Ecological Deliverability Report

Sharpness Growth Point, Gloucestershire

GreenSquare Group

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P679/EDR/V1	For issue	5 December 2017	W. Salmon BSc MSc MCIEEM and R. Bower BSc MCIEEM	Dr. M. Cowley CEnv MCIEEM

EAD Ecology
3 Colleton Crescent
Exeter
EX2 4DG
Tel: 01392 260420
Fax: 01392 434603
Email: info@eadecology.co.uk
www.eadecology.co.uk

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EAD Ecology was commissioned by GreenSquare Group to produce an Ecological Deliverability Report for land identified for potential mixed-use development at Sharpness, Gloucestershire (approximate central OS Grid Ref: SO676009; refer to Figure 1), hereafter referred to as 'the site'. The site is being promoted as a new growth point at Sharpness by GreenSquare to inform Stroud District Council's Strategic Assessment of Land Availability (SALA). The report assesses the ecological suitability of the site for development, based upon the preliminary ecological baseline of the site and relevant national and local planning policy.

An understanding of the ecological baseline of the site was derived through desk study and site survey. The desk study involved obtaining biodiversity information for a study area of 2km radius around the site (extended to 4km for previous records of bats) from the Gloucestershire Centre for Environmental Records (GCER), the MAGIC website and previous ecological reports. The site survey involved an Extended Phase 1 Habitat survey of the site. This was undertaken in January 2017 following standard methods.

Baseline

Designated sites

The site has no statutory or non-statutory nature conservation designations. The Severn Estuary is situated immediately adjacent to the south-western boundary of the site and is designated as a Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar Site and Site of Special Scientific Interest (SSSI). Wye Valley & Forest of Dean Bat Sites SAC is located approximately 6.1km west of the site at its nearest point, and there are a further four SSSIs within 5km of the site.

Tintock Wood Key Wildlife Site (KWS) is situated immediately adjacent to the eastern boundary of the site and is designated as an ancient semi-natural broadleaved woodland. Sharpness Docks KWS is situated approximately 10m west of the site at its nearest point and is designated for plant interest. There are a further ten KWS and five Unconfirmed Sites (potential KWS quality) within 2km of the site.

Habitats

The site comprised predominantly of mixed farmland, dominated by arable and, improved and poor semi-improved grassland. Smaller areas of marshy grassland and amenity grassland were also present. Field boundaries comprised species-rich and species-poor hedgerows, wet and dry ditches, watercourses and woodland edge; areas of plantation woodland and semi-natural broadleaved woodland occurred within the site. Other habitats included ponds, buildings, scattered trees, scrub and tall ruderal vegetation.

Protected species

The site provided suitable habitat for a range of protected or otherwise notable species. These include:

- Great crested newt – ponds and ditches provided suitable breeding habitat; previous surveys have indicated the presence of this protected and Priority species within the site.
- Reptiles – the site included suitable habitat for widespread reptiles such as grass snake and slow-worm.
- Breeding and wintering birds – the site provided habitat for birds, including declining Priority species such as house sparrow, song thrush, starling, cuckoo and yellowhammer. Intertidal surveys of the adjacent estuary recorded a range of species including curlew, dunlin, redshank, shelduck, wigeon and teal, which are interest features or 'assemblage species' of the Severn Estuary SPA.
- Dormice – hedgerows, scrub and woodland provided suitable habitat; previous surveys have indicated the presence of this protected and Priority Species within the site.

- Bats – trees and buildings provided suitable roosting habitat; hedgerows, ditches, woodland and other habitats within the site provided suitable commuting and foraging habitat. Bats and their roosts are protected and some are Priority species.

Further surveys will be required to confirm the presence and distribution of protected and notable species within the site.

Conclusion on suitability for development

The presence of the Severn Estuary SAC/SPA/SSSI/Ramsar complex immediately adjacent to the site is the key ecological constraint to the development of the site. Accordingly, proposals are being progressed in light of avoidance measures identified in the Stroud Local Plan HRA (URS, 2014) and Severn Estuary Visitor Survey (EPR, 2016). Key to this would be the provision of a 72ha Suitable Alternative Natural Greenspace (SANG) to the east of the estuary, to divert recreational pressure away from the designated site. The SANG would provide an alternative recreational resource designed to be attractive to existing and new residents in the area. It also provides the opportunity to divert the Severn Way from the most sensitive area for birds around Berkeley Pill; this has the potential to reduce existing levels of disturbance in this area. The evolution of proposals to avoid effects on the Severn Estuary would be subject to further survey, including a bird disturbance study, and consultation with Natural England and Stroud District Council (SDC). Information would be provided to SDC to enable it to undertake a Habitats Regulations Assessment (HRA) of the development to demonstrate that no likely significant effects on the Severn Estuary would occur.

Effects on Wye Valley and Forest of Dean Bat Sites SAC are considered unlikely, due to the distance from the proposed development and existing information on patterns of bat activity from the designated site. Nonetheless, further consultation, survey and assessment would be required to confirm that there would be no likely significant effect on the SAC.

Habitats of moderate to high ecological value that could constrain development include ditches, hedgerows, streams, semi-natural broadleaved woodland and ponds. The presence or potential presence of protected and notable invertebrates, amphibians (including great crested newt), reptiles, birds, badger, bats, dormouse, otter and water vole could also constrain development. The emerging masterplan for the development includes an integrated landscape and ecological design incorporating green infrastructure that would protect and enhance key habitat features and maintain wildlife corridors through the site. This would include new habitat creation as part of public open space, linked to the proposed SANG, including new woodland and hedgerow creation, wildflower meadow and wetland features. New habitats would benefit protected and notable species and specific mitigation measures would ensure that adverse effects on species populations were avoided. Long-term management of new and retained habitats would be secured through implementation of a Landscape and Ecological Management Plan (LEMP).

Through the integration of ecological mitigation and enhancement measures into the development layout, 'biodiversity gain' could be achieved. Accordingly, development would be undertaken in compliance with biodiversity policies set out in the National Planning Policy Framework and the Stroud District Local Plan, in addition to the legal protection of species.

1 Introduction, background and approach

1.1 Introduction

1.1.1 EAD Ecology was commissioned by GreenSquare Group to produce an Ecological Deliverability Report for land identified for potential mixed-use development at Sharpness, Gloucestershire (approximate central OS Grid Ref: SO676009; refer to Figure 1), hereafter referred to as 'the site'. The site is being promoted by GreenSquare to inform Stroud District Council's Strategic Assessment of Land Availability (SALA), and is promoting the site as a new growth point at Sharpness. This report assesses the ecological suitability of the site for development, based on the following:

- Preliminary ecological baseline of the site;
- Identification of potential ecological constraints and opportunities; and
- Review of policies within the National Planning Policy Framework (NPPF 2012) and the Stroud District Local Plan (SDLP 2015).

1.1.2 The work has been undertaken in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Practice.

1.2 Legislation and planning policy

Wildlife legislation

1.2.1 The following wildlife legislation is relevant to the proposed development:

- Conservation of Habitats and Species Regulations 2010 (as amended).
- Wildlife and Countryside Act 1981 (as amended).
- Countryside and Rights of Way Act 2000.
- Natural Environment and Rural Communities Act 2006.
- Protection of Badgers Act 1992.
- Hedgerow Regulations 1997 (as amended).

1.2.2 A summary of wildlife legislation is provided in Appendix 1.

National planning policy

1.2.3 The National Planning Policy Framework (NPPF, 2012) includes the Government's policy on the protection of biodiversity through the planning system. A summary of the relevant paragraphs of the NPPF is provided in Appendix 2.

Local planning policy

1.2.4 The following core policies of the Stroud District Local Plan (2015) are relevant to the ecological assessment of the proposed development:

- CP14: High Quality Sustainable Development
- CP15: A Quality Living and Working Countryside

1.2.5 The following delivery policies of the Stroud District Local Plan are relevant to the ecological assessment of the proposed development:

- ES6: Providing for biodiversity and geodiversity
- ES8: Trees, hedgerows and woodlands

1.2.6 The relevant policy text is included in Appendix 3.

1.2.7 Stroud District Council (SDC) have produced a Habitats Regulations Assessment (HRA) of the Local Plan (URS, 2014). This provides an assessment of potential effects on European Designated Sites (i.e. Special Areas of Conservation (SAC) Special Protection Areas (SPA) and Ramsar Sites) as a result of local plan proposals. This includes consideration of potential effects on the Severn Estuary SPA, SAC and Ramsar Site (refer to Section 2.1) as a result of proposed residential development. The HRA specifically considers the potential effects of the proposed Sharpness Docks development (Policy SA5) as a result of increased recreational pressure on the Severn Estuary European Sites, and details measures that would be required to ensure that there would be no significant effect. These measures would include:

- A visitor survey to enable evaluation of the potential effects of increased recreational activity.
- A management plan for protecting the Severn Estuary, focussed on recreational pressure.
- A non-breeding birds survey to establish areas in the vicinity of the docks that are important for SPA bird populations.
- Details of mitigation measures to ensure that recreational pressure did not affect SPA bird populations.

1.2.8 In response to the HRA, SDC undertook visitor surveys of the Severn Estuary within Stroud District during 2015 and 2016 (EPR, 2016). This information was gathered to inform the evidence base for the assessment of potential recreational effects on the Severn Estuary European Sites, and identifies existing patterns of recreation along the estuary. Both this and the Local Plan HRA would provide an important evidence base in the design and assessment of the proposed Vision for Sharpness development.

1.3 Approach

Ecological baseline

1.3.1 A preliminary understanding of the ecological baseline of the site was derived through desk study and site survey.

Desk Study

1.3.2 Biodiversity information was requested for a study area of 2km radius around the site boundary (extended to 4km for previous records of bats) from Gloucestershire Centre for Environmental Records (GCER) in February 2017. Information requested included the location and details of the following:

- Designated sites of nature conservation value (statutory and non-statutory; extended to 10km for sites with international designations and 5km for sites with national designations using the Defra MAGIC website (www.magic.gov.uk));
- Previous records of protected and/or notable species, including Species of Principal Importance for the Conservation of Biodiversity in England ('Priority Species').

1.3.3 Information was also obtained from the following websites:

- www.magic.gov.uk - information on protected sites;
- jncc.defra.gov.uk – information on protected sites, Priority Habitats and Species;
- www.gov.uk/government/organisations/natural-england - information on protected sites and standing advice.

1.3.4 EAD Ecology produced an Ecological Impact Assessment (EcIA) report for a proposed 50-unit scheme on land within the site in July 2016 (EAD Ecology 2016a); the information in this report was reviewed as part of the desk study. Prior to this, a range of ecological surveys were undertaken by All Ecology and Enzygo Ltd to support a previous application for 375 units, which incorporated the land covered by the proposed 50-unit scheme and a wider area to the south and west; also within the site. The following reports were reviewed as part of this desk study:

- All Ecology (2014) Land at Sharpness - Great Crested Newt Survey
- Enzygo Ltd (2015) Dormouse Presence/Likely Absence Survey – Mixed Development at Severn Meadows
- Enzygo Ltd (2014) Breeding Bird Survey – Mixed Development at Severn Meadows
- Enzygo Ltd (2014) Bat Activity and Tree Roost Surveys – Proposed Development at Sharpness, Gloucestershire

Site Survey

1.3.5 An Extended Phase 1 Habitat survey of the site was undertaken on 18, 19 and 20 January 2017. The survey followed guidelines published by JNCC (2010) and Institute of Environmental Assessment (1995) and identified the main habitat types on the site and the presence/potential presence of protected and notable[1] species. The results of the survey were detailed on a Phase 1 Habitat plan, with Target Notes (TN) used to identify specific features of ecological interest; refer to Figure 2. A botanical species list was recorded, although no attempt was made to record every plant species on the site; refer to Appendix 6.

Survey limitations

1.3.6 The Extended Phase 1 Habitat survey was undertaken at a sub-optimal time of year for botanical survey, and many of the plant species present within the site would not have been evident. Nevertheless, this is not considered to have significantly constrained the assessment of the ecological value of the habitats present.

[1] Notable species are those which hold a specific conservation status e.g. local Biodiversity Action Plan species, Priority Species, IUCN Red Data Species. Some notable species may also be legally protected.

2 Ecological baseline

2.1 Designated sites of conservation importance

European designated sites

2.1.1 Severn Estuary SAC, SPA and Ramsar Site is situated immediately adjacent to the south-western boundary of the site (refer to figure in Appendix 4). One further European designated site occurs within 10km of the site; this is Wye Valley & Forest of Dean Bat Sites SAC, which is located approximately 6.1km west of the site at its nearest point. Reasons for designation are provided in Table 2.1 below.

Nationally designated sites

2.1.2 Severn Estuary Site of Special Scientific Interest (SSSI) is situated immediately adjacent to the south-western boundary of the site (refer to figure in Appendix 4). This SSSI is part of the Severn Estuary SAC/SPA/Ramsar complex. Four other nationally designated sites are present within 5km of the site; these are Clarke's Pool Meadow SSSI, Purton Passage SSSI, Upper Severn Estuary SSSI and Lydney Cliff SSSI. Reasons for designation are provided in Table 2.1 below.

Non-statutory designated sites

2.1.3 There are no non-statutory designated sites within the site boundary. Tintock Wood (including Pitbrook Brake & Penny Grove) Key Wildlife Site (KWS) is situated immediately adjacent to the eastern boundary of the site. This is designated as ancient semi-natural broadleaved woodland. Sharpness Docks KWS is situated approximately 10m west of the site at its nearest point and is designated for its plant interest.

2.1.4 There are a further ten KWS within the study area; refer to Appendix 4. Five Unconfirmed Sites (potential KWS quality) are also present within 2km of the site; the closest is situated approximately 450m from the site boundary.

Table 2.1: Statutory designated sites within the study area

Site name	Nature conservation designation	Reasons for designation	Approximate distance and direction from site
European designated sites within 10km			
Severn Estuary	SAC	Designated for the presence of the following habitats and species: • Estuaries; • Mudflats and sandflats not covered by seawater at low tide; • Sandbanks which are slightly covered by sea water all the time; • Reefs; • Atlantic salt meadows; • Sea lamprey; • River lamprey; • Twaite shad.	Immediately adjacent to south-western boundary of site

Table 2.1: Statutory designated sites within the study area

Site name	Nature conservation designation	Reasons for designation	Approximate distance and direction from site
	SPA	Qualifies by regularly supporting at least 20,000 waterfowl, and by supporting populations of European importance of over-wintering Bewick's swan, curlew, dunlin, pintail, redshank and shelduck, and on-passage ringed plover.	
	Ramsar	Designated for its estuarine habitats, wintering birds and migratory fish populations.	
Wye Valley and Forest of Dean Bat Sites	SAC	Designated for the presence of greater horseshoe and lesser horseshoe bat breeding colonies.	6.1km W
National designated sites within 5km			
Severn Estuary	SSSI	Intertidal zone of mudflats, sand banks, rocky platforms and saltmarsh. The estuarine fauna includes: internationally important populations of waterfowl; invertebrate populations; and migratory fish.	Immediately adjacent to south-western boundary of site
Lydney Cliff	SSSI	Designated for geological interest.	1.2km W
Purton Passage	SSSI	Designated for geological interest.	1.4km NE
Upper Severn Estuary	SSSI	Supports a wide range of estuarine habitats and is of outstanding ornithological significance.	2.0km NE
Clarke's Pool Meadow	SSSI	Semi-natural grassland and species-rich hedge.	3.2km N

2.2 Habitats within site boundary

2.2.1 The site comprised predominantly of mixed farmland, with fields containing arable, improved grassland and poor semi-improved grassland. Smaller areas of marshy grassland and amenity grassland were also present. Field boundaries comprised species-rich and species-poor hedgerows, wet and dry ditches, watercourses and woodland edge; areas of both plantation broadleaved woodland and semi-natural broadleaved woodland occurred within the site. Other habitats included ponds, buildings, scattered trees, scrub and tall ruderal vegetation. Habitats are shown on the Phase 1 Habitat Plan (refer to Figure 2); due to the size of the site the results are presented on an overview plan and eight detailed plans (Sectors A to H).

Amenity grassland

2.2.2 Grassland maintained as gardens and sports/playing fields were grouped under this habitat type. The sward was typically short and intensively managed, with low species diversity. 'Gardens and allotments' and 'urban green space (parks)' are Local Priority Habitats in Gloucestershire.

Arable

2.2.3 This habitat occurred throughout the site, although most frequently in fields on the northern and eastern sides, and comprised recently seeded grass crops or cereal stubble. Arable margins were either non-existent or narrow (<1m) and contained common arable weeds such as cleavers, hogweed and herb-Robert. 'Arable Field Margins' is a Priority Habitat.

