline thistle (<i>Carlina vulgaris</i>), good king henry (<i>Blitum bonus-henricus</i>), blue fleabane, slender St. john's-wort (<i>Hypericum pulchrum</i>), Corn mint (<i>Mentha arvensis</i>), red bartsia (<i>Odontites vernus</i>), Shepard's-needle (<i>Scandix pecten-veneris</i>) and large thyme.
Tytherington Common SNCI	ST 66753 88674	935m east	Area of calcareous grassland of quaking-grass, harebell (<i>Campanula rotundifolia</i>), common rock-rose (<i>Helanthemum nummularium</i>), common calamint, common gromwell (<i>Lithospermum officinale</i>), corky-fruited water-dropwort (<i>Oenanthe pimpinelloides</i>) and upright brome (<i>Bromus erectus</i>).
Cleeve Wood SNCI	ST 65600 89527	340m north	Area of ancient woodland of oak (<i>Robur</i> spp.), ash (<i>Fraxinus excelsior</i>), sycamore (<i>Acer pseudoplatanus</i>), holly (<i>Ilex aquifolium</i>) with an understory of bluebell (<i>Hyacinthoides non-scripta</i>), lady fern (<i>Athyrium filix-femina</i>), gooseberry (<i>Ribes uva-crispa</i>), ramsons (<i>Allium ursinum</i>), primrose (<i>Primula vulgaris</i>), wood anemone (<i>Anemone nemorosa</i>), yellow pimpernel (<i>Lysimachia nemorum</i>) and wood speedwell (<i>Veronica montana</i>).
Tytherington Hill and Baden Hill Woods SNCI	ST 67442 88730	1,411m east	Site of broadleaved woodland and calcareous grassland with field mouse-ear (<i>Cerastium arvense</i>).
Filnore Woods SNCI	ST 63994 89102	1,400m west	Site is a woodland habitat mosaic established in 1998.

Habitats of Principal Importance

Priority habitats have been identified using Magic and these are shown on **Figure 3.3 (Appendix A)** and summarised in **Table 3.3**.

Table 3.3 Priority habitats within 2km of the Survey Area

Site	Grid reference	Approximate distance and direction of the closest priority habitat type from the nearest Survey Area
Deciduous woodland	ST 66225 88040	45m east

Site	Grid reference	Approximate distance and direction of the closest priority habitat type from the nearest Survey Area
Lowland calcareous grassland	ST 65863 87934	75m east
Traditional orchard	ST 65324 88965	900m north-west
Coastal and floodplain grazing marsh	ST 66915 87415	1,137m south-east

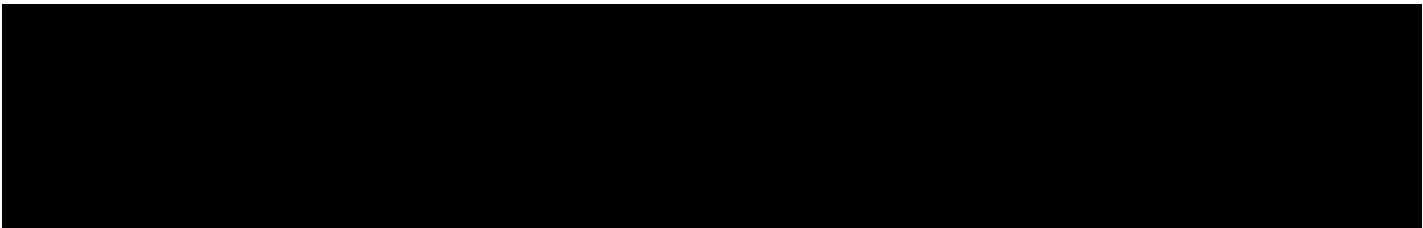
Waterbodies

One waterbody is mapped as present on the Soil Store (see **Section 3.2**) and eleven other waterbodies are mapped as being located within 500m of the Survey Area (see **Figure 3.4** in **Appendix A**).

Protected and otherwise notable species

A summary of the protected and otherwise conservation notable species records that are dated within the last 10 years¹⁰ returned from within 2km of the Survey Area are provided below and include:

- protected species;
- Section 41 (Priority) species;
- nationally rare or red-list species;
- other records notable in a local context (e.g. Local BAP species; species other than those above, which are identified by the data provider as being locally significant; records suggesting potentially significant local populations); and
- Invasive species as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).



Bats

Roost records are provided for eight species (brown long-eared, common pipistrelle, Leisler’s bat, lesser horseshoe, Myotis sp., lesser noctule, serotine and soprano pipistrelle) although these are assigned 4 figure grid references and therefore location is uncertain, but this does indicate that the bats are in the vicinity of the Survey Area. At least five species of bat have been recorded with more accurate locations. These bat records are summarised in **Table 3.4** below.

¹⁰ i.e. since 2011; this focuses on those records most likely to be relevant to the development and the current land-use baseline.

Table 3.4 Bat records

Species	No. of records	Date range of records	Approximate distance and direction of most recent record from the nearest Survey Area
Common pipistrelle	1	2016-2017	1,768m west
Noctule	1	2016-2017	911m west
Serotine	1	2017	911m west
Brown Long-eared or Grey Long-eared or other Plecotus bat (unidentified)	1	2017	911m west
Unidentified bat	1	2016	960m south-west

Three records of EPS licences for common pipistrelle, Natterer's bat, and brown-long eared bats were returned from 2020 within 2km of the Survey Area (closest was 70m east of the D-shaped Field).

Birds

A summary of notable bird species recorded is provide in **Table 3.5** below. Note that these records all date from greater than 10 years ago but are provided for context of the types of species that may still be present.

Table 3.5 Protected and notable bird species records

Species	Status	Number of records	Date range of most recent record	Distance and direction of most recent record from the nearest Survey Area
Bullfinch	BAmb; S41; UKBAP	2	2019	0m (within site area 2)
Goldcrest	BAmb	1	2019	490m north
Redwing	WCA1:1; BAmb	1	2018	390m north
Green woodpecker	BAmb	1	2019	390m north
Redwing	WCA1:1; BAmb	1	2018	390m north

Key to status abbreviations:

WCA1.1 – Wildlife and Countryside Act 1981

Bred – Bird Population Status; Red

BAmb – Bird Population Status; Amber

S41 – Natural Environment and Rural Communities Act 2006- Species of Principal Importance in England (Priority species)

BAP – Biodiversity Action Plan species

Great crested newt

One record of GCN presence was returned, of a dead adult recorded on Hacket Lane (520m north of Survey Area) in 2018. In addition, NBN Gateway provided records of GCN 454km west of the Soil Store and another record 1.18km north. No EPS licences for GCN were returned with 2km of the Survey Area.

Dormouse

No records of dormice were returned.

Otter

No records of otter were returned.

Reptiles

Two records of slow worm, from 2015 to 2016, were returned. The closest was 880m north-east. Eighteen records are indicated on NBN with the closest 145m west. No records of any other reptile species were returned although two records of common lizard are present on NBN, with the closest being 200m east.

A reptile survey was completed for Heidelberg in 2022 for a location 500m northeast of the Site within Grovesend Quarry. This survey concluded that there was a low population size of slowworms with a peak count of seven animals. There were no other species of reptile recorded in this survey.

Water vole

No records of water vole were returned.

Other protected and notable species

Records of one other notable species were provided as detailed in **Table 3.6** below.

Table 3.6 Other protected and notable species records

Species	Status	Number of records	Date range of records	Approximate distance and direction of most recent record from the nearest Survey Area
Hedgehog	S41; UKBAP	50	2015-2021	370m south-east

Key to status abbreviations:

S41 – Natural Environment and Rural Communities Act 2006- Species of Principal Importance in England

BAP – Biodiversity Action Plan species

Invasive non-native species

The desk study returned records of two legally controlled species, as detailed in **Table 3.7**.

Table 3.7 Legally controlled species

Species	Status	Number of records	Date of most recent record	Distance and direction of most recent record from the nearest Survey Area
Canada goose	WCA9	1	2014	1,700m south-west
Three-cornered garlic	WCA9	3	2017	1,700m south-west

Key to status abbreviations:

WCA9 – Wildlife and Countryside Act, Schedule 9

3.2 Extended Phase 1 habitat survey

The habitats present within the Survey Area are illustrated on **Figure 3.5 (Appendix A)**. The Survey Area layout is broadly as follows:

- The Soil Store comprised an area of grassland with variable topography resulting from the deposition of a 3m high topsoil bund around the perimeter and a 5m high subsoil and overburden mound in centre of the Soil Store. The grasses and wildflowers within the grassland were seeded using a calcareous grassland wildflower mix in 2008 and have been allowed to develop naturally. Pockets of scattered scrub are situated throughout the grassland, formed from buddleia, bramble and tall ruderals, and a dry pond was present in the west of the grassland. The grasslands were surrounded by hedgerows across the northeast and northwest; and a broadleaved deciduous plantation woodland on the southeast and southwest. The plantation woodland was also planted in 2008 and the canopy has successfully established meaning the remnant hedgerow below it has become part of the shrub layer and woodland edge.
- The Slad Field comprises improved grassland on sloping topography, edged by treelines, hedges with trees and species poor hedgerow.
- The D-shaped Field is formed from a very flat neutral semi-improved grassland edged by hedgerow with trees, species poor hedgerow, and broadleaved deciduous plantation woodland.

A summary of the habitats present, and their status, is provided in **Table 3.8**. Target notes are presented in **Table 3.9**.

Table 3.8 Summary of habitats present

Habitat	Section 41 habitat	Summary
Semi-improved neutral grassland	No	Grasslands form the majority of the Soil Store with there being two main sward types present. The first sward type had grown on the subsoil in the centre of the Soil Store. This grassland is short in sward height and included common centaury, annual meadow grass, perennial rye grass and birds foot trefoil, pyramidal orchid, lady's bedstraw and oxeye daisy. The second sward type had grown on the agricultural topsoil around the perimeter of the Soil Store. This grasslands was formed from taller grass such as false oat grass, Yorkshire fog, oxeye daisy, meadow buttercup and self heal with some ruderal

Habitat	Section 41 habitat	Summary
		<p>species such as common nettle, rosebay willowherb and field bindweed being present.</p> <p>The semi-improved grassland within the D-shaped Field has a longer sward of roughly 15 cm and included grasses such as Timothy, and perennial rye grass. The herbs contained are red and white clover, yarrow, common chicory and chickweed.</p> <p>Neither area of grassland meets the S41 criteria because the grasslands lack the requisite number of indicator species of a species-rich grassland; the swards are dominated by coarse grasses or common herbs and forbs; and, they lack the necessary diversity per square metre.</p>
Improved grassland	No	<p>The Slad Field comprises improved grassland containing grasses such as cock's foot and fescue species. The field contained a number of species often linked with disturbed areas such as oxeye daisy and ragwort.</p> <p>This grassland does not meet the S41 criteria because the grassland lacks indicator species of a species-rich grassland and lacks the necessary diversity per square metre.</p>
Broadleaved deciduous plantation woodland	No	<p>Majority of the woodland towards the south of the Soil Store is planted semi-mature ash, hazel, blackthorn and hawthorn. Some mature oak, ash and cherry trees were identified in the south of the woodland at the intersect with the hedgerows which formerly ran along Itchington Road; and on the north of the woodland edge which was formerly a boundary of the original soil store field. This M5 screen bank plantation is a sloping bank with crest at approximately 5-7m above the surrounding original ground level. The woodland was planted in 2008 and has reached a point where the canopy has closed. There are currently no plans for silvicultural thinning or positive woodland management beyond natural regeneration.</p> <p>This woodland does not meet the criteria for being a S41 woodland because it clearly originates from planting with planting lines being present and a consistent age of trees. This has led to a woodland that has a low canopy with a sparse ground flora, and very little deadwood as the trees are young and healthy.</p>
Scattered scrub	No	<p>Mainly located within grasslands as clumps of buddleia and horsetail and then bramble scrub towards the grassland margins where it joins with the woodlands.</p> <p>Scrub does not fall under the S41 Priority habitats list.</p>
Hedgerow with trees native species rich	Yes	<p>The boundary of the Soil Store to the quarry towards the east and north is formed from mature oak and ash trees with lower level hedging of hawthorn and blackthorn.</p>

Habitat	Section 41 habitat	Summary
		<p>The majority of trees on the north and western boundaries of the D-shaped Field comprise semi-mature examples of species such as ash and oak. The ground flora includes bracken and climbers such as old-man's beard. These were the former roadside hedgerows beside Itchington Road before it was diverted to its current location.</p> <p>These hedgerows meet the S41 criteria because they consist predominantly (80% or more cover) of at least one woody UK native species, are over 20m long and any gaps are less than 20m long.</p>
Hedge and trees native species poor	Yes	<p>The eastern and western boundaries of the Slad field are formed from species such as hawthorn and larger more mature oak trees.</p> <p>These hedgerows meet the S41 criteria because they consist predominantly (80% or more cover) of at least one woody UK native species, are over 20m long and any gaps are less than 20m long.</p>
Intact hedge native species poor	Yes	<p>Sections of hedgerow along the western edge at D shaped field and southern end of Slad field form species poor hedges with no understorey.</p> <p>These hedgerows do not meet the S41 criteria because while they consist predominantly (80% or more cover) of at least one woody UK native species, are over 20m long and any gaps are less than 20m long.</p>
Scattered trees/treeline	Yes (falls within the hedgerow definition)	<p>A treeline (with the remnant scrub plants beneath it) is located along the northern and south-eastern edges of the Slad Field, comprising mature examples of species including Scot's pine, elm, and ash.</p> <p>These treelines meet the S41 criteria because they consist predominantly (80% or more cover) of at least one woody UK native species, are over 20m long and any gaps are less than 20m long.</p>
Dry Pond	No	<p>The pond located within the grasslands on the Soil Store area is completely devoid of water, with clumps of bullrush and soft rush around the area.</p> <p>This pond does not meet the Priority habitat criteria for ponds because it does not fall under the Annex I habitats Directive, it does not contain species of high conservation value or key assemblages of key biotic groups or a pond of high ecological quality or limited geographic distribution.</p>
Building		<p>Building located on the southern end of D-shaped Field <u>which is outside of the land owned by Heidelberg and was not accessible.</u></p>

Table 3.9 Target notes record during the extended Phase 1 habitat survey

Target Note	Description
TN1	Dry pond
TN2	Ash tree with knot hole, 6m high on southern branch and woodpecker hole 8m on north-eastern side of trunk by bracket fungus. Both features are suitable for roosting bats
TN3	Mammal paths through the edge of the hedgerow/ woodland.
TN4	Oak along fence line with knot hole, 6m high on south-eastern limb.
TN5	Bare embankment suitable for badger sett building, no signs of badgers recorded

Protected and otherwise notable species

The following sections summarise the evidence of protected species found during the field survey, and the suitability of the Survey Area and surrounding habitats for those protected species identified by the desk-study or which are most commonly encountered in this part of the UK. This identifies those protected species most likely to be exposed to environmental changes associated with the scheme but does not exclude the possibility of other protected species being subsequently encountered. Periodic reviews of the available data and any consultation responses received will therefore be appropriate throughout scheme design.

Bats

Roosting

The majority of trees within the Survey Area (particularly in relation to the Soil Store / D-shaped Field) were planted and only semi-mature hence lack suitable roosting features for bats at this present time. However, the Survey Area contains two trees suitable for roosting bats. These were an ash tree with several suitable roosting features (TN2) and an oak tree with a suitable roosting feature on one limb (TN4). These two trees have multiple potential roosting features and are therefore categorised as PRF-M trees¹¹. There were no potential roosting features observed at the time of survey on the remainder of trees within the Survey Area.

There is one structure which is situated in the south of the D-shaped field however access was not possible to this area at the time of survey. No other structures or buildings were present.

Commuting / Foraging

The woodland edge and hedgerows are likely to provide flightlines which connect the Woodleaze quarry access track to Itchington Road. The habitats within the Survey Area could therefore be connected to suitable habitats in the wider landscape for commuting and foraging bats. The

¹¹ Bat Conservation Trust (2023). Bat Surveys for Ecologists. Good Practice Guidelines. 4th Edition.

scattered scrub within grassland could provide foraging opportunities for a small number of bats. The scattered patches of scrub are typically a single buddleia, hawthorn, or bramble plant each growing in a smaller than 2m² area suggesting they will only support occasional opportunistic foraging. The grasslands are not grazed by livestock and are unlikely to support a diverse invertebrate assemblage that would be valuable to bats. The removal of the potential foraging habitats on Site is therefore unlikely to adversely impact the foraging opportunities for bats in the wider landscape.

Breeding Birds

The survey identified a range of habitats within the Survey Area and immediate surroundings suitable for nesting birds with scrub, trees, hedges and grassland present. These habitats offer suitability for a range of common bird species such as robin, wren and song thrush.