Bracken - dense

2.2.4 A small area of dense bracken occurred in the western half of the site.

Buildings

2.2.5 Clusters of farm buildings (TNs 13, 22 & 35) provided potentially suitable nesting habitats for birds, including barn owl, and roosting habitat for bats. School buildings (TN23) and a modern cricket pavilion (TN8) were also present within the site.

Ditch – wet and dry

2.2.6 Wet and dry ditches occurred in association with some field boundaries within the site, particularly hedgerows. Rushes and tall ruderal vegetation were occasionally present in the margins. 'Ditches' is a Local Priority Habitat in Gloucestershire.

Hedgerows - species-rich and species-poor

2.2.7 Species-rich and species-poor hedgerows occurred throughout the site and formed the majority of field boundaries. Species included abundant to occasional hawthorn, blackthorn, elm species, hazel, holly, elder, field maple, spindle and rose species. Mature trees were frequently present in hedgerows and included pedunculate oak, ash, sycamore, alder and willow species. Most hedgerows were 1-2m high and 1-3m wide; the majority were heavily managed and had been subject to cutting/flailing in the months prior to survey. It was considered likely that a proportion of the hedgerows could be 'important' under the ecological criteria of the Hedgerow Regulations 1997 (as amended). 'Hedgerows' is a Priority Habitat.

Improved grassland

2.2.8 Improved grassland fields tightly grazed by sheep dominated the south-western portion of the site. Improved grassland also occurred in northern and central areas. Perennial ryegrass was dominant with Yorkshire-fog and cocks-foot occurring frequently; very few broadleaved herbs were present within the sward.

Marshy grassland

2.2.9 Two small areas of marshy grassland occurred in the northern (TN29) and central (TN18) portions of the site. This habitat comprised abundant to frequent soft rush, Yorkshire-fog and creeping buttercup.

Mixed plantation woodland

2.2.10 An area of mixed broadleaved and coniferous plantation woodland occurred close to the southern boundary of the site (TN42). It had a canopy of silver birch, poplar, larch and oak, and a dense understorey of hawthorn and blackthorn. The ground flora was dominated by bramble with

occasional soft shield fern. This habitat also occurred adjacent to the eastern boundary of the site but this area was not surveyed.

Poor semi-improved grassland

2.2.11 This habitat was found predominantly in fields in the central and northern portions of the site, as well as in some of the arable field margins; refer to Paragraph 2.2.3. Species included dominant to frequent perennial ryegrass, Yorkshire-fog, cocks-foot, broad-leaved dock, white clover and creeping buttercup; hard rush, common bent and crested dogs-tail were rare or occasional. In the majority of fields the sward was short or grazed, with greater structural and species diversity noted in a small number of locations (e.g. TN28). None of the grassland, however, was considered likely to correspond to the Priority Habitat 'Lowland Meadows'.

Running water

2.2.12 Watercourses flowed through the site at several locations. These varied from very narrow (<0.5m) fast flowing drainage ditches adjacent to hedgerows, to wider slow-flowing streams flanked by broadleaved woodland (e.g. TNs 27, 58). Emergent vegetation was largely absent from the majority of channels, and bed substrates were generally either mud or silt. The banks ranged from steep to gently sloping and contained frequent coarse grasses, rushes and tall ruderal vegetation. 'Streams' is a Local Priority Habitat in Gloucestershire.

Scrub – dense and scattered

2.2.13 Areas of dense and scattered scrub were found throughout the site in association with watercourses, adjacent to ponds and alongside roads and a railway line. The scrub was dominated by bramble with blackthorn, hawthorn and elder also present. 'Scrub' is a Local Priority Habitat in Gloucestershire.

Scattered broadleaved trees

2.2.14 Mature and semi-mature broadleaved trees were recorded in association with field boundaries and occasionally isolated within fields. The majority of mature trees were pedunculate oak, ash, sycamore, alder or willow species.

Scattered coniferous trees

2.2.15 A line of mature Leyland cypress trees occurred along the boundary of the site adjacent to agricultural buildings (TN53).

Semi-natural broadleaved woodland

2.2.16 This habitat occurred as a number of woodland copses (e.g. TNs 14, 41, 43) and adjacent to some of the larger watercourses within the site (TNs 27, 58). The most frequent canopy species were pedunculate oak, ash, sycamore and willow, with alder also occurring in wetter areas. The understorey varied from dense to sparse and include abundant to occasional hawthorn, holly, hazel, elder and blackthorn. The ground flora was frequently dominated by bramble and/or ivy, although there was greater diversity in some areas with species such as soft shield fern, hart's-tongue, bluebell and lords-and-ladies evident. This habitat also occurred adjacent to the eastern boundary of the site but this area was not surveyed. 'Lowland Mixed Deciduous Woodland' and 'Wet Woodland' are Priority Habitats.

Standing water

2.2.17 Twenty-eight ponds or other areas of standing water were recorded within or immediately adjacent to the site. These included heavily-shaded ponds with limited vegetation (TN7), partly-

shaded ponds with varying amounts of emergent vegetation such as floating sweet-grass and bulrush (TNs 11, 16), slurry pits (TN36) and irrigation ponds (TN39). 'Ponds' is a Priority Habitat.

Tall ruderal

2.2.18 Tall ruderal habitat, dominated by common nettle with occasional hogweed and willowherb species, was found throughout the site in field margins, around agricultural buildings and adjacent to ponds and watercourses.

2.3 Surrounding habitats

2.3.1 The Severn Estuary lies to the west of the site, and is directly adjacent to the south-western boundary at its nearest point. Land to the east comprised mixed farmland interspersed with hedgerows, blocks of woodland, minor roads and hamlets.

2.3.2 A railway line and the B4066 road linking Sharpness and Berkeley run north-west to south-east through the centre of the site. Urban development within the vicinity of the site includes Sharpness Docks and Newtown to the north-west, the town of Berkeley to the south-east, and the hamlets of Brookend, Wanswell and Abwell to the east.

2.4 Protected and notable species

2.4.1 Existing desk study data and survey information has provided a preliminary understanding of the presence, or potential presence, of protected and notable species within the site. Further survey work would be required to confirm the status of these species (refer to Section 3.2) to inform emerging development proposals and assessment. Key species relevant to the proposed development include great crested newt, common reptiles, breeding and wintering birds, badgers, bats and hazel dormouse.

Plants

Desk Study

2.4.2 A number of notable plant species have been recorded from the 2km study area:

- Bluebell, a species which receives partial legal protection;
- Slender hare's ear, a Priority Species;
- Box, a Nationally Rare species;
- Bulbous foxtail, dittander, long-stalked orache, sea clover, sickle medick and a whitebeam, all Nationally Scarce species;
- A further eight Red-listed species, including lesser spearwort (Vulnerable) and ragged-robin (Near Threatened).

2.4.3 Of these species, sea clover has been recorded on site, along the banks of a watercourse on the western side of the site (adjacent to TN50, Figure 2).

Site survey

2.4.4 No notable plant species were recorded during the survey. The presence of sea clover on or adjoining the western edge of the site (i.e. in adjoining saltmarsh or maritime grassland) is assumed, and bluebell may occur within hedgerows and was recorded within broadleaved woodland on the site. Other habitats within the site were generally considered unlikely to support notable plant species.

2.4.5 Himalayan balsam was recorded at one location within the site (TN45). This invasive species is listed on Schedule 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended), making it an

offence to plant or otherwise cause these species to grow in the wild. No other invasive plant species were recorded, although due to the time of year that the Phase 1 Habitat survey was undertaken, other invasive species may have been present but were not evident at the time of the survey.

Invertebrates

Desk Study

2.4.6 A range of notable invertebrates have been recorded from the study area including:

- Stag beetle, a Priority Species;
- Small heath, wall, white admiral, white letter hairstreak, cinnabar, oak hooktip, shaded broad-bar and small eggar; all Priority Species of butterfly or moth;
- Hornet mimic hoverfly, red-tailed cuckoo bumblebee, trimmer's mining bee, brown ant, *Anthocoris visci* (a true bug) and three species of true fly; all Nationally Notable species.

Site survey

2.4.7 The majority of the site (i.e. intensively managed agricultural habitats) are unlikely to support populations of notable invertebrates. Other habitats, such as woodland, hedgerows, ponds and watercourses, are likely to support a range of common and widespread invertebrate species; there is the potential that these habitats may also support notable species.

Amphibians

Desk Study

2.4.8 There are numerous records of great crested newt, a Priority Species which receives full legal protection, from the study area. The data search also identified records of smooth newt, common toad (a Priority Species) and common frog.

Site survey

2.4.9 The Extended Phase 1 Habitat survey identified a minimum of 28 ponds or other areas of standing water within the site, the majority of which provided suitable breeding habitat for amphibians. All Ecology recorded great crested newt presence in one pond within the site in 2014 (TN8, Figure 2). Environmental DNA (eDNA) surveys of ponds undertaken by EAD Ecology in 2016 confirmed the presence of great crested newt in a further three ponds (TNs 67, 68 & 69, Figure 2) within the site (EAD Ecology 2016a). There is the potential that that this species may also breed in other ponds within the site. Suitable terrestrial habitat (e.g. woodland, scrub, rough grassland) also occurred on site.

Reptiles

Desk Study

2.4.10 There are records of grass snake and slow-worm from the study area. These and other native reptiles are legally protected and Priority Species.

Site survey

2.4.11 Suitable habitat on site for reptiles occurred alongside hedgerows, in marshy and poor semi-improved grassland, tall ruderal and woodland edge, as well as along the margins of ponds and watercourses.

Birds

Desk Study

2.4.12 A diverse range of notable bird species have been recorded from the study area, many of which are wetland and coastal species associated with the Severn Estuary; a full list of these species is provided in Appendix 5. Previous records of notable species within the site boundary include mistle thrush, redwing and little egret. All breeding birds, their nests, eggs and young are legally protected; species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) receive additional protection; refer to Appendix 1.

Breeding birds

2.4.13 The site contained suitable habitat to support a wide assemblage of breeding birds typically associated with agricultural land, including notable species. A total of 45 species were recorded during a breeding bird survey undertaken by Enzygo in 2014 which covered part of the site. Twenty-seven species were confirmed breeding, of which eight were 'Species of Conservation Concern' (SOCC) (Eaton et al., 2015), although locations of breeding records could not be ascertained from the data. Notable records from within the site included:

- Barn owl (confirmed breeding), which is an Amber-listed SOCC. Barn owl is also listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and receives additional protection during the breeding season;
- House sparrow and starling (confirmed breeding), both Red-listed SOCC and Priority Species;
- Song thrush (probable breeding), a Red-listed SOCC and Priority Species; and
- Cuckoo and yellowhammer (possible breeders) both Red-listed SOCC and Priority Species.

Wintering birds

2.4.14 The site contained suitable habitat for a range of wintering bird species, including notable wetland species such as snipe and mallard which were recorded during the Extended Phase 1 Habitat survey. There was potential for waders including curlew, lapwing and golden plover to use the site for roosting and foraging. Arable field margins provided suitable wintering habitat for notable passerines (songbirds) associated with agricultural land such as skylark, linnet and yellowhammer.

2.4.15 A winter bird survey was undertaken by EAD Ecology in 2015/16 (EAD Ecology 2016b). This focused on wetland species in two areas: the intertidal zone on the eastern side of the Severn Estuary between Sharpness Dock and Berkeley Pill, which runs parallel to part of the western boundary of the site, and a subsection of the site to the south of Newtown. No wetland bird species were recorded within the subsection of the site during the course of the survey (with the exception of herring gull and lesser black-backed gull) although only a limited proportion of the site was covered by the survey.

2.4.16 The intertidal survey recorded a range of waterfowl species including the SPA species curlew, dunlin, redshank and shelduck. Of these, only redshank was recorded at above the 1% threshold of the Seven Estuary five-year peak mean count, with a maximum of 36 birds recorded, representing 1.1% of the Estuary population. Two 'assemblage species' of the SPA were also recorded at above the 1% threshold; teal (1.1%) and wigeon (4.5%). The surveys identified the Berkeley Pill area as the most sensitive to potential recreational disturbance; this area is used by roosting / loafing birds at high tide, including redshank, teal and wigeon. The proximity of this area to the Severn Way footpath suggests that there is a risk of disturbance to roosting birds from pedestrians and dog-walkers at high tide. These results reflect the SDC visitor survey (EPR, 2016) which states:

'The area around Berkeley Pill is thought to be used by birds as a small, occasional high tide roost. To the north, the area of foreshore between Berkeley Pill and Sharpness is thought to occasionally support high concentrations of certain species, and an area of land adjacent to the Estuary in this area is to be managed for the benefit of Lapwing and other waterbirds for the next 15 years. Visitor pressure in this area is currently relatively low'.

Badger

Desk Study

2.4.17 There are numerous records of badger from the study area. Badgers and their setts are legally protected.

Site survey

2.4.18 Although a detailed search for badgers was not undertaken during the Extended Phase 1 survey, seven badger setts, including three probable main setts, were recorded (TNs 4, 15, 24, 25, 26, 34 and 59, Figure 2). A number of prints and latrines were also noted. Grassland, woodland, scrub and hedgerows within the site provided suitable foraging habitat for badger; there is the potential that further setts may be present within the site.

Bats

Desk Study

2.4.19 Seven bat species have been previously recorded from the extended 4km study area: common pipistrelle, soprano pipistrelle, brown long-eared bat, lesser horseshoe bat, noctule, whiskered bat and Daubenton's bat; there were also a number of unidentified bat records. Roost records included a common pipistrelle roost within farm buildings on site, a whiskered bat roost adjacent to the western boundary of the site, and a long-eared bat sp. (presumed brown long-eared bat) maternity roost approximately 1km east of the site.

Site survey

2.4.20 The site contained suitable habitat for a range of bat species, with hedgerows, watercourses and woodland likely to be of particular value for commuting and foraging activity. Numerous trees and several buildings we considered to have 'high' (TN1, Figure 2) or 'moderate' (TN2) bat roost potential although a formal assessment of possible bat roosting habitat was not undertaken.

2.4.21 At least nine bat species were recorded during surveys of part of the site undertaken by Enzygo in 2014. These were common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, brown long-eared bat, whiskered/Brant's bat, Natterer's bat, Daubenton's bat and barbastelle. Common and soprano pipistrelle together represented 70% of all recordings. A roost containing a small number of common pipistrelles was also detected in a mature oak tree within the site (TN66, Figure 2).

Hazel dormouse

Desk Study

2.4.22 The data search did not identify any previous records of hazel dormouse, a legally protected Priority Species, from the study area.

Site survey

2.4.23 Four dormouse nests were recorded within the site during surveys undertaken by Enzygo in 2014 (Enzygo Ltd, 2015). It is assumed that dormice are present within suitable habitat (hedgerows, woodland and scrub) throughout the site.

Otter and water vole

Desk Study

2.4.24 There are numerous records of otter, and three records of water vole, from the study area. Both are legally protected Priority Species.

Site survey

2.4.25 Watercourses and wet ditches throughout the site provided suitable habitat for otter and water vole (e.g. TNs 3 & 38, Figure 2).

Other terrestrial mammals

Desk Study

2.4.26 There are records of brown hare, hedgehog and polecat from the study area; all are Priority Species. Common seal and grey seal have also been recorded from the study area, however these are marine mammals that would only occur on the Severn Estuary.

Site survey

2.4.27 Habitats on site were considered suitable for brown hare, hedgehog and polecat, and their presence was assumed.

3 Conclusion on suitability for development

3.1 Ecological constraints and opportunities

3.1.1 The emerging masterplan for the Sharpness Growth Point has been developed to reflect the ecological sensitivity of the area and ensure that it could be delivered in accordance with local and national planning policy. This includes the retention of key habitats, including hedgerows, woodland and watercourses, that would be linked to new green infrastructure to benefit a range of species and maintain and enhance wildlife corridors through the site. Built development would be set back from the estuary, and it is also proposed that the development would incorporate an extensive (c. 72ha) Suitable Alternative Natural Greenspace (SANG) designed to avoid potential adverse effects on the Severn Estuary European Sites. Further information on the proposed constraints and opportunities associated with the proposed development is provided below.

Designated sites of nature conservation importance

Severn Estuary European Sites

3.1.2 The presence of the Severn Estuary SAC/SPA/Ramsar Site immediately adjacent to the site presents the key ecological constraint to development. Proposals would need to ensure that the development did not affect the integrity of the interest features of the designated sites.