There were no structures or buildings that it was possible to access within the Survey Area suitable for breeding birds (albeit it was not possible to access the building in the D-shaped Field to check) and no suitable habitat on site for species under the Severn Estuary SPA and Ramsar designations.

Dormouse

The habitats in and around the Survey Area have low suitability for dormice. Although scrub and woodland are present, the woodlands are young plantation and lack a good understory and range of species such as hazel, bilberry and honeysuckle, which all provide important food resources for dormice. The hedges around the Soil Store, D-shaped field and Slad Field lack complexity of native plant species; and the hedges and potentially suitable habitat are fragmented by the quarry, quarry tracks made of bare ground and the M5 motorway. During the survey no signs of dormouse presence were recorded.

Great Crested Newts

There is one water body within the Survey Area boundary however this was dry at time of survey. In addition, ponds 2 and 3 within 500m of the Survey Area were also dry during the survey (Figure 3.4). Ponds 4 and 5 are separated from the Survey Area by the M5 motorway which is likely to act as barrier for any GCN present in the ponds getting to the Survey Area. Ponds 7, 8, 9, 10 and 12 are also separated by medium sized roads and/ or housing which are likely to prevent dispersal to the Survey Area.

The remaining ponds (6 and 11) could have potential for GCN.

The terrestrial habitats within the Survey Area such as scrub and woodlands, provides some foraging habitat for GCN.

Otter

The Survey Area has no suitable habitat for Otter.

Reptiles

The habitats within the Survey Area and immediate surroundings have potential for reptiles within the grasslands and scrub providing suitable hibernation and foraging potential.

Water vole

The Survey Area has no suitable habitat for water vole.

Other conservation-notable species

Habitats such as grasslands and hedgerows present within the Survey Area are suitable for a range of notable species including western hedgehog and Eurasian hare.

Invasive non-native species

No invasive non-native species were recorded within the Survey Area.

4. Summary and recommendations

4.1 Overview of the Survey Area

The Soil Store is limited in extent, covering approximately 3.7ha, and comprises neutral grassland, broadleaved plantation woodland and scrub, with hedgerows surrounding the northern boundaries. The Slad Field comprises improved grassland bordered by hedges and trees whilst the D-shaped Field comprises neutral grassland, hedges, trees and scrub. All the habitats are common and widespread in the local area.

The Survey Area has the potential to support a number of legally protected species, although it is noted that proposals for working the Soil Store include partial retention of the woodland and double hedgerow in the east of the soil store. It is expected that the all of the hedges and trees adjacent to the Slad Field and D-shaped Field would be retained under any potential development scenario.

Statutory designated sites

The closest international statutory site (Severn Estuary SAC/SPA/Ramsar) is located 6.9km north-west at the closest point. The Survey Area is considered to be sufficiently distant from the Severn Estuary that there is no mechanism / pathway for the proposed quarry extension to affect the intertidal habitats and aquatic species that the Severn Estuary is designated for. Furthermore, although the birds for which the Severn Estuary is designated, are mobile, the existing habitats within the Survey Area are of very limited extent and are unsuitable to support these species predominantly because the habitats are enclosed by tall hedges, comprise topographically variable habitats over a small area, there is no water present and the habitats are unmanaged and as a result have encroaching scrub. Therefore no further assessment is required.

Non-statutory designated sites

Non-statutory sites receive no legal protection; however they should be given due consideration during any works. The closest non-statutory designated site (Ramsoak Cottage field SNCI) is located 75m east. The SNCI is however separated from the Survey Area by the M5 motorway and so it is unlikely the works will have any impacts on the SNCI. All the other SNCI are too distant to be affected by the proposed works. Nonetheless, best practice guidelines for run off and pollution should be followed to ensure there are no indirect impacts to the SNCIs.

4.2 Habitats

The Survey Area (Slad Field) is located 45m west from Priority Habitat deciduous woodland located around the North Face quarry void. However, this habitat falls on the opposite side of the road. Best practice guidelines for run off, pollution and air quality should be followed to ensure there are no impacts to these habitats.

The hedgerow with trees / scattered trees/treeline (both of which fall within the hedgerows S41 habitat definition) are the only S41 habitats within the Survey Area. As such, plans should be made to retain this habitat as far as possible. For lengths of hedgerow which cannot be retained, it is recommended that translocation or recreation along the boundaries of the D-shaped field is pursued so there is no loss in the overall length of hedges.

4.3 Protected and important species

Based on the desk study and survey findings, recommendations in respect of protected and important species are made in **Table 4.1**

Table 4.1 Further survey requirements

Species	Legislation	Conclusion	Recommendation
Bats	<i>The Wildlife and Countryside Act 1981 (as amended)</i> <i>Conservation of Habitats and Species Regulations 2017 (as amended)</i>	<p>There are no buildings in the Survey Area suitable for bat roosting, albeit one at the southern end of the D-shaped Field was not accessible.</p> <p>There are two suitable trees which are considered PRF-M trees.</p> <p>In addition, the trees and scrub provide low to moderate potential foraging and commuting habitat for bats.</p>	<p>The majority of trees within the woodland were young and therefore lacking suitable features for roosting bats. The oak tree at the Slad Field is being retained and no works are proposed at that location. The ash tree with bat roost suitability is also being retained and its roots protected with track matting. However, should the ash tree need to be removed the potential bat roost features should be subjected to a roost assessment and tree climbed or accessed using a ladder or lifting device and endoscope. If roosting cannot be established during an elevated survey, then three dusk emergence surveys should be undertaken on the tree.</p> <p>Further surveys/ mitigation in respect of the potential for a roost would be decided following the initial surveys. If bat roosts are present and the trees are to be affected a European Protected Species (EPS) Licence may be required for the works.</p> <p>Activity surveys are not recommended due to the limited extent of the area involved and because the loss of this small area of habitat is considered unlikely to result in a change in the status of bat species in the vicinity.</p>

Species	Legislation	Conclusion	Recommendation
			Lighting design during construction and operation should be focused away from suitable features for bats such as woodland and treelines. Current guidance should be followed to minimise light usage, light spill and appropriate wavelengths of light and locate lighting in the most appropriate location.
Breeding birds	<i>Wildlife and Countryside Act 1981 (as amended)</i>	The scrub and trees on and adjacent to the Survey Area are all suitable for a range of common and widespread bird species.	<p>No surveys are recommended for birds due to the small amount of suitable habitat present on-site.</p> <p>To safeguard any breeding birds present on-site, the works should follow an Ecology Method Statement detailing working measures to be followed. Wherever possible, any works should be completed outside of the breeding bird season (March to August inclusive).</p> <p>Should any vegetation clearance or management be required during this period, a suitably qualified ecologist should inspect the vegetation prior to the work commencing in order to check for the presence of any active nests. If an active nest is found, it should be left undisturbed, using an appropriate buffer, until the young birds have fledged.</p>
Dormouse	<i>The Wildlife and Countryside Act 1981 (as amended)</i> <i>Conservation of Habitats and Species Regulations 2017 (as amended)</i>	<p>The habitats within the Survey Area have low suitability for dormice and into the wider landscape.</p> <p>However, there are no records of dormice within 2km of the Survey Area.</p>	<p>The hedges around the east and north of the Soil Store are somewhat isolated between the quarry, quarry tracks made of bare ground and the M5 motorway. The hedges around D-shaped and Slad fields are also isolated between the M5 motorway and houses. Additionally, there are no records within 2km of the Survey Area and no signs of dormouse presence were recorded.</p> <p>For these reasons, no surveys are proposed.</p>
Great crested newt	<i>The Wildlife and Countryside Act 1981 (as amended)</i> <i>Conservation of Habitats and</i>	The Survey Area has potential for GCN, in the terrestrial life phase. The pond in its current dry state is unsuitable for GCN.	The waterbody within the Soil Store area was unsuitable for GCN (dry). Whilst there are eleven other ponds, the majority can be scoped out as they are either dry or isolated from Survey Area by roads/ houses. However at least two ponds (6 and 11) should have further