3.1.3 The emerging development proposals are being progressed in light of proposed avoidance measures identified in the Stroud Local Plan HRA (URS, 2014) and Severn Estuary Visitor Survey (EPR, 2016). Key to the successful delivery of the development would be the creation of the proposed SANG, located to the east of the estuary. The size of the SANG would enable a range of walking routes to be taken (>2.3km, in accordance with Natural England SANG guidelines (2008)), allow dogs to be exercised off the lead, and would be linked to the development and the existing public right of way network. Although the SANG would be close to the estuary, it would be set behind existing flood banks that would ensure that disturbance to birds would be avoided. Furthermore, the location of the SANG would provide opportunities to divert the existing route of the Severn Way away from the most sensitive sections of the estuary frontage, i.e. the area adjoining Berkeley Pill, which could reduce existing levels of disturbance in this area. It would also enable controlled access to view the estuary, providing residents with the benefits of the estuary environment whilst managing potential disturbance. Overall, it is considered that the careful design of the scheme could provide significant recreational benefits to new and existing residents, whilst effectively controlling potential increases in disturbance and also reducing existing disturbance levels to the sensitive parts of the estuary frontage.

3.1.4 Other avoidance measures that could be incorporated into the development in accordance with the Severn Estuary Visitor Survey (EPR, 2016) would include:

- *Education and awareness:* e.g. information boards and leaflets provided to all residents to explain the importance and sensitivity of the estuary.
- *Zoning and Byelaws:* These could require people to keep dogs on leads within sensitive areas and restrict access at certain times of the year.
- *Signage:* This could be provided both within the SANG and areas adjoining the estuary, to encourage appropriate use of the area.
- *Wardening:* A contribution towards wardening, covering the area around the proposed development and also the wider estuary, could provide education, encourage appropriate behaviour and enforce byelaws.

- *Parking:* Provision of parking as part of the proposed SANG could encourage use of this area, and hence divert recreational activity from the estuary.
- *Footpaths and infrastructure:* Provision of good quality infrastructure, such as surfaced footpaths, benches, gates and stiles within the SANG would encourage use of this area rather than less easily accessible parts of the Severn Way.

3.1.5 The masterplan also incorporates areas adjoining the estuary to provide specific SPA mitigation. It is proposed that this would be incorporated with the proposed SANG to deliver a range of habitat enhancements. This would include new wetland habitats suitable for waterfowl such as lapwing, and could be integrated with existing proposals for habitat management in the area (refer to Paragraph 2.4.16). Management could also include screening and seasonal access restrictions to ensure that potential disturbance to birds using these areas could be controlled.

3.1.6 In accordance with recommendations in the Severn Estuary Visitor Survey (EPR, 2016), the emerging development proposals would be informed by a range of information, including bird survey data for the adjoining estuary (including EAD Ecology, 2016b), visitor surveys of the adjacent estuary and existing Newtown Residents (including Cotswold Transport Planning, 2016a and b). In addition, a targeted disturbance study of the area could be undertaken to inform the development proposal and provide a baseline against which changes in disturbance could be monitored post-development. Consultation with Natural England and SDC on the emerging proposals would ensure effective delivery of avoidance measures, as outlined above.

3.1.7 Under the Conservation of Habitats and Species Regulations 2010 (as amended), it is likely that SDC would be required to produce a 'Habitats Regulations Assessment' (HRA) to establish whether there would be a 'likely significant effect' on the European Sites as a result of the development, and, should this be the case, whether this would affect the integrity of the interest features of the site. The applicant would be required to provide sufficient information to enable SDC to undertake the HRA, and would work with SDC and Natural England to ensure that the required measures were incorporated into the development to ensure that no significant effects on the Severn Estuary would occur.

Wye Valley and Forest of Dean Bat Sites SAC

3.1.8 Effects on Wye Valley and Forest of Dean Bat Sites SAC are considered unlikely, due to the distance of the proposed development site from the SAC and existing information on patterns of bat activity from the designated site (EAD Ecology, 2016c). Nonetheless, further consultation, survey and assessment would be required to confirm that there would be no likely significant effect on the SAC. The development could also incorporate measures to ensure that effects on bat populations were avoided (refer to Paragraph 3.1.15).

Other designated sites of nature conservation importance

3.1.9 Effects on other statutory and non-statutory designated sites are considered unlikely. Protection of key habitat features (refer to Paragraphs 3.1.11 to 3.1.13) would ensure that effects on KWS in the vicinity of the site would be avoided.

Habitats

3.1.10 The site contains a number of Priority Habitats and habitats of local importance, including semi-natural broadleaved woodland, running water, hedgerows (some of which may be ecologically 'important' under the Hedgerow Regulations 1997), ditches and ponds. The habitats of moderate to high ecological value that could constrain development include ditches, hedgerows (some of

which may be ecologically 'important'), running water (streams), scattered broadleaved trees, semi-natural broadleaved woodland and standing water (ponds); refer to Figure 2 for the locations of these habitats within the site. Other habitats are considered to be common and widespread and of low intrinsic ecological value.

3.1.11 The emerging development proposals incorporate integrated landscape and ecological principles that would ensure that key habitats within the site were retained and enhanced. Semi-natural broadleaved woodland and hedgerows would be retained and protected within the development and new woodland and hedgerow planting would enhance this ecological resource and provide connectivity. Where hedgerow loss was unavoidable, for example through the creation of site access, this would be mitigated through the creation of new species-rich native hedgerows integrated into the wider green infrastructure provision.

3.1.12 Ditches, watercourses and ponds would be retained and protected within the site layout. Development could be offset from these features to maintain and enhance their ecological value. If pond removal was unavoidable, it would be mitigated through new wetland creation.

3.1.13 Overall, it is considered that the provision of carefully designed green infrastructure, including multi-functional spaces incorporating parkland, woodland, hedgerows, wildflower meadow and wetland habitats, would increase habitat diversity within the site and reinforce the wildlife corridor network. This would be integrated with the proposed SANG, that would also include habitat features that would provide biodiversity enhancement for the development. Long-term management of these areas would be ensured through implementation of a Landscape and Ecological Management Plan (LEMP). This would ensure that the development would provide 'biodiversity gain' and would comply with biodiversity policies in the NPPF and Stroud District Local Plan.

Protected and notable species

3.1.14 A range of protected and notable species have been recorded on site including great crested newt, birds, bats, badger and hazel dormouse, and others such as reptiles may be present. The known and potential presence of the following protected/notable species could constrain development of the site:

- Invertebrates;
- Amphibians, including great crested newt;
- Reptiles;
- Breeding and wintering birds;
- Badgers;
- Bats;
- Hazel dormouse;
- Otter;
- Water vole.

3.1.15 The presence of any legally protected or notable species would be taken into account during development design, planning and subsequent requirement for Natural England Mitigation Licences (where relevant). Mitigation and enhancement measures could be integrated with both the layout and construction programme to ensure species protection and legal compliance. This could include, for example, the provision of new habitat features suitable for a range of protected and notable species, inclusion of wildlife features within new buildings such as bird and bat boxes, and control of lighting during and post-construction to ensure that 'dark corridors' would be maintained through the site, focused on retained created Green Infrastructure. Development

could, therefore, be undertaken in accordance with species-related biodiversity policies in the NPPF and Stroud District Local Plan; to Appendices 2 and 3.

Summary of potential constraints and opportunities

3.1.16 Overall, although there are ecological constraints to development, it is considered that there is potential that adverse effects could be mitigated by:

- Measures to ensure effects on the Severn Estuary designated sites were avoided, including SANG to divert recreational use from the estuary.
- The retention and protection of key habitats within the site.
- Implementation of an integrated landscape and ecological design linked to retained Green Infrastructure in the site that would increase habitat diversity and create robust wildlife corridors.
- Species-specific measures to avoid, reduce or compensate for adverse development impacts.
- Implementation of LEMP to secure effective long-term management of new and retained habitats.

3.1.17 Through the integration of ecological mitigation and enhancement measures into the development layout, it is considered that 'biodiversity gain' could be achieved. Accordingly, development could be undertaken in full compliance with biodiversity policies set out in the National Planning Policy Framework and Stroud District Local Plan, in addition to the legal protection of species.

3.2 Further surveys and assessment

3.2.1 A comprehensive programme of Phase 2 ecological surveys would be required to establish the distribution of protected/notable species within the site. This would include the following:

- Hedgerow survey (assessment against ecological criteria of the Hedgerow Regulations 1997);
- Invertebrate survey;
- Great crested newt survey;
- Reptile survey;
- Breeding bird survey;
- Wintering bird survey;
- Badger survey;
- Bat roost assessment of trees and buildings;
- Bat activity survey;
- Hazel dormouse survey;
- Otter and water vole survey.

3.2.2 The above survey information would provide a complete ecological baseline for the site, against which the ecological impacts of a proposed development would be assessed. An Ecological Impact Assessment (EcIA) or Ecology Chapter for an Environmental Statement (ES) would be produced to support a planning application for the site; this would be carried out in accordance with CIEEM Guidelines (2016) and BS 42020:2013 *Biodiversity – Code of Practice for Planning and Development*.

3.2.3 A Construction Ecological Management Plan (CEcoMP) and implementation of a LEMP would integrate habitat and species mitigation and enhancement measures that would be delivered

during construction and operational phases respectively. These documents would either be included in the planning application or produced subsequently to satisfy relevant planning conditions.

3.2.4 Assessment of potential effects to the Severn Estuary European designated sites are also likely to require further visitor and local resident surveys to assess current levels of visitor usage on the Severn and predict likely changes associated with development.

3.3 Consultation

3.3.1 Preliminary consultation with SDC and Natural England has been undertaken to discuss the principles of development at this location in respect of the Severn Estuary European Sites. Furthe consultation with these parties would be undertaken to agree:

- The scope of information required to assess the effects of any future development and enable SDC to undertake HRA of development proposals, including details of avoidance and mitigation measures to ensure no likely significant effects on the Severn Estuary European designated sites.
- The proposed scope of surveys and assessment to inform a planning application.
- Habitat and/or species-specific mitigation strategies during the development of the Masterplan.

3.3.2 A separate Technical Note has been prepared by EAD Ecology to provide a preliminary scope of work to inform discussions with SDC and NE in relation to potential recreational effects on the Severn Estuary European Sites (EAD Ecology, 2017).

4 References

All Ecology (2014) *Land at Sharpness - Great Crested Newt Survey.*

BS 42020:2013 *Biodiversity - Code of practice for planning and development*. BSI, London.

CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition.* Chartered Institute of Ecology and Environmental Management, Winchester.

CIRIA (2001) *Control of water pollution from construction sites. Guidance for consultants and contractors (C532)*. CIRIA.

Cotswold Transport Planning (2016a) *Land at Bays Hill, Newtown, Berkeley, Gloucestershire: Newtown Household Survey Summary Report*. Report to GreenSqaure Group.

Cotswold Transport Planning (2016b) *Land at Bays Hill, Newtown, Berkeley, Gloucestershire: Severn Way Visitor Survey Summary Report*. Report to GreenSqaure Group.

Department for Communities and Local Government (2012) *National Planning Policy Framework.* Department for Communities and Local Government, London.

EAD Ecology (2016a) *Ecological Impact Assessment – Land at Saniger Lane, Newtown, Sharpness, Gloucestershire.* Report to GreenSquare Group.

EAD Ecology (2016b) *Winter bird surveys – Land at Sharpness, Gloucestershire.* Report to GreenSquare Group.

EAD Ecology (2016c) *Habitats Regulations Screening Report – Land at Saniger Lane, Sharpness, Gloucestershire.* Report to GreenSquare Group.

EAD Ecology (2017) Sharpness Growth Point: Severn Estuary European Sites – scope of information to inform initial screening of recreational effects. Technical Note on behalf of GreenSquare Group.

EPR (2016) *Severn Estuary (Stroud District) Visitor Survey Report.* Report to Stroud District Council.

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

Enzygo Ltd (2014a) *Bat Activity and Tree Roost Surveys – Proposed Development at Sharpness, Gloucestershire.* Report to GreenSquare Group.

Enzygo Ltd (2014b) *Breeding Bird Survey – Mixed Development at Severn Meadows.* Report to GreenSquare Group.

Enzygo Ltd (2015) *Dormouse Presence/Likely Absence Survey – Mixed Development at Severn Meadows.* Report for GreenSquare Group, August 2015.

Institute of Environmental Assessment (1995) Guidelines for baseline ecological assessment. Chapman and Hall (Spon).

JNCC (2010) *Handbook for Phase 1 Habitat Survey: a technique for environmental audit*. JNCC, Peterborough.

Natural England (2008) *Guidelines for the Creation of Suitable Alternative Natural Greenspace*.

Stroud District Council (2006) Stroud District Local Plan

Stace CA (2010) *New Flora of the British Isles.* Cambridge University Press.

URS (2014) *Stroud Local Plan Habitat Regulations Assessment*. Report to Stroud District Council.

Figure 1: Site Location Plan

0 100 200 500m

Hinton
Ironwells Grove
Issues
Hinton Cottage
Hinton Farm
Sunnybrook Farm
Mud
Lock
Basin
Sand & Mud
Sharpness Point
Mud
Viaduct
Swing-bridge
The Hollybush
Longleaze
Drain
Path
Works
Collett Quay
Cullis Quay
Swing-bridge
Coal Yard
Sharpness
Warehouses
BRIDGE ROAD
The Malthouse
Luggs Farm
Mean Low Water
Mean High Water
Mud
Track
DOCK ROAD
Warehouses
Dismantled Railway
Brookend Farm
Damesdown
Dry Dock
Lock
Tidal Basin
Pier
Mud
Hall
GLOUCESTER ROAD
OAKFIELD WAY
CHURCH LA
Hall
Allot Gdns
Brookend
Green Acres
Depot
Works
Mud
Pier
Allot Gdns PW
NEW STREET
GLOUCESTER ROAD
PO
BAYS HILL
Buckells Hill Farm
Slsons House
Stambourne Villas
Sugar-loaf Villa
School
Newtown
Vinecroft
Wanswell
Butler's Farm
Halnses
Pitbrook
Mean Low Water
Mean High Water
Mud
Sewage Works
Sanlger Farm
Sanlger Cottages
SANLGER LANE
Rookery Farm
The Vines
Holywell Sprlng (Resr)
Sls
Mud
Breakwater
Hertsgrove Farm
School
Panthurst Farm
Kennels
Path
Penny Grove
Panhurst Cottage
Oakhunger House
Oakhunger Farm
Abwell
Pav
Cricket Ground
Mud
Tidal Basin
Spr
Abwell Farm
Tk
Breakwater
Tintock Bungalow
Tintock Wood
FB
Track
Reservoir (covered)
Issues
Path
El Sub Sta
Westfield Brake
Berkeley Station (dis)
Depot
Watermeadow
Drain
Mud
Berkeley Pill
Track
The Fishers
Wickselm
Track
Drain
Path
Keepers Lodge
Hook Street Covert
Lynch Vale Caravan Park
Hook Street House
Hook Street
Hook Street Farm
Sports Ground
Pav
Playing Field
Works
OAKHUNGER LANE
Allot Gdns
Oakhunger
Lynch
Sch
Avon Lodge
Hamfield
LYNCH ROAD
Path

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REV	DATE	DESCRIPTION	BY

01. SKETCH
02. CLIENT APPROVAL
03. PLANNING
04. TENDER
05. CONSTRUCTION
06. AS BUILT

DRAWING STATUS : 01

01. PRELIMINARY
02. FOR COMMENT
03. FOR APPROVAL

OTHER : 01

CLIENT : Greensquare Group

PROJECT : Sharpness SALA

DRAWING TITLE : Red Line Boundary

DAVIESLANDSCAPE ARCHITECTS
Suite F1, Stroud House, Russell Street, Stroud, Gloucestershire, GL5 3AN
t. 01453 760380 e. info@d-l-u.co.uk w. www.d-l-u.co.uk