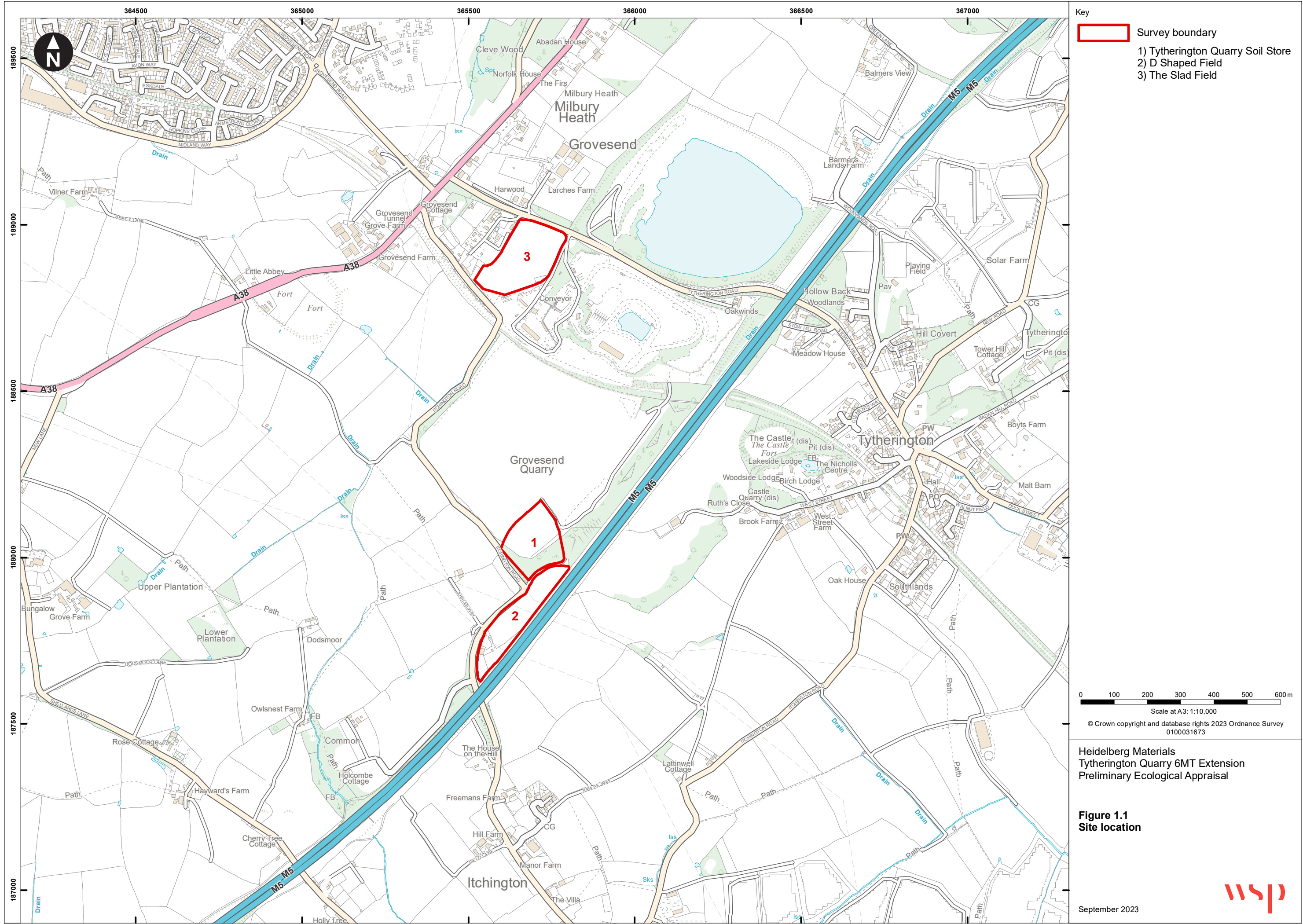
Species	Legislation	Conclusion	Recommendation
	<i>Species Regulations 2017</i> (as amended)	In addition, GCN are known to be in the area from data records.	<p>surveys undertaken, including Habitat Suitability Index (HSI) and eDNA surveys in season to determine presence of GCN, unless it is decided to pursue a District Level Licence (DLL) in respect of great crested newts. If a DLL approach is adopted no further detailed surveys will be required.</p> <p>However, if the Slad Field is omitted from the scheme proposal due to another overburden location being selected, no further surveys are proposed because all waterbodies would be more than 500m from any impacts.</p>
Otter	<p><i>The Wildlife and Countryside Act 1981</i> (as amended)</p> <p><i>Conservation of Habitats and Species Regulations 2017</i> (as amended)</p>	There are no suitable habitats within the Survey Area for otter.	No surveys recommended.
Reptiles	<i>Wildlife and Countryside Act 1981</i> (as amended)	The scrub and grasslands provide some foraging and commuting habitat for common reptiles.	<p>No reptile surveys are recommended.</p> <p>To reduce any residual risk, and to ensure that reptiles are protected, site clearance and construction works should follow an Ecology Method Statement to minimise the risk of reptiles being killed or injured during the quarry extension works.</p>
Water vole	<i>The Wildlife and Countryside Act 1981</i> (as amended)	There are no suitable habitats for water vole.	No further surveys recommended.
Other species	<i>Wildlife and Countryside Act 1981</i> (as amended)	The habitats are suitable for Priority species identified within the desk study, such as hare and hedgehog.	<p>No further surveys are recommended for these species.</p> <p>Precautionary working measures to prevent killing or injury of these species should be implemented with contractors receiving a toolbox talk from a suitably qualified ecologist and following an agreed Ecological Method Statement</p>

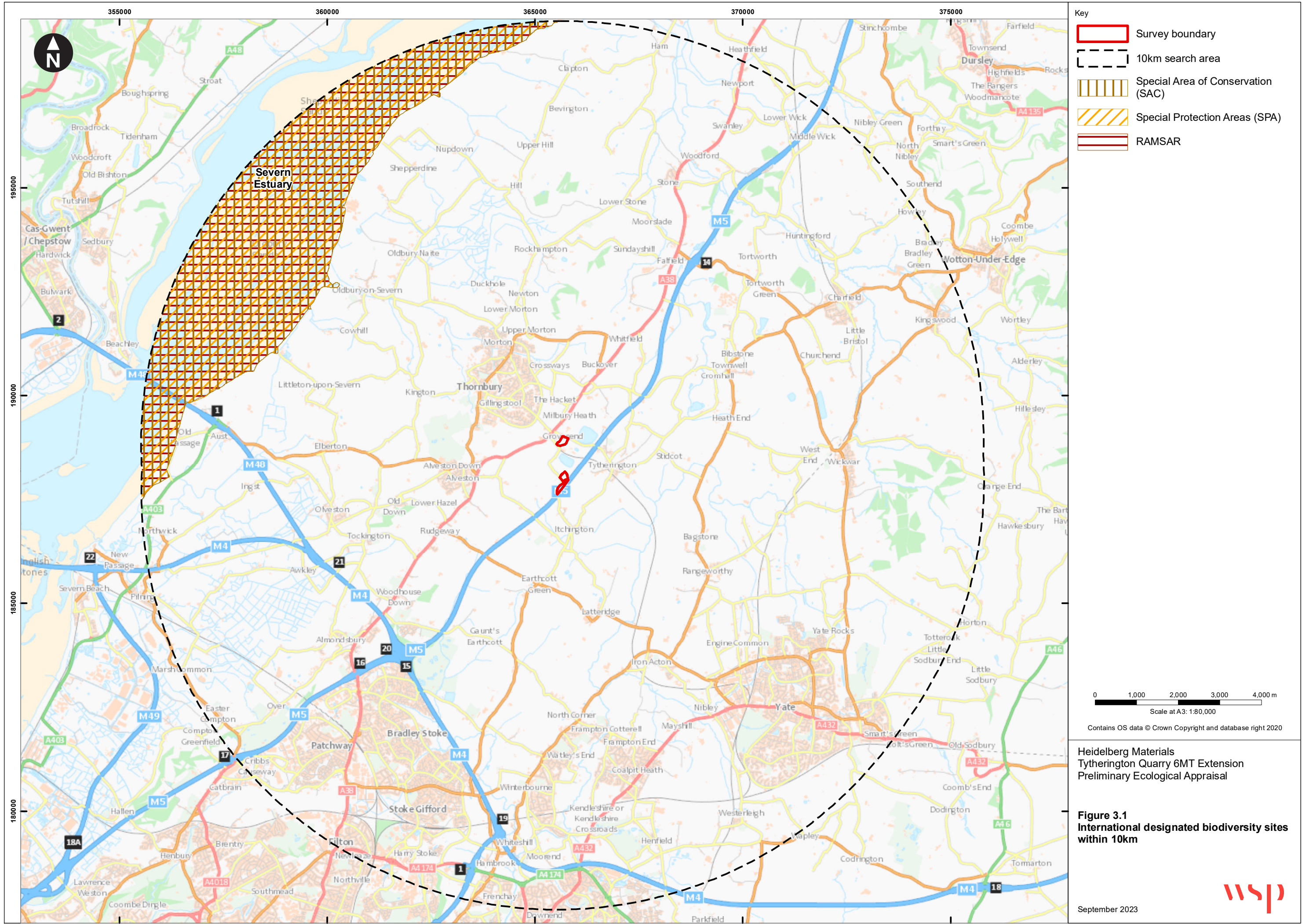
Species	Legislation	Conclusion	Recommendation
			detailing timing and methods of working.
Invasive non-native species	Wildlife and Countryside Act 1981 (as amended)	No invasive species were recorded during the survey.	Prior to vegetation clearance a suitably qualified ecologist should perform a pre-works check to confirm that no invasive plant species are present. The details of this pre-works check would be produced as part of an Ecological Method Statement.