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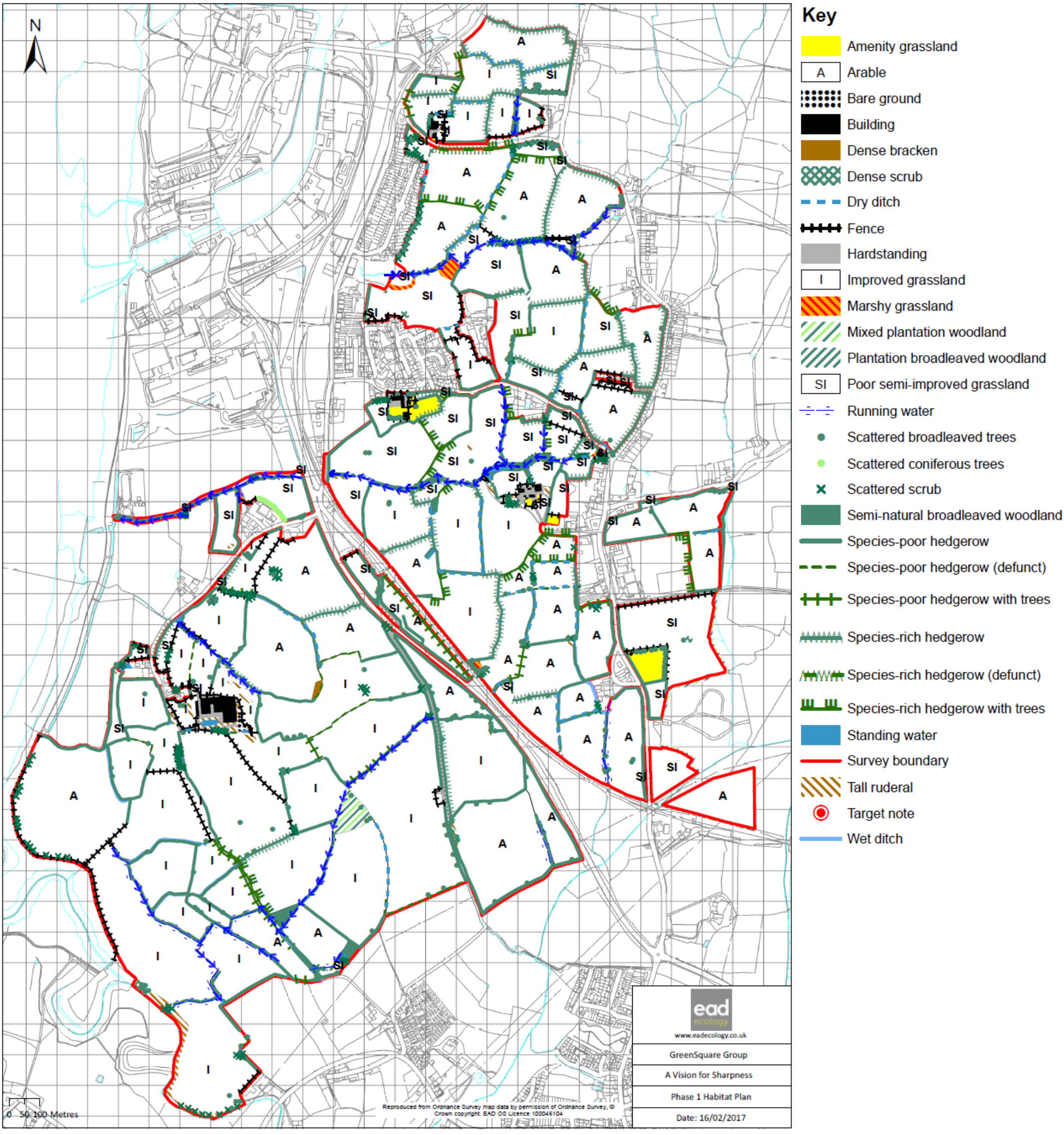
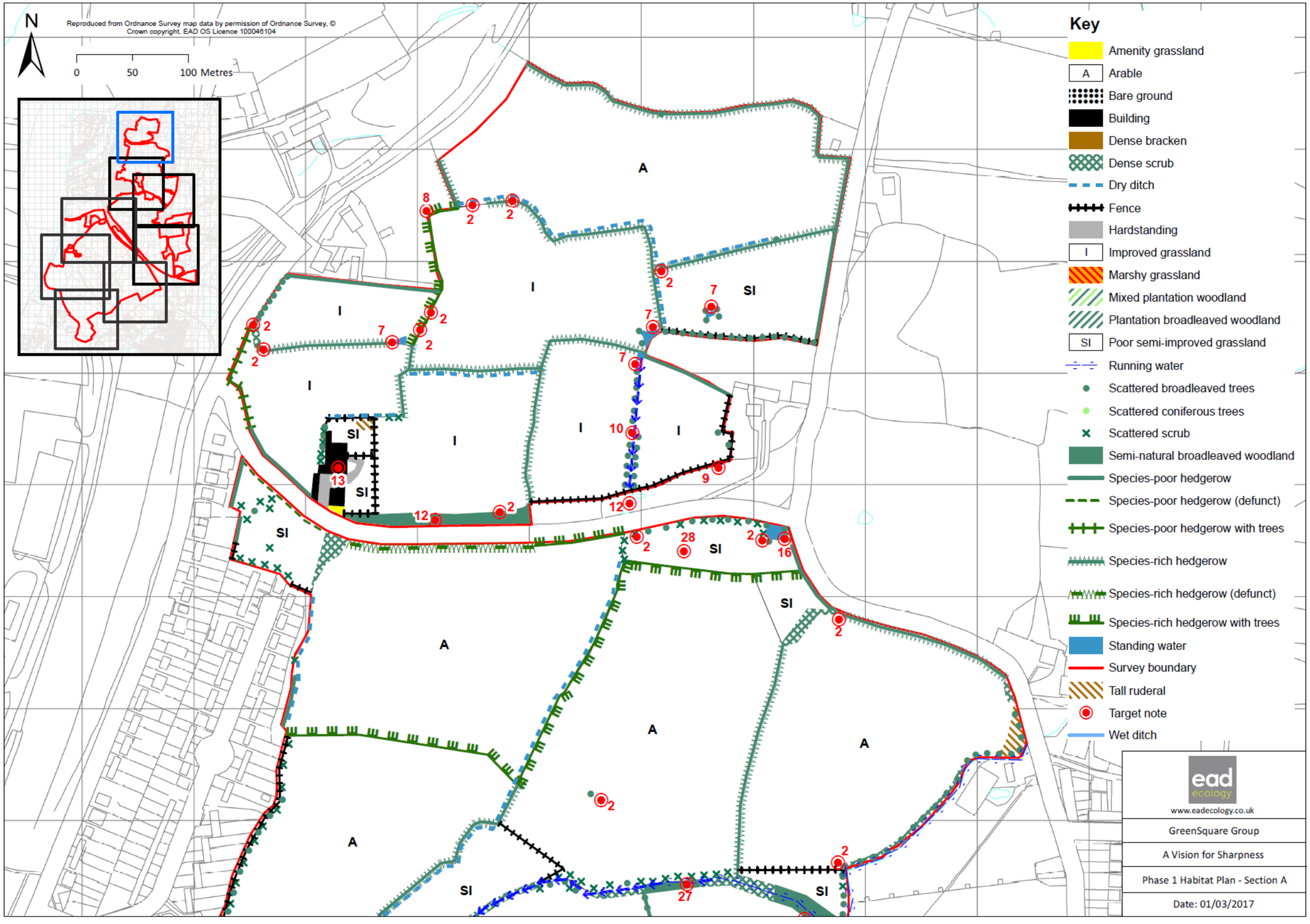
Figure 2: Phase 1 Habitat Plan, target notes and photographs

Phase 1 Habitat Plan - overview

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Standing water
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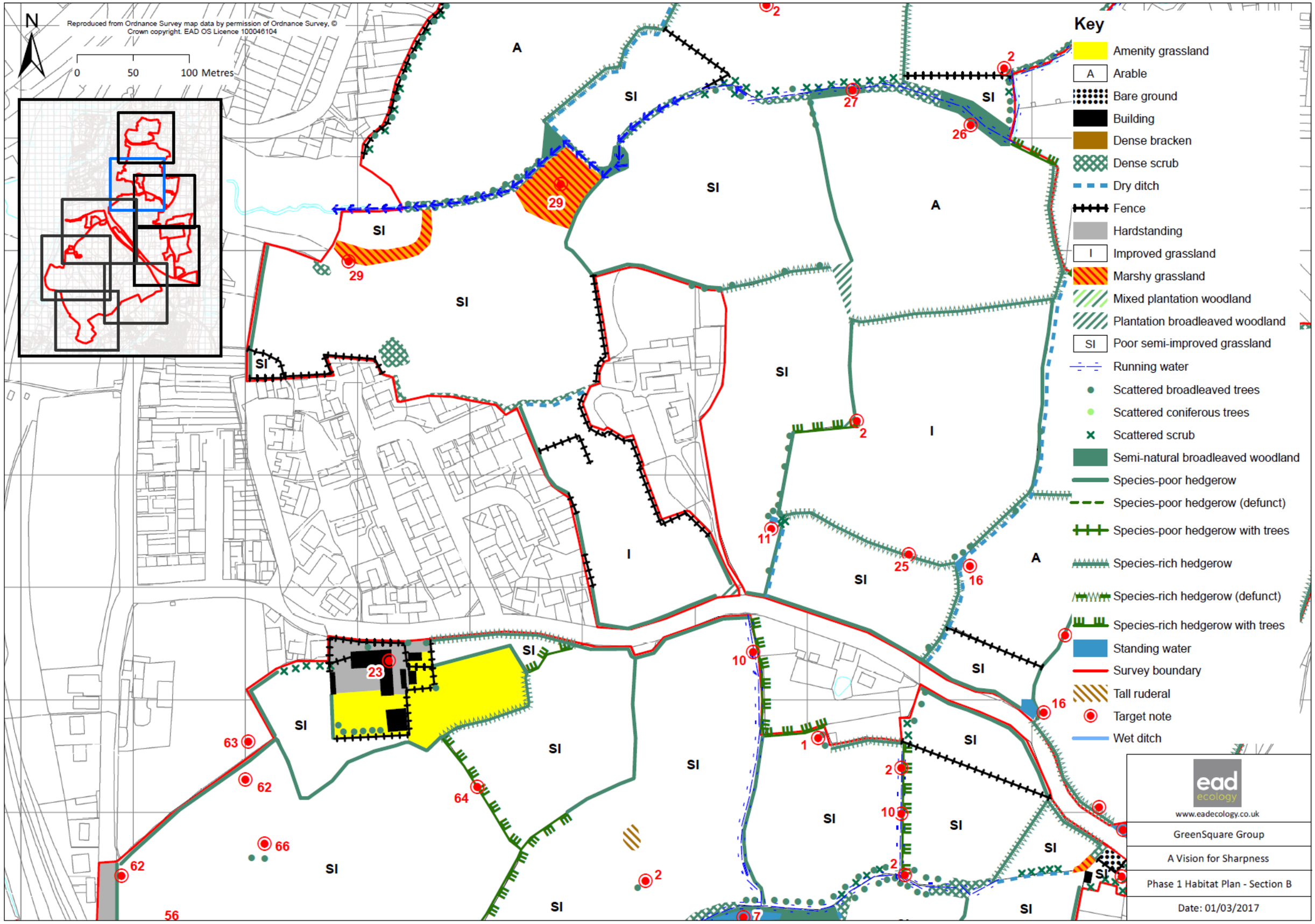
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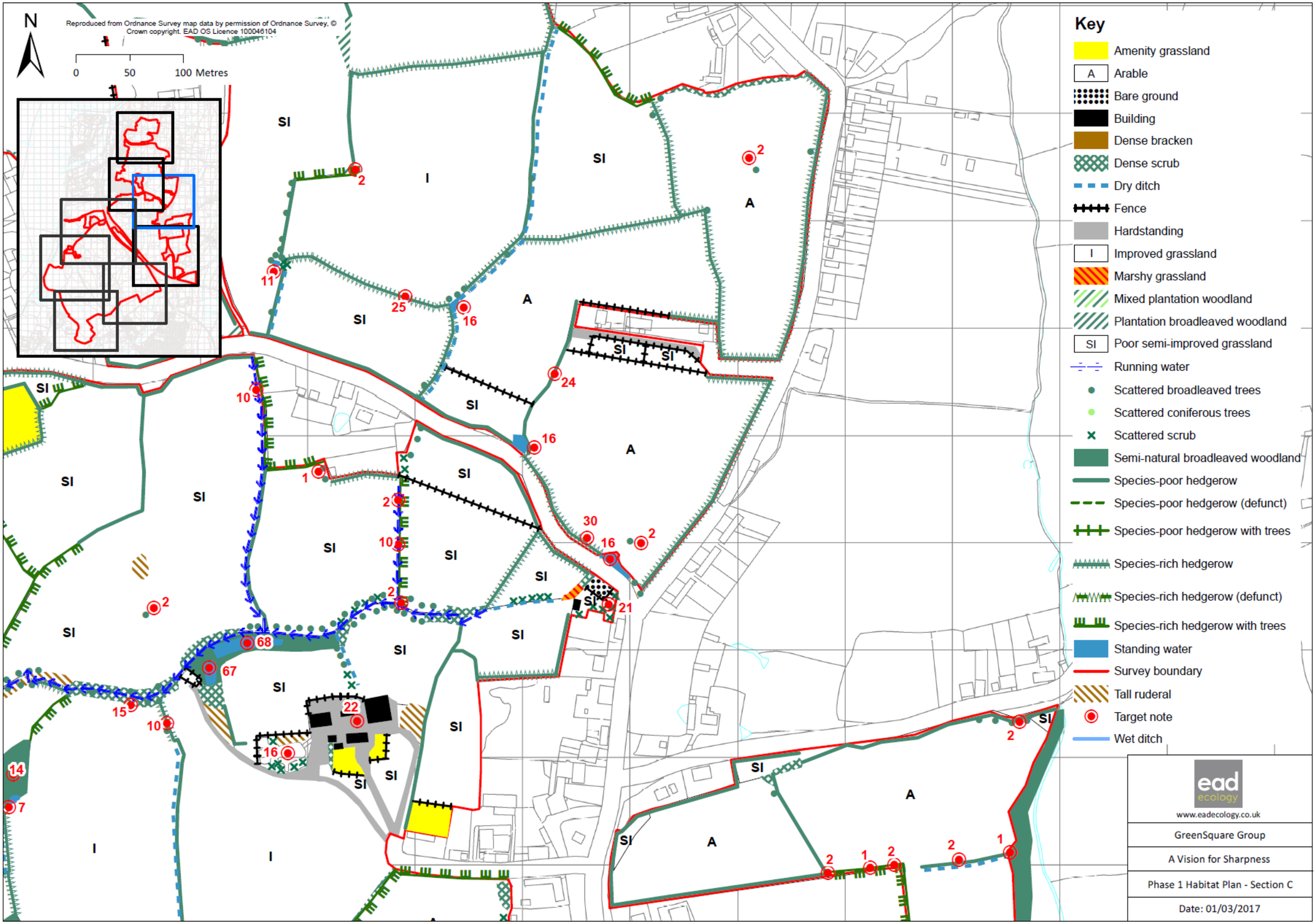
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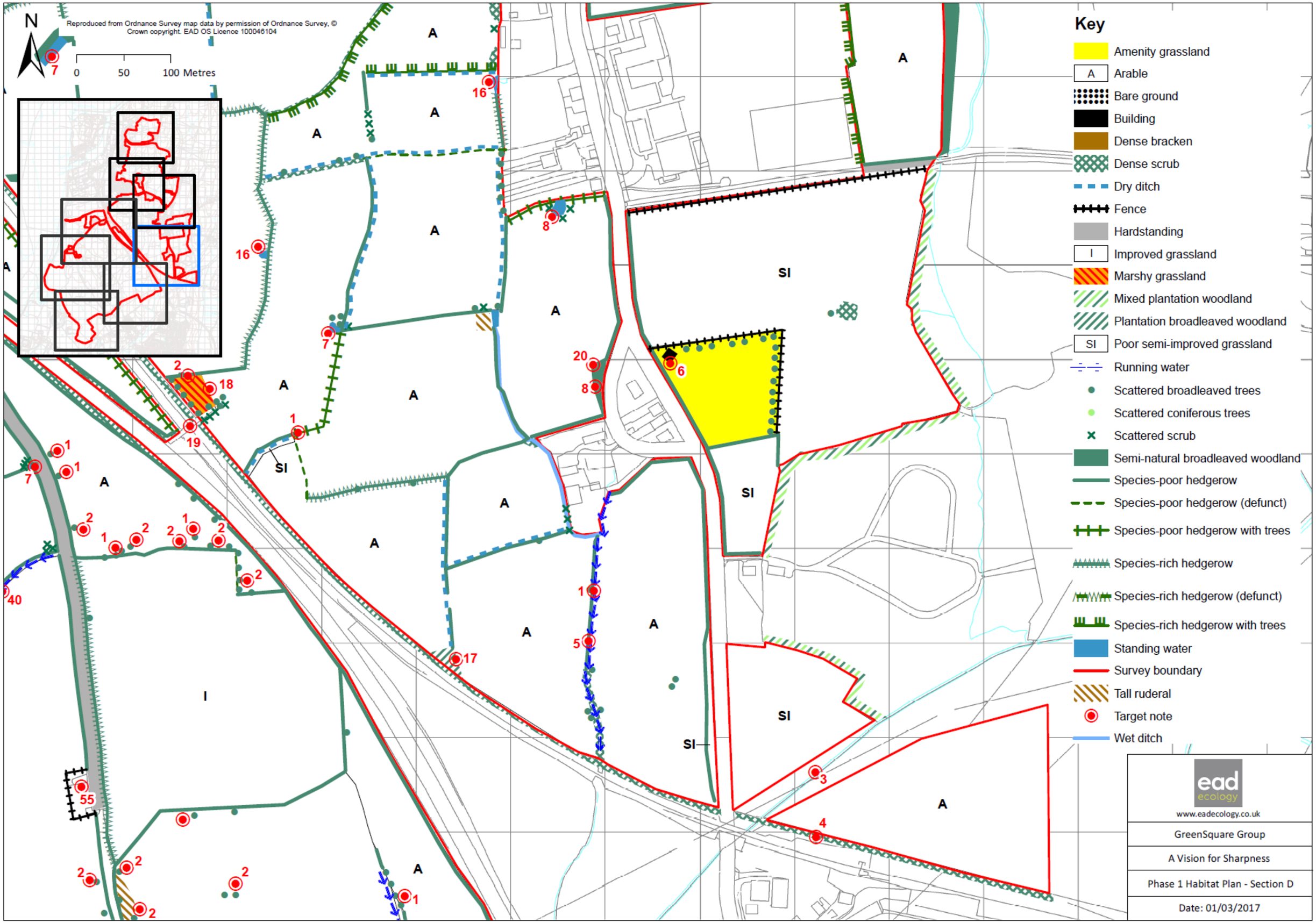
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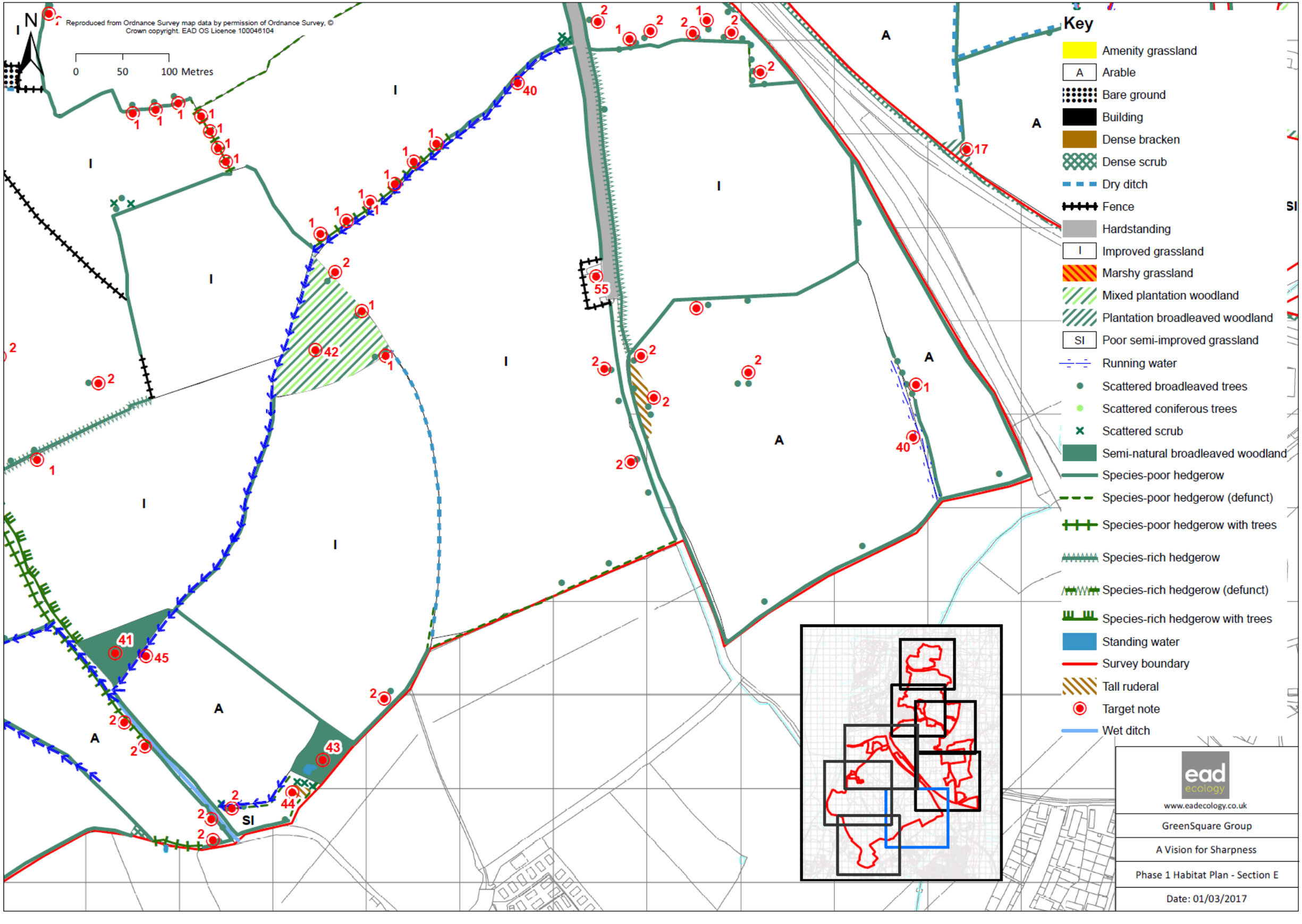
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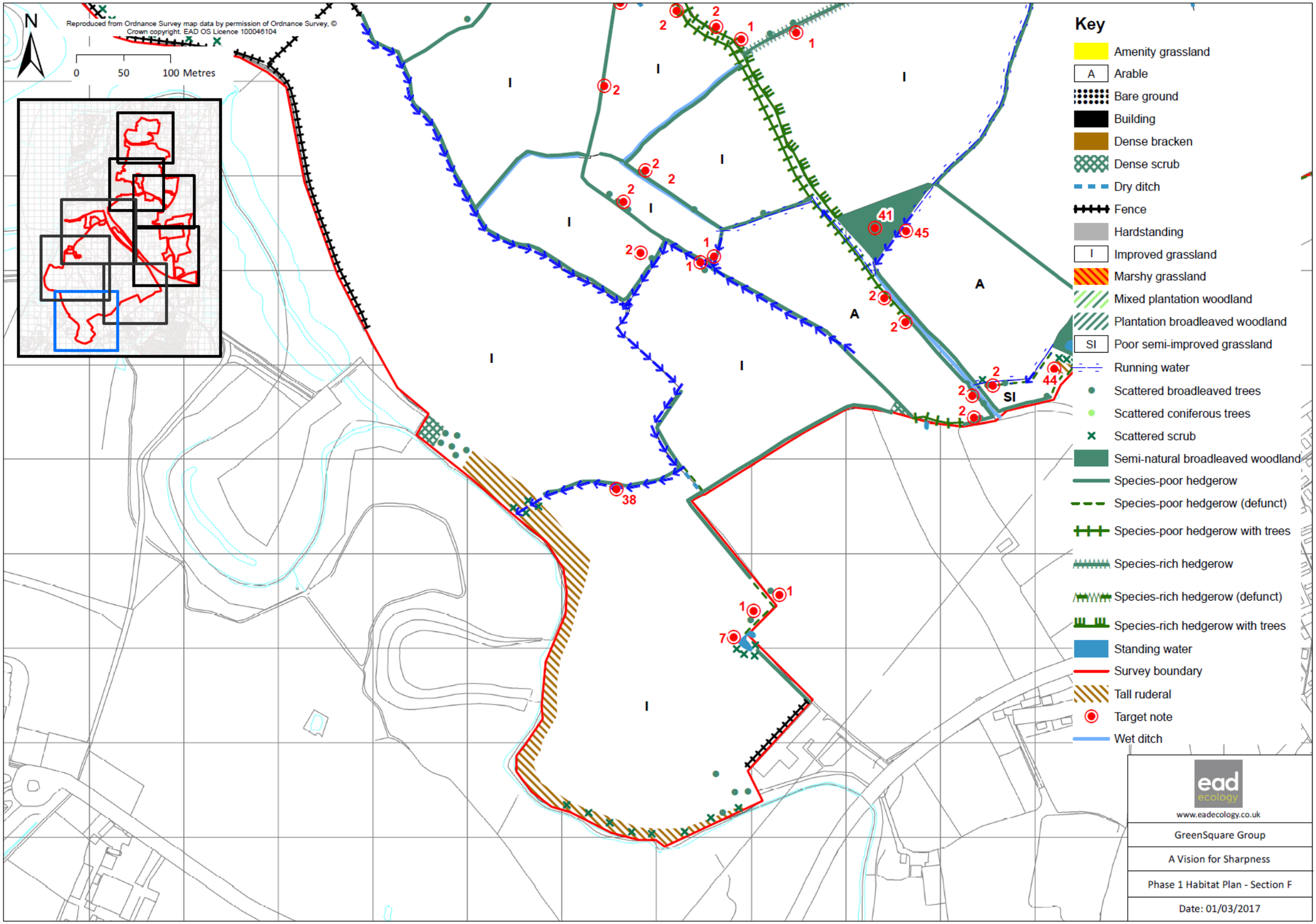
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SI Poor semi-improved grassland
Running water
Scattered broadleaved trees
Scattered coniferous trees
Scattered scrub
Semi-natural broadleaved woodland
Species-poor hedgerow
Species-poor hedgerow (defunct)
Species-poor hedgerow with trees
Species-rich hedgerow
Species-rich hedgerow (defunct)
Species-rich hedgerow with trees
Standing water
Survey boundary
Tall ruderal
Target note
Wet ditch
ead ecology
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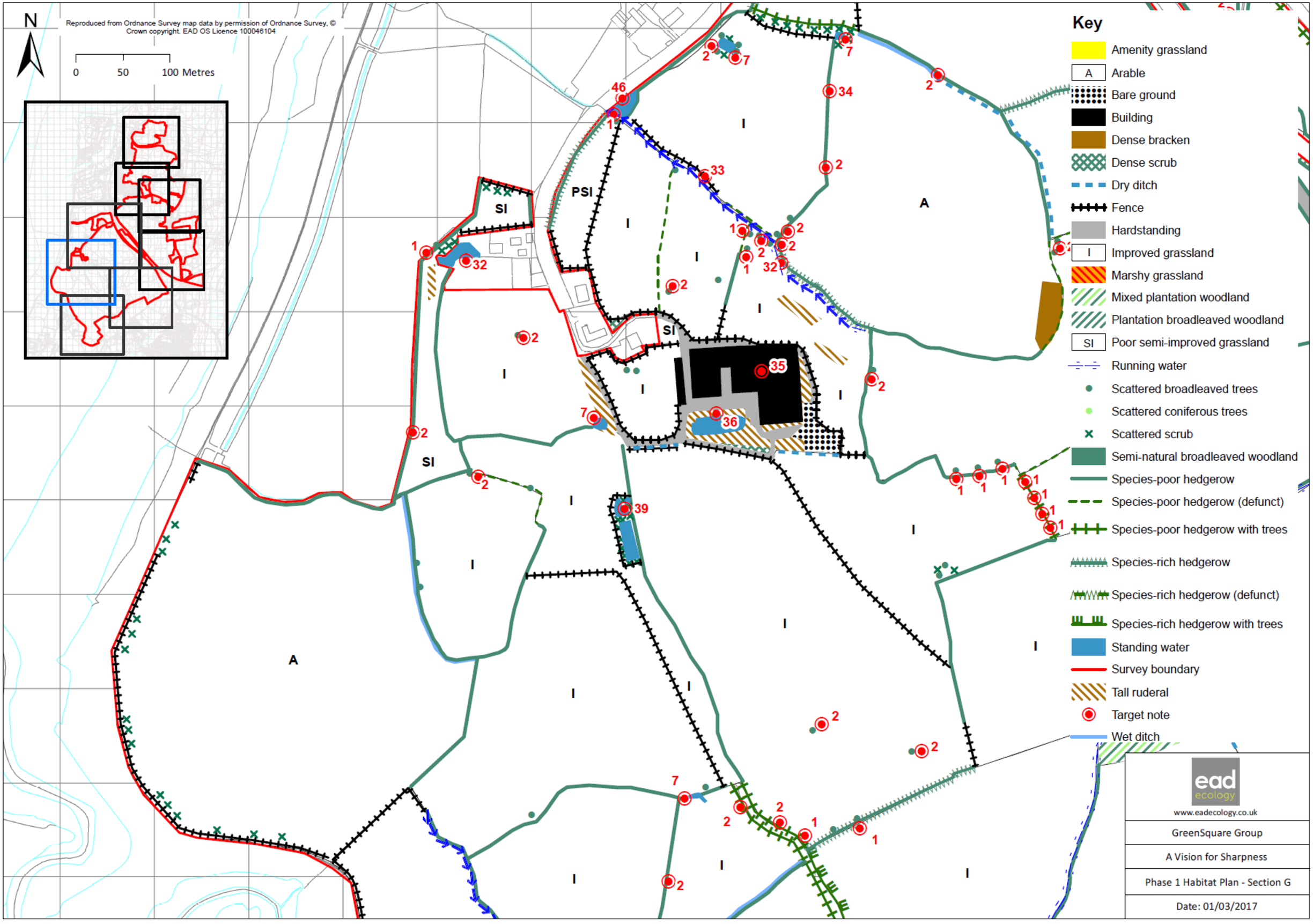
GreenSquare Group
A Vision for Sharpness
Phase 1 Habitat Plan - Section F
Date: 01/03/2017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Dense scrub
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Marshy grassland
Mixed plantation woodland
Plantation broadleaved woodland
Poor semi-improved grassland
Running water
Scattered broadleaved trees
Scattered coniferous trees
Scattered scrub
Semi-natural broadleaved woodland
Species-poor hedgerow
Species-poor hedgerow (defunct)
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Tall ruderal
Target note
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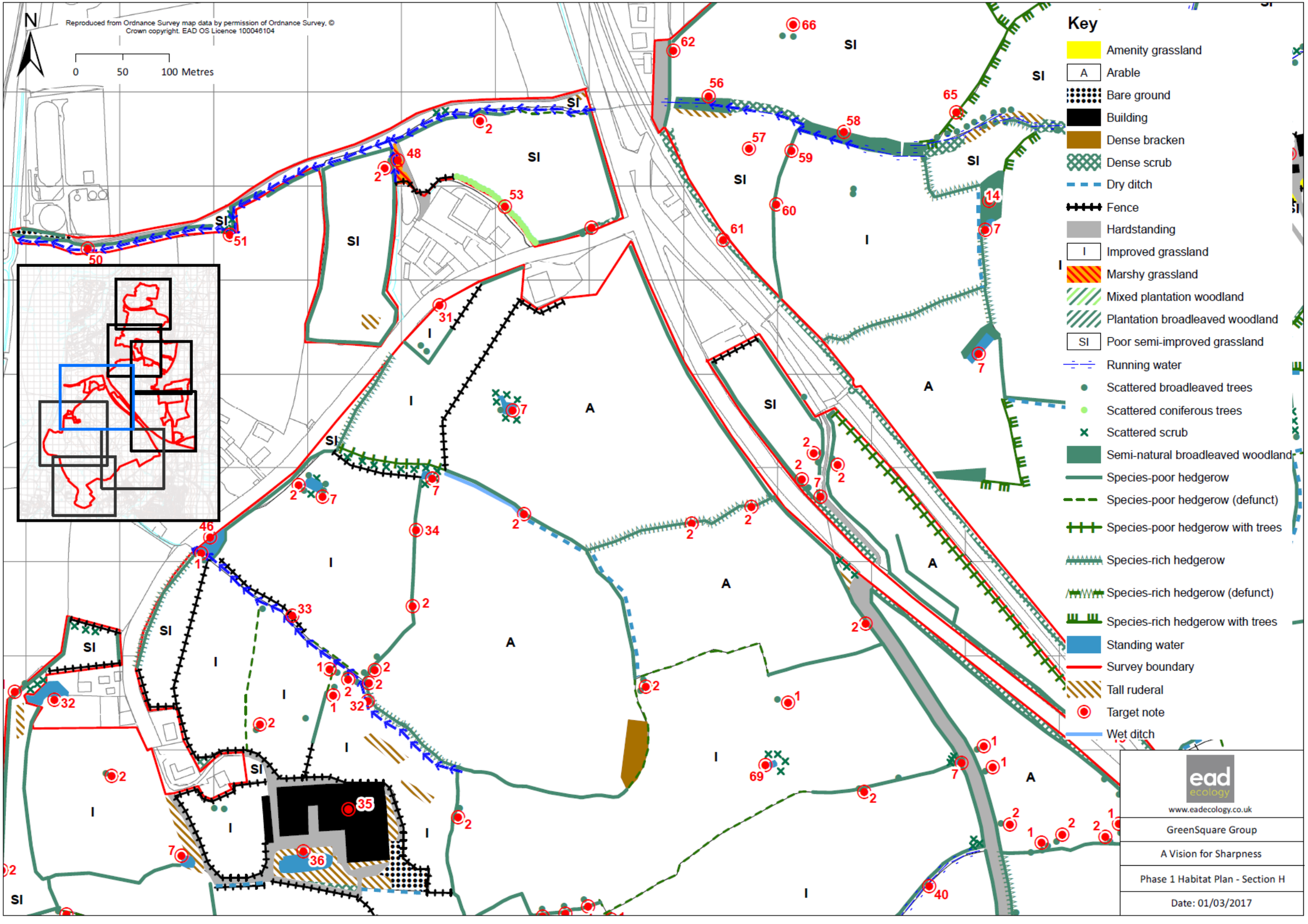
GreenSquare Group
A Vision for Sharpness
Phase 1 Habitat Plan - Section G
Date: 01/03/2017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Hardstanding
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Mixed plantation woodland
Plantation broadleaved woodland
SI Poor semi-improved grassland
Running water
Scattered broadleaved trees
Scattered coniferous trees
Scattered scrub
Semi-natural broadleaved woodland
Species-poor hedgerow
Species-poor hedgerow (defunct)
Species-poor hedgerow with trees
Species-rich hedgerow
Species-rich hedgerow (defunct)
Species-rich hedgerow with trees
Standing water
Survey boundary
Tall ruderal
Target note
Wet ditch
ead ecology
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A Vision for Sharpness
Phase 1 Habitat Plan - Section H
Date: 01/03/2017

Target note number	Description
1	Tree with 'high' bat roost potential (example). 
2	Tree with 'moderate' bat roost potential (example). 