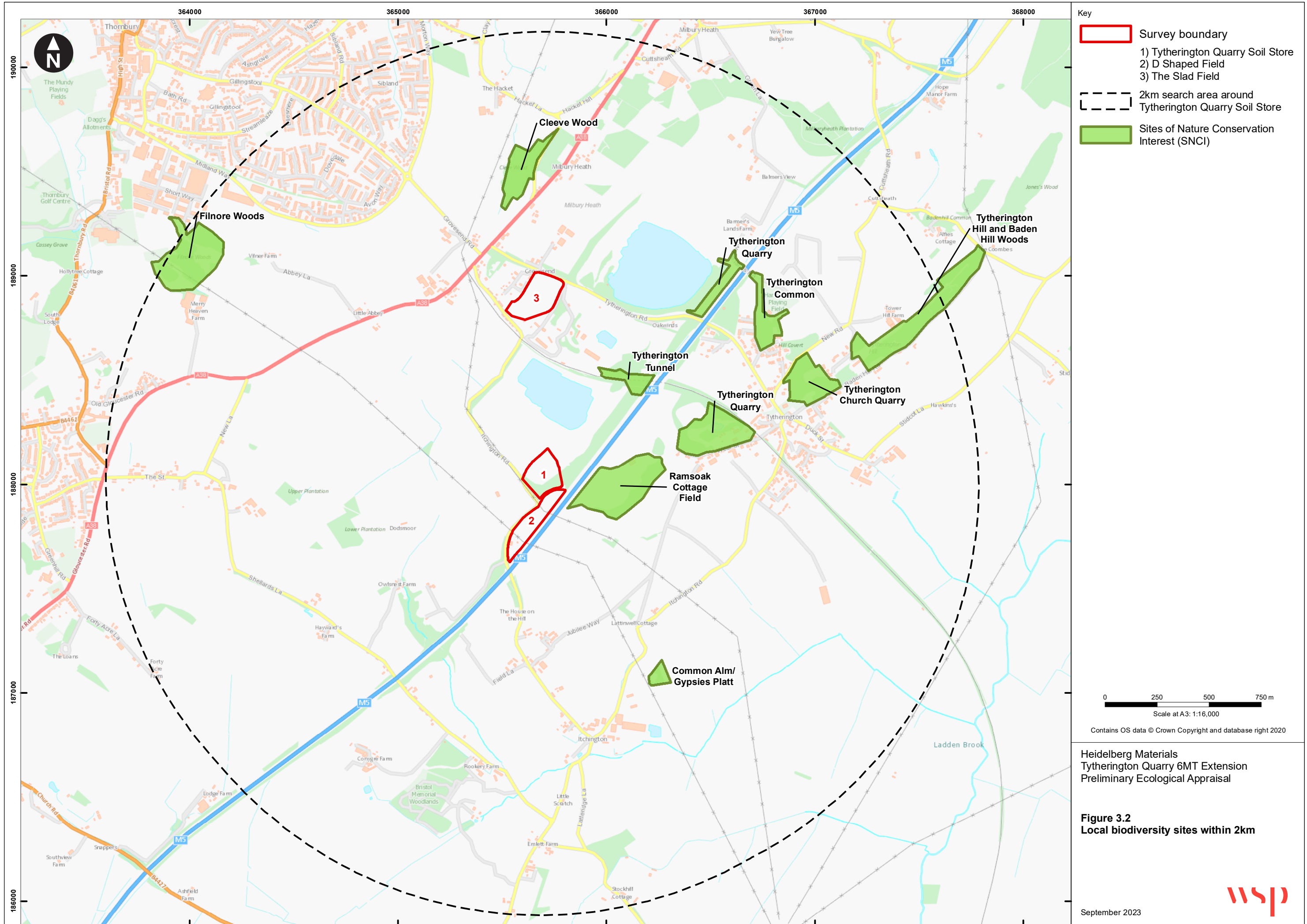
Appendix A

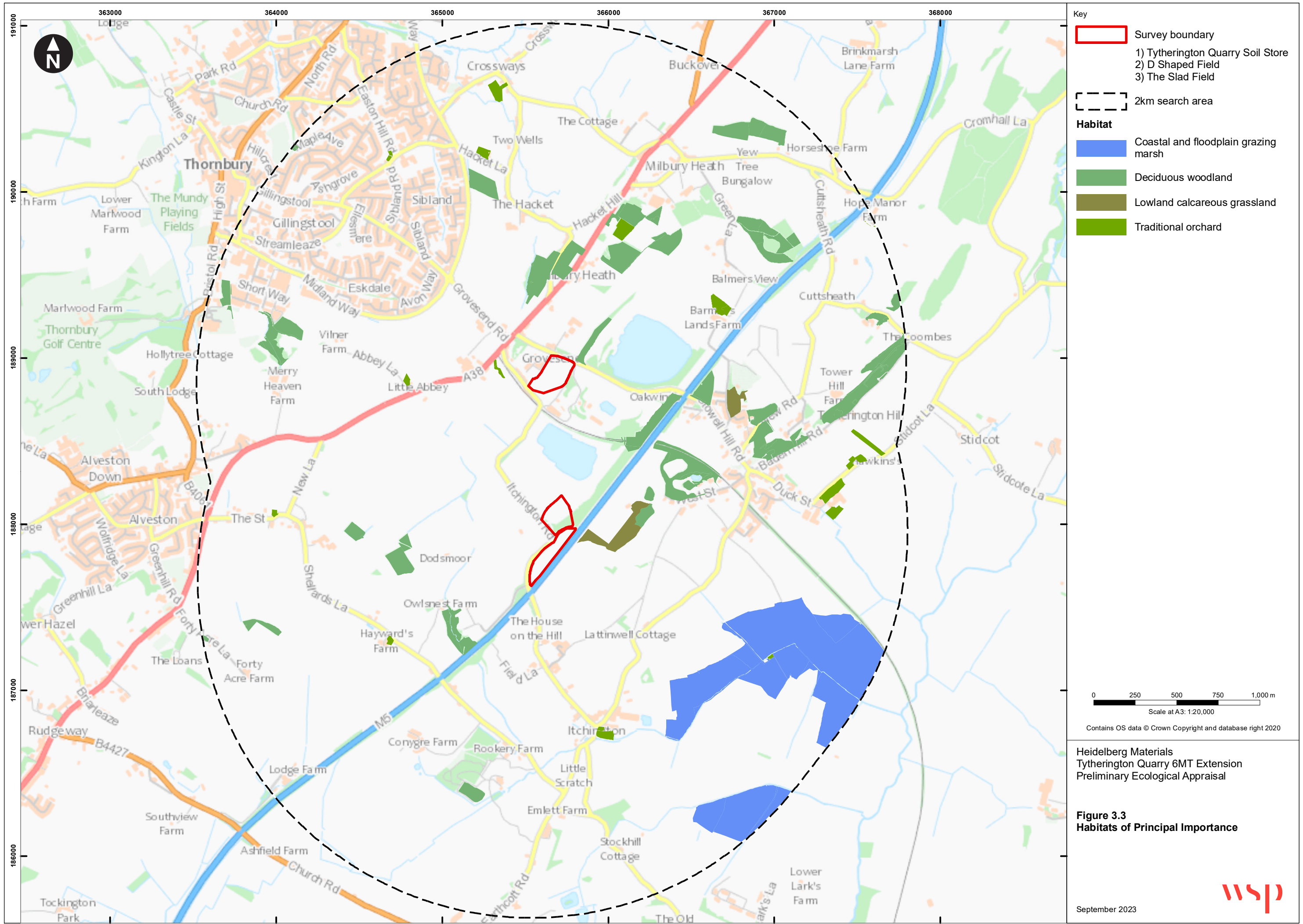
Figures

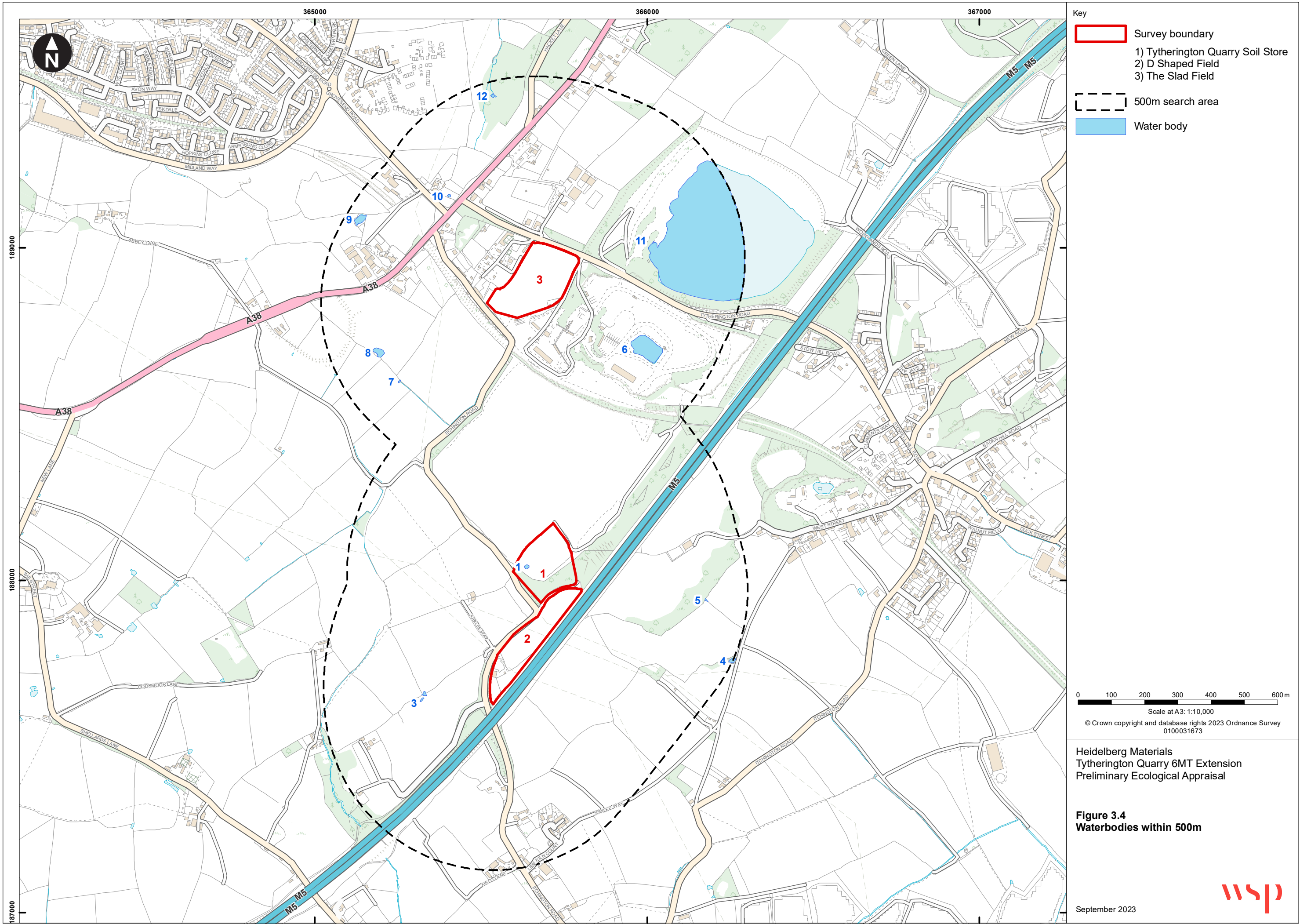
H:\Projects\62282762 Tytherington OPP229956\Deliver Stage\Drawings\GIS\WXD\62282762-FG0001_P02.mxd Originator: jacqui.parkin

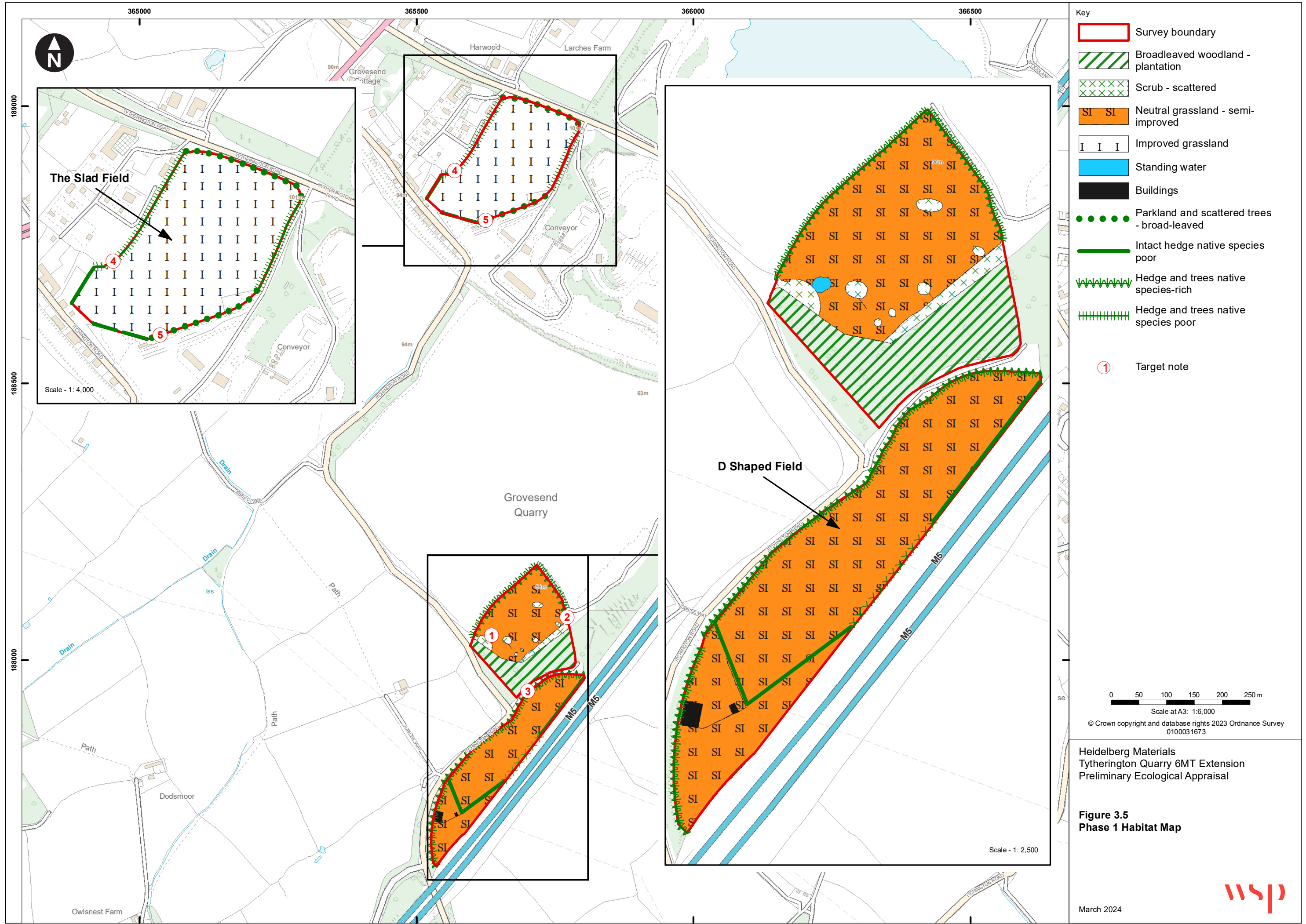












Appendix B

Scientific names of species referred to within this report

Common name	Scientific name
Adder	<i>Vipera berus</i>
Allis shad	<i>Alosa alosa</i>
Annual meadow grass	<i>Poa annua</i>
Annual pearlwort	<i>Sagina apetala</i>
Ash	<i>Fraxinus excelsior</i>
Autumn lady's-tresses	<i>Spiranthes spiralis</i>
Bewick's swan	<i>Cygnus columbianus bewickii</i>
Birds foot trefoil	<i>Lotus corniculatus</i>
Bittersweet	<i>Solanum dulcamara</i>
Black nightshade	<i>Solanum nigrum</i>
Black tailed-godwit	<i>Limosa limosa islandica</i>
Blackthorn	<i>Prunus spinosa</i>
Bluebell	<i>Hyacinthoides non-scripta</i>),
Blue fleabane	<i>Erigeron acer</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus</i> agg
Broad leaved dock	<i>Rumex obtusifolius</i>
Brown long-eared bat	<i>Plecotus auratus</i>
Buddleia	<i>Buddleja davidii</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Bullrush sps.	<i>Typha</i> spp.
Canada goose	<i>Branta canadensis</i>
Carline thistle	<i>Carlina vulgaris</i>