3	Wet ditch with steep, well-vegetated banks recently trimmed. No obvious emergent vegetation. Potential otter and water vole habitat. 
4	Likely main badger sett with 6+ well-used entrances in railway embankment. 
5	Shallow stream with stony substrate flowing adjacent to hedge. No emergent vegetation. Low potential for otter and water vole.
6	Cricket pavilion. Modern, brick-built with pitched slate roof. Two ridge tiles damaged/missing. Likely low bat roost potential.

7	Pond, heavily shaded, limited emergent vegetation. Suitable amphibian breeding habitat. 
8	Ephemeral pond; dry at time of survey.
9	Barn owl nest box; no visible evidence of recent occupation.
10	Very shallow stream flowing adjacent to line of trees/hedge. Muddy substrate, no emergent vegetation. Low potential for otter and water vole.
11	Pond (adjacent to site), partly shaded, abundant emergent vegetation including bulrush and watercress. Suitable amphibian breeding habitat.
12	Semi-natural broadleaved woodland along southern boundary of field. Frequent holly, English oak, field maple, occasional poplar sp., elm sp. and hazel. Ground flora dominated by ivy with some ferns including harts-tongue.
13	Farm buildings including renovated farmhouse, modern open-fronted barns and old dilapidated barns with likely bat/barn owl potential.

	
14	Woodland copse dominated by English oak with understorey of holly and hazel.
15	Main badger sett with 25+ well-used entrances along southern side of watercourse along wooded bank, extending south-east into field.
16	Pond, partly shaded with some emergent vegetation including floating sweet grass. Suitable amphibian breeding habitat.
17	Young stand of plantation woodland with frequent English oak, elm, hazel, hawthorn and ash. Occasional primrose noted amongst ground flora.
18	Marshy grassland dominated by Yorkshire-fog and soft rush. Tussocky; suitable habitat for reptiles.
19	Old brick bridge over railway adjacent to site; possible bat roost potential.
20	Small stand of semi-natural broadleaved woodland. Canopy dominated by English oak and sycamore, understorey included holly and hazel, ground flora dominated by ivy with some ferns.
21	Smallholding with chicken runs, paddocks, sheds (negligible bat roost potential).
22	Farm buildings including stone-built farmhouse and dilapidated barn with possible bat and barn owl potential.
23	School buildings with likely low to moderate bat roost potential.
24	Badger sett with at least three active and three partly-active entrances.
25	Badger sett with one active and one partly-active entrance.
26	Main badger sett with 20+ entrances, the majority active.
27	Slow-flowing watercourse with muddy substrate and limited emergent vegetation. Wooded banks.

28	Poor semi-improved grassland, possibly of moderate species richness. Suitable for widespread reptiles. 
29	Marshy grassland with abundant soft rush, Yorkshire-fog and creeping buttercup.
30	Badger latrine.
31	Outbuilding with moderate/high bat roost potential.
32	Slow-flowing stream, 1m wide and 5cm deep with muddy substrate, heavily shaded. Bank vegetation included ivy, common nettle, hemlock water dropwort.
33	Watercourse, unshaded with banks containing hogweed, common nettle, hard rush and broadleaved dock
34	Badger sett with 10 entrances (six active, four partly-active), bedding and prints.
35	Agricultural sheds with low bat roost potential.
36	Slurry pit; emergent vegetation dominated by bulrush, surrounded by tall ruderal vegetation. Suitable amphibian breeding habitat.
37	Man-made drainage pond. Bulrush in margins, partly shaded by willows. Suitable amphibian breeding habitat.

	
38	Slow-flowing stream, 1m wide and 20cm deep with a silt substrate. Steep grassy banks, limited emergent vegetation. Suitable otter and water vole habitat.
39	Man-made irrigation ponds with scrub margins containing alder.
40	Slow-flowing stream, 30cm wide and 5m deep, in ditches up to 2m deep. Covered by common nettle and hogweed, shaded by hedgerow.
41	Semi-natural broadleaved woodland dominated by English oak with occasional ash. Limited understorey included hawthorn, blackthorn and ash. Ground-flora contained ivy, common nettle and bramble. Trees with moderate to high bat roost potential.

	
42	Mixed plantation woodland with a canopy of silver birch, poplar, larch and oak. Dense understorey of hawthorn and blackthorn. Ground-flora dominated by bramble with occasional soft shield fern.
43	Semi-natural broadleaved woodland dominated by English oak with occasional ash. Understorey comprised blackthorn, hawthorn, bramble and elder. Ground-flora included ivy, soft shield fern and harts-tongue. Pond present, heavily shaded and scrub covered with limited amphibian breeding potential.
44	Scrub and tall ruderal adjacent to manure piles. Suitable reptile habitat.
45	Himalayan balsam.
46	Well vegetated pond with slow-flowing stream running through it. Heavily shaded by adjacent trees. Suitable reptile habitat.
47	Poor semi-improved grassland verge.
48	Very slow-flowing stream, 1.5m wide and 20cm deep with silt substrate. Steep grassy banks with common nettle and hogweed.
49	Dense bramble scrub with common reed.

	
50	Track bordered by species-poor intact hedgerows.
51	Poor semi-improved grassland verge adjacent to tarmac track and hedgerow.
52	Slow-flowing stream, 1m wide and 20cm deep with silt substrate. Limited emergent vegetation. Steep grassy banks.
53	Line of mature Leyland cypress trees 7m tall.
54	Poor semi-improved grassland verge with small section of tall ruderal.
55	Electricity sub-station.
56	Slow-flowing stream c.50cm wide, <5cm deep. Stream bed mud / sediment with no significant in-channel vegetation evident, some marginal hemlock water-dropwort. Corridor lined with mature crack willow at its western; ground-flora along the wooded section dominated by nettle and bramble scrub, with some hart's-tongue, lords-and-ladies, creeping thistle and some lesser celandine. Willow trees included a number of broken limbs, splits and cracks; low-moderate bat roost potential. Eastern (upstream) section unwooded and dominated by hemlock water-dropwort and bramble with reed canary-grass.
57	Poor semi-improved grassland, damp in places. Species include perennial ryegrass, Yorkshire fog, cocksfoot, creeping buttercup, meadow buttercup, broadleaved dock and occasional soft rush.
58	Broadleaved woodland along stream channel with mature ash, oak and crack willow; some trees of at least moderate bat roost potential. Shrub species include holly, hawthorn and hazel, ground-flora included bluebell, lesser celandine, hart's-tongue, lords-and-ladies and hemlock water-dropwort.

	
59	Partially used outlier badger sett with single hole. Leaf litter and some cobwebs in hole, but well-worn paths pass close to entrance.
60	Unmanaged, species-poor hedgerow with leggy semi-mature woody species <6m; blackthorn, elder, rose sp. and ash; also ivy, nettle and bramble.
61	Belt of dense scrub adjoining railway line. Hawthorn, blackthorn, elder, elm, rose sp., ivy, nettle and bramble.
62	Trimmed blackthorn / hawthorn dominated species-poor hedgerow, with occasional ash, elder and holly. Ground-flora included lords-and-ladies, occasional bluebell and greater stitchwort.
63	Dead Scots Pine with low bat potential.
64	Hedgerow on hedgebank with some mature and semi-mature trees; ash, oak, field maple and holly. Ground-flora included bluebell, lords-and-ladies and lesser celandine. Mature oak present with a number of broken / cracked limbs, at least moderate bat potential; mature ash with low to moderate bat potential.
65	Hedgerow with trees along shallow ditch containing a small amount of slow-flowing water. Occasional semi-mature to mature ash and willow, otherwise mainly hawthorn and blackthorn. Ground-flora included ivy, primrose, soft shield fern, lesser celandine and honeysuckle. Three mature oak towards southern end with some broken limbs, ivy cover and at least one woodpecker hole; at least moderate bat roost potential.

	
66	Two mature oak with a number of openings / cavities; moderate to high bat roost potential.
67	Pond with presence of great crested newt confirmed by eDNA survey in 2016.
68	Pond with presence of great crested newt confirmed by eDNA survey in 2016.
69	Pond with presence of great crested newt confirmed by eDNA survey in 2016.

Appendix 1: Species legislation

Invertebrates

A number of UK invertebrates are protected by international and national legislation, including the EC Habitats Directive (1992) and the Wildlife and Countryside Act 1981 (as amended). In addition, numerous species are Priority Species.

Plants

All wild plants are protected against unauthorised removal or uprooting under Section 13 of the Wildlife and Countryside Act 1981 (as amended). Plants listed on Schedule 8 of the Act (e.g. stinking goosefoot, red helleborine, monkey orchid) are afforded additional protection against picking, uprooting, destruction and sale. Bluebell (*Hyacinthoides non-scripta*) is protected against sale only. Further species are also protected under the Conservation of Habitats and Species Regulations 2010 (as amended).

Notable plant species include those that are listed as:

- Nationally vulnerable – A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A-E for Vulnerable, and is therefore considered to be facing a high risk of extinction in the wild (Cheffings C M & Farrell L (Eds) (2005) *Species Status No. 7 – The Vascular Red Data List for Britain*, JNCC (online)
- Nationally scarce – species recorded in 16-100 hectads in Great Britain
- Nationally rare – species occurring in 15 or fewer hectads in Great Britain

Section 14 of the Wildlife and Countryside Act 1981 (as amended) prohibits the planting of certain invasive plant species in the wild, or otherwise causing them to grow there. Prohibited plants are listed on Part 2 of Schedule 9 and include Japanese knotweed, Himalayan balsam and giant hogweed.

Amphibians

There are seven native amphibian species present in Britain. These are afforded varying degrees of protection under national and European legislation. Great crested newts and their habitat are afforded full protection under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way (CRoW) Act 2000 and the Conservation of Habitats and Species Regulations 2010 (as amended). Together, this legislation makes it illegal to:

- Deliberately capture, injure or kill a great crested newt.
- Damage or destroy any place used for shelter or protection, including resting or breeding places; or intentionally or recklessly obstruct access to such a place.
- Deliberately, intentionally or recklessly disturb great crested newts.

Great crested newt and common toad are Priority Species.

Reptiles

Slow-worm, viviparous/common lizard, adder and grass snake are protected under the Wildlife and Countryside Act 1981 (as amended) against intentional killing and injuring. These species are also Priority Species.

Birds

The bird breeding season generally lasts from March to early September for most species. All birds are protected under the Wildlife and Countryside Act (1981) (as amended) and the Countryside & Rights of Way (CRoW) Act 2000. This legislation makes it illegal, both intentionally and recklessly, to:

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

Furthermore, birds listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended) are protected against intentional or reckless disturbance whilst nest building and when at or near a nest containing eggs or young. Dependent young of Schedule 1 species are also protected against disturbance.

In addition to this legal protection, the leading governmental and non-governmental conservation organisations in the UK have reviewed the population status of the birds regularly found here and produced a list of birds of conservation concern. Of the 244 species assessed, 67 were placed on the Red List of high conservation concern, 96 on the Amber List of medium conservation concern and 81 on the Green List of low conservation concern:

- Red list species are those that are Globally Threatened according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery.
- Amber list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; and those with internationally important or localised populations.

Badgers

Badger (*Meles meles*) is a widespread and common species. However, they are legally protected under The Protection of Badgers Act 1992, due to animal welfare concerns. Under this legislation it is illegal to:

- Wilfully kill, injure, take, or cruelly ill-treat a badger, or attempt to do so.
- Intentionally or recklessly interfere with a sett by disturbing badgers whilst they are occupying a sett, damaging or destroying a sett, or obstructing access to it.

A badger sett is defined in the legislation as "*any structure or place, which displays signs indicating current use by a badger*".

Bats

There are 18 species of bats found in the UK, 17 of which are known to breed here. The conservation status of these species is summarised in the table below:

Common name	Scientific name	IUCN category	Priority Species
Greater horseshoe	*Rhinolophus ferrumequinum*	LC	Yes
Lesser horseshoe	*Rhinolophus hipposideros*	LC	Yes
Daubenton's	*Myotis daubentonii*	LC	No
Brandt's	*Myotis brandtii*	LC	No
Whiskered	*Myotis mystacinus*	LC	No
Natterer's	*Myotis nattereri*	LC	No

Common name	Scientific name	IUCN category	Priority Species
Bechstein's	*Myotis bechsteinii*	NT	Yes
Alcathoe bat	*Myotis alcathoe*	DD	No
Greater mouse-eared	*Myotis myotis*	LC	No
Common pipistrelle	*Pipistrellus pipistrellus*	LC	No
Soprano pipistrelle	*Pipistrellus pygmaeus*	LC	Yes
Nathusius's pipistrelle	*Pipistrellus nathusii*	LC	No
Serotine	*Eptesicus serotinus*	LC	No
Noctule	*Nyctalus noctula*	LC	Yes
Leisler's	*Nyctalus leisleri*	LC	No
Barbastelle	*Barbastellabarabastellus*	NT	Yes
Brown long-eared	*Plectorus auritus*	LC	Yes
Grey long-eared	*Plectorus austriacus*	LC	No

*IUCN categories: LC Least Concern, NT Near Threatened, DD Data Deficient

All bat species are afforded full protection under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010 (as amended). Together, this legislation makes it illegal to:

- Deliberately capture, injure or kill a bat.
- Damage or destroy a bat roost; or intentionally or recklessly obstruct access to bat roosts.
- Deliberately, intentionally or recklessly disturb, a bat, including in particular any disturbance which is likely:
    - to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or
    - in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
    - to affect significantly the local distribution or abundance of the species to which they belong.

A bat roost is defined in the legislation as "*any structure or place which a bat uses for shelter or protection*". Roosts are protected whether or not bats are present at the time.

Otter

Otters (*Lutra lutra*) are fully protected under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way (CRoW) Act 2000 and the Conservation of Habitats and Species Regulations 2010 (as amended). Together, this legislation makes it illegal to:

- Deliberately capture, injure or kill an otter
- Damage or destroy any structure or place used for shelter or protection by an otter; or intentionally or recklessly obstruct access to such a place.
- Deliberately, intentionally or recklessly disturb an otter whilst it is occupying a structure or place which it uses for shelter or protection.

Otter is listed as a Priority Species.