Common name	Scientific name
Wild cherry	<i>Prunus avium</i>
Chickweed	<i>Stellaria media</i>
Cocksfoot grass	<i>Dactylis glomerata</i>
Common beech	<i>Fagus sylvatica</i>
Common calamint	<i>Clinopodium ascendens</i>
Common centaury	<i>Centaurium erythraea</i>
Common chicory	<i>Cichorium intybus</i>
Common dandelion	<i>Taraxacum officinale</i>
Common frog	<i>Rana temporaria</i>
Common gromwell	<i>Lithospermum officinale</i>
Common ivy	<i>Hedera helix</i>
Common knotgrass	<i>Polygonum aviculare</i>
Common millet	<i>Panicum miliaceum</i>
Common milkwort	<i>Polygala vulgaris</i>
Common nettle	<i>Urtica dioica</i>
Common pipistrelle	<i>Pipistrellus pipistrellus</i>
Common ragwort	<i>Senecio jacobaea</i>
Common redshank	<i>Tringa totanus</i>
Common reed bunting	<i>Emberiza schoeniclus</i>
Common rock-rose	<i>Helanthemum nummularium</i>
Common shelduck	<i>Tadorna tadorna</i>
Common stork's-bill	<i>Erodium cicutarium</i>
Common toad	<i>Bufo bufo</i>
Corky-fruited water-dropwort	<i>Oenanthe pimpinelloides</i>
Corn mint	<i>Mentha arvensis</i>
Creeping cinquefoil	<i>Potentilla reptans</i>
Crown vetch	<i>Securigera varia</i>
Cuckoo	<i>Cuculus canorus</i>
Cut-leaved selfheal	<i>Prunella laciniata</i>

Common name	Scientific name
Deadly nightshade	<i>Atropa belladonna</i>
Dog's mercury	<i>Mercurialis perennis</i>
Dog rose	<i>Rosa canina</i>
Dunlin	<i>Calidris alpina alpina</i>
Dunnock	<i>Prunella modularis</i>
Dyer's greenweed	<i>Genista tinctoria</i>
Early purple orchid	<i>Orchis mascula</i>
Eel	<i>Anguilla anguilla</i>
Elder	<i>Sambucus nigra</i>
English elm	<i>Ulmus procera</i>
English oak	<i>Quercus robur</i>
Eurasian bullfinch	<i>Pyrrhula pyrrhula</i>
Eurasian hare	<i>Lepus europaeus</i>
Eurasian skylark	<i>Alauda arvensis</i>
Eurasian whimbrel	<i>Numenius phaeopus</i>
False oat grass	<i>Arrhenatherum elatius</i>
Field bindweed	<i>Convolvulus arvensis</i>
Field buttercup	<i>Ranunculus arvensis</i>
Field maple	<i>Acer campestre</i>
Field mouse-ear	<i>Cerastium arvense</i>
Forget-me-not	<i>Myosotis scorpioides</i>
Gadwall	<i>Anas strepera</i>
Giant fescue	<i>Festuca arundinacea</i>
Giant hogweed	<i>Heracleum mantegazzianum</i>
Goats willow	<i>Salix caprea</i>
Goldcrest	<i>Regulus regulus</i>
Good king henry	<i>Blitum bonus-henricus</i>
Gooseberry	<i>Ribes uva-crispa</i>
Grass-poly	<i>Lythrum hyssopifolia</i>

Common name	Scientific name
Grass snake	<i>Natrix natrix</i>
Grass vetchling	<i>Chrysoteuchia culmella</i>
Great burnet	<i>Sanguisorba officinalis</i>
Great crested newt	<i>Triturus cristatus</i>
Greater white fronted goose	<i>Tringa totanus</i>
Great mullein	<i>Verbascum thapsus</i>
Green field speedwell	<i>Veronica agrestis</i>
Green-winged orchid	<i>Anacamptis morio</i>
Green woodpecker	<i>Picus viridis</i>
Grey partridge	<i>Perdix perdix</i>
Grey squirrel	<i>Sciurus carolinensis</i>
Harebell	<i>Campanula rotundifolia</i>
Hawfinch	<i>Coccothraustes coccothraustes</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hazel dormice	<i>Muscardinus avellanarius</i>
Hedge bindweed	<i>Convolvulus arvensis</i>
Hedgehog	<i>Erinaceus europaeus</i>
Himalayan balsam	<i>Impatiens glandulifera</i>
Holly	<i>Ilex aquifolium</i>
Honeysuckle	<i>Lonicera periclymenum</i>
House sparrow	<i>Passer domesticus</i>
Japanese knotweed	<i>Reynoutria japonica</i>
Kingfisher	<i>Alcedo atthis</i>
Lady's bedstraw	<i>Galium verum</i>
Lady fern	<i>Athyrium filix-femina</i>
Lapwing	<i>Vanellus vanellus</i>
Large-leaved lime	<i>Tilia platyphyllos</i>
Large thyme	<i>Thymus pulegiodes</i>

Common name	Scientific name
Leisler's bat	<i>Nyctalus leisleri</i>
Lesser horseshoe	<i>Rhinolophus hipposideros</i>
Lesser noctule	<i>Nyctalus leisleri</i>
Lesser redpoll	<i>Acanthis cabaret</i>
Lesser spearwort	<i>Ranunculus flammula</i>
Linnet	<i>Linaria cannabina</i>
Long-stalked crane's-bill	<i>Geranium columbinum</i>
Lords and ladies	<i>Arum maculatum</i>
Marsh tit	<i>Poecile palustris</i>
Meadow buttercup	<i>Ranunculus acris</i>
Meadow cranesbill	<i>Geranium pratense</i>
Meadow pipit	<i>Anthus pratensis</i>
Mistle thrush	<i>Turdus viscivorus</i>
Myotis sps.	<i>Myotis sps.</i>
Natterer's bat	<i>Myotis nattereri</i>
Nettle	<i>Urtica dioica</i>
Noctule	<i>Nyctalus noctula</i>
Oak sps.	<i>Robur sps.</i>
Old man's beard	<i>Clematis vitalba</i>
Otter	<i>Lutra lutra</i>
Oxeye daisy	<i>Leucanthemum vulgare</i>
Pepper-saxifrage	<i>Silaum silaus</i>
Perennial rye grass	<i>Lolium perenne</i>
Pineapple weed	<i>Matricaria discoidea</i>
Ploughman's spikenard	<i>Inula conyza</i>
Primrose	<i>Primula vulgaris</i>
Purple moor-grass	<i>Molinia caerulea</i>
Pyramidal orchid	<i>Anacamptis pyramidalis</i>
Quaking-grass	<i>Briza media</i>

Common name	Scientific name
Rabbit	<i>Oryctolagus cuniculus</i>
Ramsons	<i>Allium ursinum</i>
Red bartsia	<i>Odontites vernus</i>
Red campion	<i>Silene dioica</i>
Red clover	<i>Trifolium pratense</i>
Red dead-nettle	<i>Lamium purpureum</i>
Red poppy	<i>Papaver rhoeas</i>
Redwing	<i>Turdus iliacus</i>
Ramsons	<i>Allium ursinum</i>
Rosebay willowherb	<i>Chamaenerion angustifolium</i>
Ribwort plantain	<i>Plantago lanceolata</i>
Ring-necked parakeet	<i>Psittacula krameria</i>
River lamprey	<i>Lampetra fluviatilis</i>
Sallow	<i>Cirrhia icteritia</i>
Salmon	<i>Salmo salar</i>
Saw-wort	<i>Serratula tinctoria</i>
Scot's pine	<i>Pinus sylvestris</i>
Sea lamprey	<i>Petromyzon marinus</i>
Sea trout	<i>Salmo trutta</i>
Self-heal	<i>Prunella vulgaris</i>
Serotine	<i>Eptesicus serotinus</i>
Shepard's-needle	<i>Scandix pecten-veneris</i>
Slender St.John's-wort	<i>Hypericum pulchrum</i>
Slow-worm	<i>Anguis fragilis</i>
Smooth newt	<i>Lissotriton vulgaris</i>
Sneezewort	<i>Achillea ptarmica</i>
Soft rush	<i>Juncus effusus</i>
Song thrush	<i>Turdus philomelos</i>
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>