Water vole

Water vole are afforded full protection under the Wildlife and Countryside Act 1981 (as amended), which make it illegal to:

- Kill, injure or take a water vole.
- intentionally or recklessly destroy, damage or obstruct access to any structure or place that is used by a water vole for shelter or protection.
- intentionally or recklessly disturb a water vole whilst it is in a place used for shelter or protection.

Water vole is also a Priority Species.

Common/Hazel dormouse

The common dormouse is fully protected under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way (CRoW) Act 2000 and the Conservation of Habitats and Species Regulations 2010 (as amended). Together, this legislation makes it illegal to:

- Deliberately capture, injure or kill a dormouse.
- Damage or destroy any structure or place used for shelter or protection by a dormouse; or intentionally or recklessly obstruct access to such a place.
- Deliberately, intentionally or recklessly disturb a dormouse whilst it is occupying a structure or place which it uses for shelter or protection.

The dormouse is a Priority Species.

Appendix 2: Relevant National Planning Policy

National Planning Policy Framework

The National Planning Policy Framework (NPPF) includes the Government's policy on the protection of biodiversity through the planning system. Local plan policies and planning decisions should seek to minimise impacts on biodiversity and provide net gains in biodiversity where possible. Planning policies should promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations (e.g. Habitats and Species of Principal Importance) linked to national and local targets.

"When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

- if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest;
- development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;
- opportunities to incorporate biodiversity in and around developments should be encouraged;
- planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including Ancient Woodland and the loss of aged or veteran trees found outside Ancient Woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss."

The NPPF establishes the need to identify a hierarchy of international, national and local wildlife sites through planning policy. However, it does not specifically address policy in relation to the protection of European Sites (such as Special Areas of Conservation) as these are dealt with separately through the process of Appropriate Assessment under the Conservation of Habitats and Species Regulations 2010 (as amended).

Planning Practice Guidance associated with the NPPF provides guidance on the practical implementation of the NPPF. The majority of the guidance relating to Ecology and Nature Conservation is set out in 'Planning Practice Guidance relating to the Natural Environment: Biodiversity, Ecosystem and Green Infrastructure' (DCLG, 2014).

Appendix 3: Relevant Local Planning Policy

Stroud District Local Plan 2015
Core Policy CP14
High Quality Sustainable Development

High quality development, which protects, conserves and enhances the built and natural environment, will be supported. Development will be supported where it achieves the following:

1. Sustainable construction techniques, including facilities for the recycling of water and waste, measures to minimise energy use and maximise renewable energy production

2. No unacceptable levels of air, noise, water, light or soil pollution or exposure to unacceptable risk from existing or potential sources of pollution. Improvements to soil and water quality will be sought through the remediation of land contamination, the provision of SuDS and the inclusion of measures to help waterbodies to meet good ecological status

3. Adequate water supply, foul drainage and sewage capacity to serve the development and satisfactory provision of other utilities, transport and community infrastructure

4. No increased risk of flooding on or off the site, and inclusion of measures to reduce the causes and impacts of flooding as a consequence of that development

5. An appropriate design and appearance, which is respectful of the surroundings, including the local topography, built environment and heritage

6. Re-use of previously developed land and/or the adaptation of existing buildings that make a positive contribution to the character of the site and surroundings, unless demonstrably unviable

7. No unacceptable adverse effect on the amenities of neighbouring occupants

8. Contribute to the retention and enhancement of important landscape & geological features, biodiversity interests (including trees, hedgerows and other natural features)

9. Contribute to a sense of place both in the buildings and spaces themselves and in the way in which they integrate with their surroundings including appropriate landscaping, biodiversity enhancement, open space and amenity space

10. A design and layout that aims to assist crime prevention and community safety, without compromising other design principles

11. Efficiency in terms of land use, achieving higher development densities in locations that are more accessible by public transport and other non-car modes and where higher densities are compatible with the character of the area and the setting of the development

12. It is not prejudicial to the development of a larger area in a comprehensive manner

13. Safe, convenient and attractive accesses on foot and by cycle and suitable connections with existing footways, bridleway, cycleways, local facilities and public transport

14. It is at a location that is near to essential services and good transport links to services by means other than motor car. Major development should contribute to the provision for allotments and/or community gardens where there is an identified need. Development proposals will be required to demonstrate how

they have responded to the above criteria through the submission of Design and Access Statements and relevant technical reports. It is important that the applicant provides clear and informative plans, elevations and street scenes and, where required, Masterplans, Development Briefs, Concept Statements and Design Codes to show how these criteria have been taken into account where necessary.

Core Policy CP15
A Quality Living and Working Countryside

In order to protect the separate identity of settlements and the quality of the countryside (including its built and natural heritage), proposals outside identified settlement development limits will not be permitted except where these principles are complied with:

1. It is essential to the maintenance or enhancement of a sustainable farming or forestry enterprise within the District; and/or

2. It is essential to be located there in order to promote public enjoyment of the countryside and support the rural economy through employment, sport, leisure and tourism; and/or

3. It is a 'rural exception site', where development is appropriate, sustainable, affordable and meets an identified local need; and/or

4. It is demonstrated that the proposal is enabling development, required in order to maintain a heritage asset of acknowledged importance; and/or

5. It is a replacement dwelling; and/or

6. It will involve essential community facilities.

Where development accords with any of the principles listed above, it will only be permitted in the countryside if:

i) it does not have an adverse impact on heritage assets and their setting;

ii) it does not lead to excessive encroachment or expansion of development away from the original buildings;

iii) in the case of proposals to re-use an existing building or buildings, these are appropriately located and capable and worthy of conversion. Any such conversion will involve a building
that positively contributes to an established local character and sense of place. In the case of replacement buildings, they must bring about environmental improvement; or

iv) in the case of extensions to buildings, it does not result in an inappropriate increase in the scale, form or footprint of the original building; or

v) in the case of replacement dwellings, the proposal must bring about environmental improvements and not result in an inappropriate increase in the bulk, scale, form or footprint of the original building; or

vi) in the case of new buildings for essential community facilities, they cannot be accommodated within the identified settlement development limits or through the re-use or replacement of an existing building.

Delivery Policy ES6
Providing for biodiversity and geodiversity

European Sites
Development will safeguard and protect all sites of European and Global importance, designated as Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar sites. Development must not result in significant adverse effects on these internationally important nature conservation sites, either alone or in combination with other projects and plans. The Council will expect development proposals to demonstrate and contribute to appropriate mitigation and management measures to maintain the ecological integrity of the relevant European site(s). With specific regard to recreational impacts, the Council will use core catchment zones that identify potential impact areas which extend beyond the relevant European site itself. Development proposals within such areas will take account of any relevant published findings and recommendations. There will be further assessment work on the Severn Estuary SPA and SAC that shall include recreational pressure.

National Sites
Nationally important sites, including Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR), will be safeguarded from development, unless the benefits of the development can be demonstrated to outweigh the identified national importance of the nature conservation interest or scientific interest of the site.

Local Sites
Local sites, including Local Nature Reserves (LNR), Key Wildlife Sites (KWS) and Regionally Important Geological and Geomorphalogical Sites (RIGS) will be safeguarded from development, unless the benefits of the development outweigh the nature conservation or scientific interest of the site. Where development is considered necessary, adequate mitigation measures or, exceptionally, compensatory measures, will be required, with the aim of providing an overall improvement in local biodiversity and/or geodiversity. Opportunities will be sought to access and enhance the value of such sites for educational purposes, particularly in relation to promoting public awareness as well as appreciation of their historic and aesthetic value.

New Development and the Natural Environment
All new development will be required to conserve and enhance the natural environment, including all sites of biodiversity or geodiversity value (whether or not they have statutory protection) and all legally protected or priority habitats and species. The Council will support development that enhances existing sites and features of nature conservation value (including wildlife corridors and geological exposures) that contribute to the priorities established through the Local Nature Partnership. Consideration of the ecological networks in the District that may be affected by development should take account of the Gloucestershire Nature Map, river systems and any locally agreed Nature Improvement Areas, which represent priority places for the conservation and enhancement of the natural environment. In this respect, all developments should also enable and not reduce species' ability to move through the environment in response to predicted climate change, and to prevent isolation of significant populations of species.

The District will have a number of undesignated sites, which may nevertheless have rare species or valuable habitats. Where a site is indicated to have such an interest, the applicant should observe the precautionary principle and the Council will seek to ensure that the intrinsic value of the site for biodiversity and any community interest is enhanced or, at least, maintained. Where an impact cannot be avoided or mitigated (including post-development management and monitoring), compensatory

measures will be sought. The Council may, in exceptional circumstances, allow for biodiversity offsets, to prevent loss of biodiversity at the District level.

Protected Species
Development proposals that would adversely affect European Protected Species (EPS) or Nationally Protected Species will not be supported, unless appropriate safeguarding measures can be provided (which may include brownfield or previously developed land (PDL) that can support priority habitats and/or be of value to protected species).

Delivery Policy ES8
Trees, hedgerows and woodlands

Development should seek where appropriate to enhance and expand the District's tree and woodland resource. Development that would result in the unacceptable loss of, or damage to, or threaten the continued well-being of protected trees, hedgerows, community orchards, veteran trees or woodland (including those that are not protected but are considered to be worthy of protection) will not be permitted. Where the loss of trees is considered acceptable, adequate replacement provision will be required that utilise species that are in sympathy with the character of the existing tree species in the locality and the site.

Appendix 4: Designated sites of nature conservation value

European Site Conservation Objectives for Severn Estuary/Môr Hafren Special Area of Conservation Site Code: UK0013030

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- **The extent and distribution of qualifying natural habitats and habitats of qualifying species**
- **The structure and function (including typical species) of qualifying natural habitats**
- **The structure and function of the habitats of qualifying species**
- **The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely**
- **The populations of qualifying species, and,**
- **The distribution of qualifying species within the site.**

This document should be read in conjunction with the accompanying Conservation Advice document (where available), which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

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 (*Glauco-Puccinellietalia maritimae*); Atlantic salt meadows

S1095. *Petromyzon marinus*; Sea lamprey

S1099. *Lampetra fluviatilis*; River lamprey

S1103. *Alosa fallax*; Twaite shad

This is a cross border site

This site crosses the border between England and Wales. Some features may only occur in one Country. The advice of Natural Resources Wales should therefore be sought separately.

This is a European Marine Site

This site is a part of the Severn Estuary European Marine Site (EMS). These Conservation Objectives should be used in conjunction with the current Conservation Advice document for the EMS.

These site-level Conservation Objectives are issued by Natural England only and are intended to complement, not to replace or modify in any way, any statutory Conservation Advice previously issued by Natural England under Regulation 33 (now Regulation 35) of the Habitats Regulations, and published jointly with the Countryside Council for Wales (now Natural Resources Wales). The latter should therefore also be regarded as authoritative until such time as it is reviewed jointly by Natural England and NRW.

For further details about this please visit the Natural England website at https://www.gov.uk/government/collections/conservation-advice-packages-for-marine-protected-areas or contact Natural England's enquiry service at enquiries@naturalengland.org.uk or by phone on 0845 600 3078.

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2010 (the "Habitats Regulations") and Article 6(3) of the Habitats Directive. They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment', including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives and the accompanying Conservation Advice (where available) will also provide a framework to inform the measures needed to conserve or restore the European Site and the prevention of deterioration or significant disturbance of its qualifying features as required by the provisions of Article 6(1) and 6(2) of the Directive.

These Conservation Objectives are set for each habitat or species of a Special Area of Conservation (SAC). Where the objectives are met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving Favourable Conservation Status for that species or habitat type at a UK level. The term 'favourable conservation status' is defined in Article 1 of the Habitats Directive.

Publication date: 5 February 2016 (version 3). This document updates and replaces an earlier version dated 30 June 2014 to reflect updated generic text on cross border sites and European Marine Sites.

European Site Conservation Objectives for Severn Estuary Special Protection Area Site Code: UK9015022

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- **The extent and distribution of the habitats of the qualifying features**
- **The structure and function of the habitats of the qualifying features**
- **The supporting processes on which the habitats of the qualifying features rely**
- **The population of each of the qualifying features, and,**
- **The distribution of the qualifying features within the site.**

This document should be read in conjunction with the accompanying Conservation Advice document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

A037 *Cygnus columbianus bewickii*; Bewick's swan (Non-breeding)
A048 *Tadorna tadorna*; Common shelduck (Non-breeding)
A051 *Anas strepera*; Gadwall (Non-breeding)
A149 *Calidris alpina alpina*; Dunlin (Non-breeding)
A162 *Tringa totanus*; Common redshank (Non-breeding)
A394 *Anser albifrons albifrons*; Greater white-fronted goose (Non-breeding)
Waterbird assemblage

This is a cross border site

This site crosses the border between England and Wales Some features may only occur in one Country. The advice of Natural Resources Wales should therefore be sought separately.

This is a European Marine Site

This SPA is a part of the Severn Estuary European Marine Site (EMS). These Conservation Objectives should be used in conjunction with the Regulation 35 Conservation Advice document for the EMS.

These site-level Conservation Objectives are issued by Natural England only and are intended to complement, not to replace or modify in any way, any statutory Conservation Advice previously issued by Natural England under Regulation 33 (now Regulation 35) of the Habitats Regulations, and published jointly with the Countryside Council for Wales (now Natural Resources Wales). The latter should therefore also be regarded as authoritative until such time as it is reviewed jointly by Natural England and Natural Resources Wales.

For further details about this please visit the Natural England website at https://www.gov.uk/government/collections/conservation-advice-packages-for-marine-protected-areas or contact Natural England's enquiry service at enquiries@naturalengland.org.uk or by phone on 0845 600 3078.

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2010 (the "Habitats Regulations") and Article 6(3) of the Habitats Directive. They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment' including an Appropriate Assessment, under the relevant parts of this legislation.

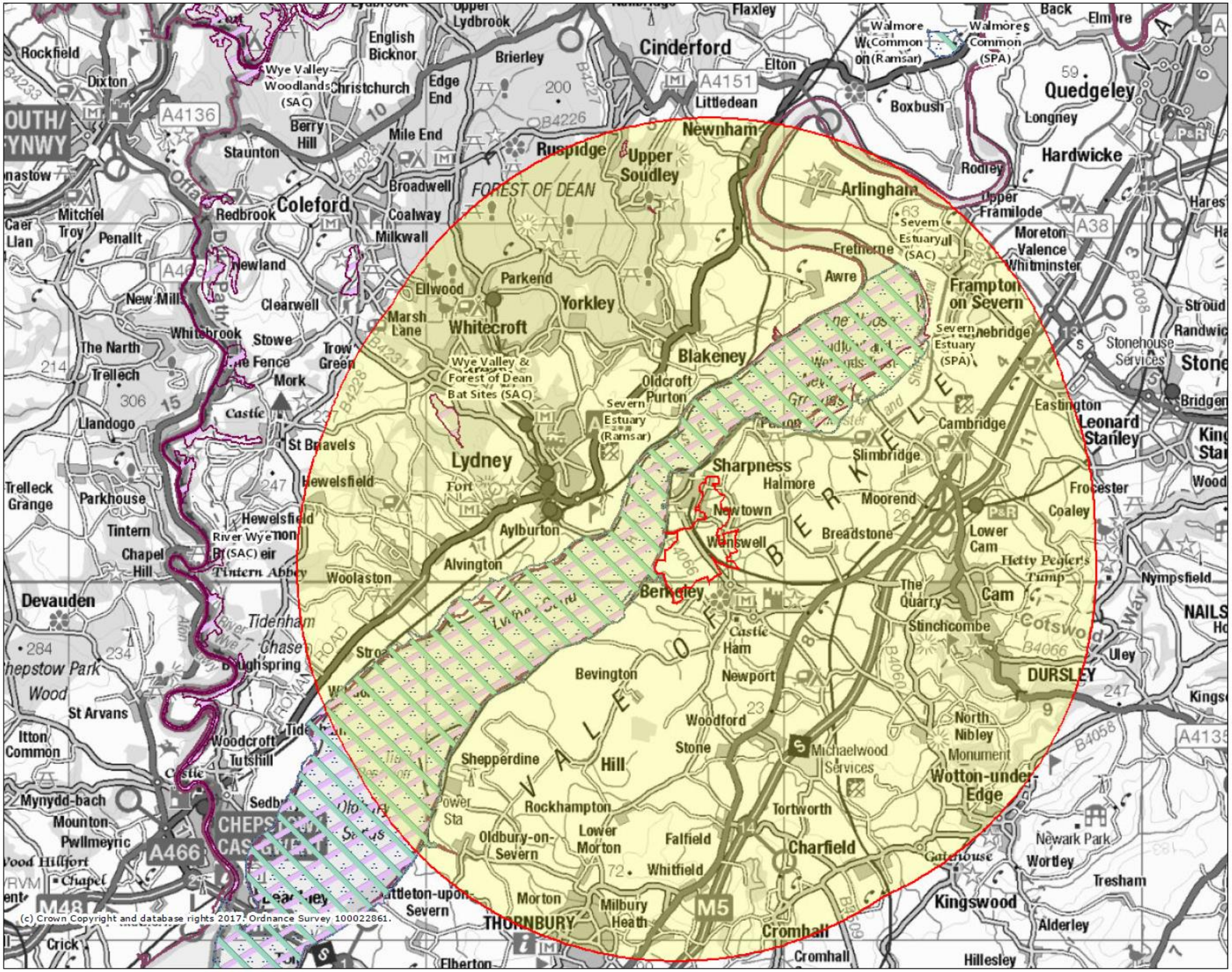
These Conservation Objectives and the accompanying Supplementary Advice (where this is available) will also provide a framework to inform the management of the European Site under the provisions of Articles 4(1) and 4(2) of the Wild Birds Directive, and the prevention of deterioration of habitats and significant disturbance of its qualifying features required under Article 6(2) of the Habitats Directive.