Common name	Scientific name
Spear thistle	<i>Cirsium vulgare</i>
Spotted flycatcher	<i>Muscicapa striata</i>
Starling	<i>Sturnus vulgaris</i>
Sycamore	<i>Acer psuedoplatanus</i>
Three-cornered garlic	<i>Allium triquetrum</i>
Thyme-leaved sandwort	<i>Arenaria serpyllifolia</i>
Timothy grass	<i>Phleum pratense</i>
Tor-grass	<i>Brachypodium pinnatum</i>
Traveller's joy	<i>Clematis vitalba</i>
Tree pipit	<i>Anthus trivialis</i>
Twaite shad	<i>Alosa fallax</i>
Viviparous lizard	<i>Zootoca vivipara</i>
Wall	<i>Lasiommata megera</i>
Water vole	<i>Arvicola amphibius</i>
White campion	<i>Silene latifolia</i>
White clover	<i>Trifolium repens</i>
White dead nettle	<i>Lamium album</i>
Wild carrot	<i>Daucus carota</i>
Wild mustard	<i>Sinapis arvensis</i>
Wild strawberry	<i>Fragaria vesca</i>
Wood anemone	<i>Anemone nemorosa</i>
Wood melick	<i>Melica uniflora</i>
Wood speedwell	<i>Veronica montana</i>
Wren	<i>Troglodytes troglodytes</i>
Upright brome	<i>Bromus erectus</i>
Yarrow	<i>Achillea millefolium</i>
Yellowhammer	<i>Emberiza citronella</i>
Yellow pimpernel	<i>Lysimachia nemorum</i>
Yellow wagtail	<i>Motacilla flava</i>

Common name	Scientific name
Yellow-wort	<i>Blackstonia perfoliate</i>
Yorkshire fog	<i>Holcus lanatus</i>

Appendix C

Legislation

The following legislation is referenced as although the UK no longer resides in the European Union, certain parts of the EU derived legislation still have direct application in domestic law and continue to be enforceable by domestic legal proceedings¹².

Statutory Designated Sites

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of wild fauna and flora, known as the Habitats Directive was adopted in 1992. The Conservation (Natural Habitats, &c.) Regulations 1994 transposed the Habitats Directive into UK national law, covering the designation and protection of European sites and the protection of European protected species. The Conservation of Habitats and Species Regulations 2017 consolidate all the various amendments made to the 1994 Regulations in respect of England and Wales.

Within the UK, sites that are nationally important for plants, animals or geological or physiological features are protected by law as Sites of Species Scientific Interest (SSSIs) and Marine Nature Reserves (MNRs). This system provides the underpinning statutory protection for all sites, including those which are also of international importance.

Habitats and Species of Principal Importance

The Natural Environment and Rural Communities (NERC) Act (2006), Section 40(1) imposes a duty to conserve biodiversity. The duty applies to all local authorities and extends beyond just conserving what is already there to carrying out, supporting and requiring actions that may also restore or enhance biodiversity.

Section 41 (S41) of the Natural Environment and Rural Communities (NERC Act 2006) requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England. The list (including 56 habitats and 943 species) has been drawn up in consultation with Natural England and draws upon the UK BAP List of Priority Species and Habitats.

Badgers

Badgers are protected under the Protection of Badgers Act 1992. In summary, this makes it a criminal offence to kill, injure or take a badger, or attempt to do so; to damage, destroy or obstruct access to a badger sett; and to disturb a badger when it is occupying a sett.

Bats

All British bat species are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations. These make it an offence, inter alia, to:

¹² Section 4 of the EU-UK Withdrawal Agreement: [Online]. Available from: [European Union \(Withdrawal\) Act 2018 \(legislation.gov.uk\)](https://legislation.gov.uk)

- Deliberately capture, injure or kill a bat.
- Deliberately disturb a bat (this applies anywhere, not just at its roost), in particular in such a way as to be likely to:
 - ▶ Impair their ability to survive, breed or reproduce, or rear or nurture their young.
 - ▶ Impair their ability to hibernate or migrate.
 - ▶ Affect significantly the local distribution or abundance of that bat species.
- Damage or destroy a breeding site or resting place of any bat.
- Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection.
- Intentionally or recklessly obstruct access to any place that a bat uses for shelter or protection (this is taken to mean all bat roosts whether bats are present or not).

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

- Greater horseshoe bat (*Rhinolophus ferrumequinum*).
- Lesser horseshoe bat (*Rhinolophus hipposideros*).
- Bechstein's bat (*Myotis bechsteinii*).
- Barbastelle (*Barbastella barbastellus*).
- Greater mouse-eared bat (*Myotis myotis*).

Breeding Birds

With certain exceptions, all wild birds, their nests and eggs are protected by section 1 of the Wildlife and Countryside Act 1981 (as amended). Therefore, it is an offence, *inter alia*, to:

- Intentionally kill, injure or take any wild bird.
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built.
- Intentionally take or destroy the egg of any wild bird.

Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- Intentionally or recklessly disturb any bird while it is nest building or is at a nest containing eggs or young.
- Intentionally or recklessly disturb the dependent young of any such bird.

Dormouse

Dormice are listed in *Schedule 5 of the Wildlife and Countryside Act 1981* (as amended) and *Schedule 2 of the Conservation of Habitats and Species Regulations 2017* (as amended). They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb any such animal, in particular in such a way as to be likely to:
 - ▶ Impair their ability to survive, breed or reproduce, or rear or nurture their young;

- ▶ Impair their ability to hibernate or migrate;
- ▶ Affect significantly the local distribution or abundance of that species.
- Damage or destroy a breeding site or resting place of any such animal;
- Intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

Great Crested Newts

The great crested newt is listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019*. It is afforded protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- deliberately capture, injure or kill any such newt;
- deliberately disturb any such newt, in particular in such a way as to be likely to:
 - ▶ impair their ability to survive, breed or reproduce, or rear or nurture their young;
 - ▶ impair their ability to hibernate or migrate; and
 - ▶ affect significantly the local distribution or abundance of that species.
- deliberately take or destroy the eggs of such a newt;
- damage or destroy a breeding site or resting place of any such newt;
- intentionally or recklessly disturb any such newt while it is occupying a structure or place that it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any place that any such newt uses for shelter or protection.

This relates to both the aquatic and terrestrial habitat they occupy. The legislation applies to all life stages of this species.

Otters

European otter are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2017*. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations. These make it an offence, *inter alia*, to:

- Deliberately capture, injure or kill any such animal.
- Deliberately disturb any such animal, in particular in such a way as to be likely to.
- Impair their ability to survive, breed or reproduce, or rear or nurture their young.
- Impair their ability to hibernate or migrate.
- Affect significantly the local distribution or abundance of that species.
- Damage or destroy a breeding site or resting place of any such animal.

- Intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection.
- Intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

Reptiles

The four widespread species of reptile that are native to Britain, namely common or viviparous lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), adder (*Vipera berus*) and grass snake (*Natrix natrix helvetica*), are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence, inter alia, to:

- Intentionally kill or injure any of these species.

Water Voles

Water voles are protected under the Wildlife and Countryside Act 1981 (as amended). This makes it a criminal offence to:

- Kill, injure or take (capture) a water vole.
- Possess or control a live or dead water vole, or any part of a water vole.
- Damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or disturb water voles while they are using such a place.
- Sell, offer for sale or advertise for live or dead water voles.

Plants

Plant species (or part of plants) including early spider orchid, are protected under Schedule 8 Section 13 of the Wildlife & Countryside Act 1981 from the following:

- intentional picking, uprooting or destruction (Section 13 1a)

Invasive Species - plants

For those plant species listed on Schedule 9, Part II of the Wildlife & Countryside Act 1981, it is illegal to plant or otherwise cause to grow in the wild any part of the plant. The Invasive Alien Species (Enforcement and Permitting) Order 2019 is used to exercise the powers conferred by the Act.