These Conservation Objectives are set for each bird feature for a Special Protection Area (SPA). Where the objectives are met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving the aims of the Wild Birds Directive.

Publication date: 5 February 2016 (Version 3). This document updates and replaces an earlier version dated 30 June 2014 to reflect updated generic text on cross border sites and European Marine Sites.

MAGIC

Vision for Sharpness 10km map



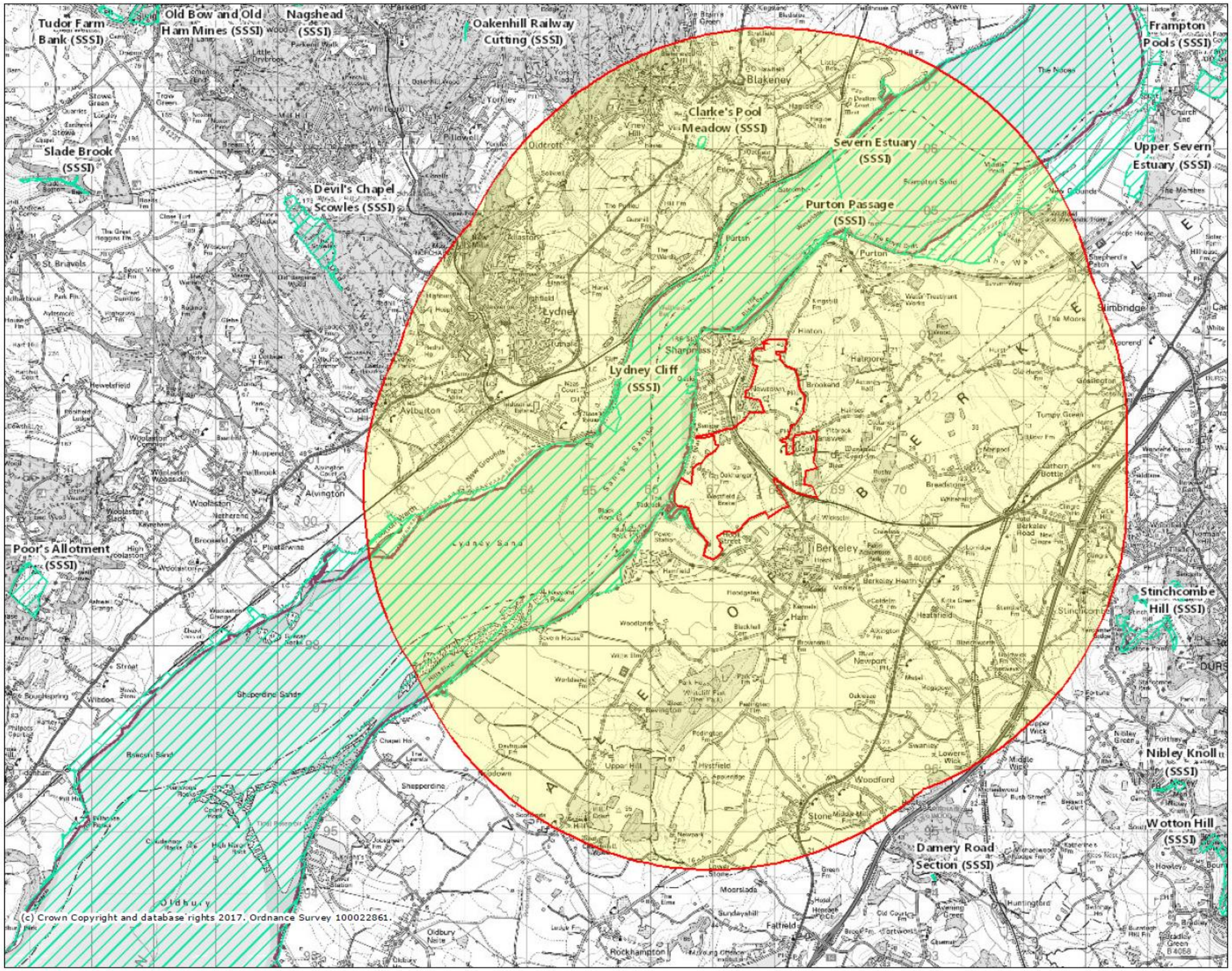
Legend

- Ramsar Sites (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)

Projection = OSGB36
xmin = 338300
ymin = 189400
xmax = 392300
ymax = 216000
Map produced by MAGIC on 15 February, 2017.

MAGIC

Vision for Sharpness 5km map

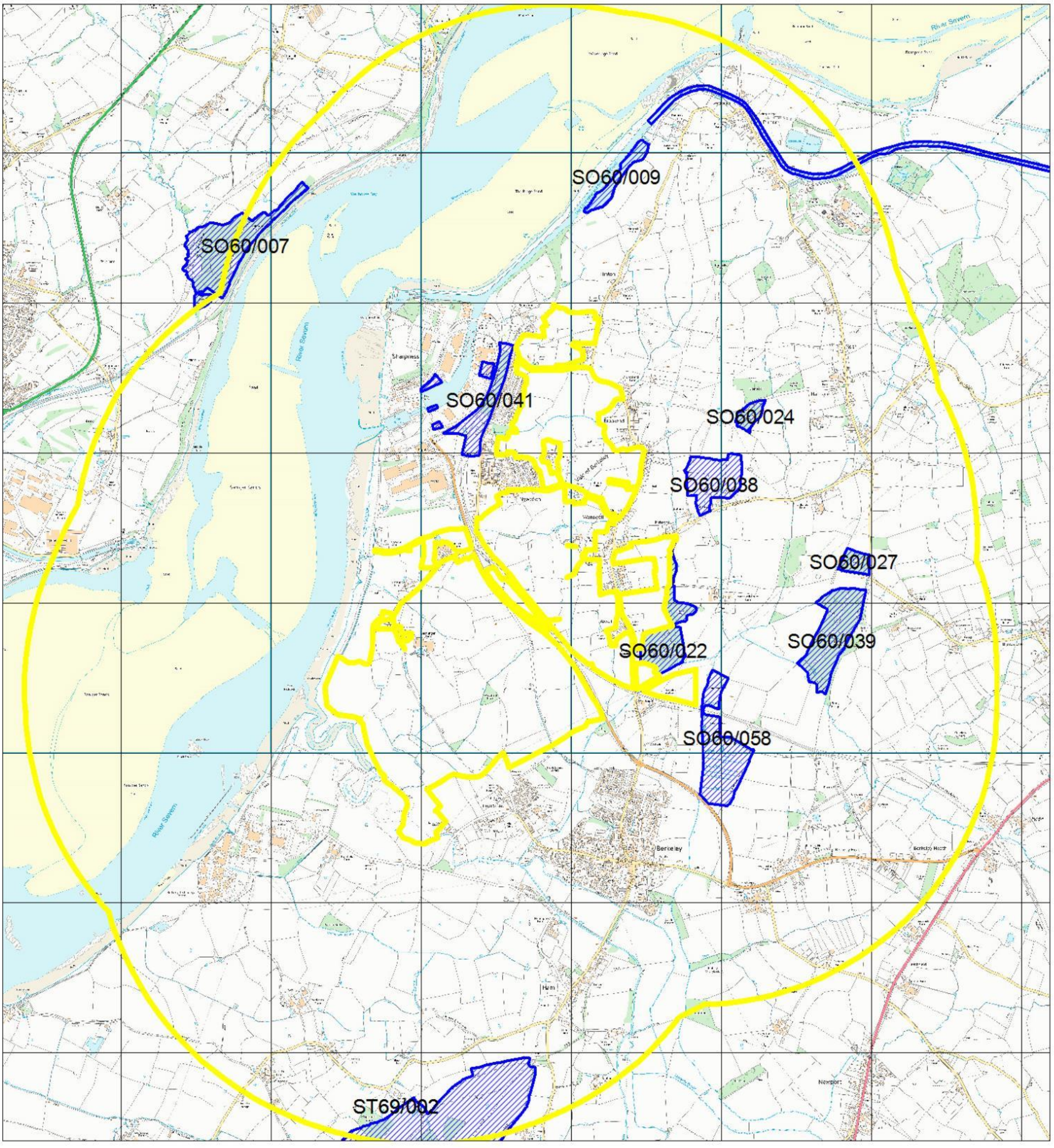


Legend

- Local Nature Reserves (England)
- National Nature Reserves (England)
- Sites of Special Scientific Interest (England)

Projection = OSGB36
xmin = 349900
ymin = 192900
xmax = 381000
ymax = 208200
Map produced by MAGIC on 15 February, 2017.

Key Wildlife Sites within the search area



Date printed 16/02/2017

GCER
Gloucestershire Centre for Environmental Records

Table A4.1: Key Wildlife Sites within the study area

Site name	Map code	Reasons for designation	Approximate distance and direction from site
Berkeley Heath Water Meadows KWS	SO60/058	Marsh, bog, swamp, mire and tall herb fen over 2.5ha	120m SE
Brooks Grove (Howes's Grove) KWS	SO60/024	Ancient semi-natural broadleaved woodland site larger than 2ha	650m NE
Bushy Grove KWS	SO60/039	Ancient semi-natural broadleaved woodland site larger than 2ha	680m E
Butler's Grove KWS	SO60/027	Ancient semi-natural broadleaved woodland site larger than 2ha	1080m E
Gloucester & Sharpness Canal KWS	SO70/020	Invertebrate interest	1310m NE
Nass Cliff (Lydney Cliff) KWS	SO60/052	Plant interest	1420m W
Purton Timber Ponds KWS	SO60/009	Not given	660m N
Sharpness Docks KWS	SO60/041	Plant interest	10m W
Tintock Wood (inc Pitbrook Brake & Penny Grove) KWS	SO60/022	Ancient semi-natural broadleaved woodland site larger than 2ha	Immediately adjacent to eastern boundary of site
Wanswell Hay Meadows KWS	SO60/038	Semi-natural grassland	320m E
Warren Grove KWS	SO60/007	Pasture Woodland and Mature Timber habitat: site with 10 or more over mature trees or site with an Alexander Index of saproxylic beetles of 10 or more	1980m NW
Whitcliff Park KWS	ST69/002	Pasture Woodland and Mature Timber habitat: site with 10 or more over mature trees or site with an Alexander Index of saproxylic beetles of 10 or more	1530m S

Appendix 5: Notable bird species recorded from the study area

Common name	BoCC4 status[1]	Priority Species	Schedule 1	Annex 1[2]
Arctic skua	Red	✓		
Arctic tern	Amber			✓
Avocet	Amber		✓	✓
Barn owl			✓	
Barnacle goose	Amber			✓
Bar-tailed godwit	Amber			✓
Bewick's swan	Amber	✓	✓	✓
Bittern	Amber	✓	✓	✓
Black redstart	Red		✓	
Black tern			✓	✓
Black-headed gull	Amber			
Black-tailed godwit	Red	✓	✓	
Brambling			✓	
Brent goose	Amber			
Bullfinch	Amber	✓		
Cetti's warbler			✓	
Common gull	Amber			
Common sandpiper	Amber			
Common scoter	Red	✓	✓	
Common tern	Amber			✓
Crane	Amber			✓
Crossbill			✓	
Cuckoo	Red	✓		
Curlew	Red			
Dunlin	Amber			
Dunnock	Amber	✓		
Eider	Amber			
Fieldfare	Red			
Fulmar	Amber			
Gadwall	Amber			
Gannet	Amber			
Golden plover				✓
Goldeneye	Amber			
Goshawk			✓	
Grasshopper warbler	Red	✓		
Great black-backed gull	Amber			
Great northern diver	Amber		✓	✓
Great skua	Amber			
Green sandpiper	Amber		✓	
Greenshank	Amber		✓	

Common name	BoCC4 status[1]	Priority Species	Schedule 1	Annex 1[2]
Grey partridge	Red	✓		
Grey plover	Amber			
Grey wagtail	Red			
Greylag goose	Amber			
Guillemot	Amber			
Hawfinch	Red	✓		
Hen harrier	Red	✓	✓	✓
Herring gull	Red	✓		
Hobby			✓	
House martin	Amber			
House sparrow	Red	✓		
Kestrel	Amber			
Kingfisher	Amber		✓	✓
Kittiwake	Red			
Knot	Amber			
Lapwing	Red	✓		
Leach's storm petrel	Amber		✓	✓
Lesser black-backed gull	Amber			
Lesser redpoll	Red	✓		
Linnet	Red	✓		
Little egret				✓
Little gull			✓	✓
Little ringed plover	Amber		✓	
Little tern	Amber		✓	✓
Mallard	Amber			
Manx shearwater	Amber			
Marsh harrier	Amber		✓	✓
Marsh tit	Red	✓		
Meadow pipit	Amber			
Mediterranean gull	Amber		✓	✓
Mistle thrush	Red			
Mute swan	Amber			
Nightingale	Red			
Osprey	Amber		✓	✓
Oystercatcher	Amber			
Peregrine			✓	✓
Pintail	Amber			
Pochard	Red			
Puffin	Red			
Purple Sandpiper	Amber		✓	

Common name	BoCC4 status[1]	Priority Species	Schedule 1	Annex 1[2]
Razorbill	Amber			
Red kite			✓	✓
Red-throated diver			✓	✓
Redshank	Amber			
Redstart	Amber			
Redwing	Red		✓	
Reed bunting	Amber	✓		
Ring ouzel	Red	✓		
Ringed plover	Red			
Ruff	Red		✓	✓
Sanderling	Amber			
Sandwich tern	Amber			✓
Shag	Red			
Short-eared owl	Amber			✓
Shoveler	Amber			
Skylark	Red	✓		
Smew	Amber			✓
Snipe	Amber			
Snow bunting	Amber		✓	
Song thrush	Red	✓		
Spoonbill	Amber		✓	✓
Spotted flycatcher	Red	✓		
Spotted redshank	Amber			
Starling	Red	✓		
Stock dove	Amber			
Storm petrel	Amber			✓
Swift	Amber			
Tawny owl	Amber			
Teal	Amber			
Tree pipit	Red	✓		
Tree sparrow	Red	✓		
Turnstone	Amber			
Turtle dove	Red	✓		
Water pipit	Amber			
Whimbrel	Red		✓	
Whinchat	Red			
Whooper swan	Amber		✓	✓
Willow warbler	Amber			
Wood warbler	Red	✓		
Woodcock	Red	✓		

Common name	BoCC4 status[1]	Priority Species	Schedule 1	Annex 1[2]
Wryneck	Red	✓	✓	
Yellow wagtail	Red	✓		
Yellowhammer	Red	✓		
Yellow-legged gull	Amber			

[1] Status in Birds of Conservation Concern 4 (Eaton *et al* 2015). Green if no status given.

[2] Listed on Annex 1 of the EC Birds Directive.

Appendix 6: Botanical species list

Scientific Name	Common Name
Trees and shrubs	
Acer campestre	Field maple
Acer pseudoplatanus	Sycamore
Alnus glutinosa	Alder
Corylus avellana	Hazel
Crataegus monogyna	Hawthorn
Cupressus × leylandii	Leyland cypress
Euonymus europaeus	Spindle
Fraxinus excelsior	Ash
Ilex aquifolium	Holly
Lingustrum sp.	Privet species
Lonicera periclymenum	Honeysuckle
Pinus sylvestris	Scots pine
Populus sp.	Poplar species
Prunus spinosa	Blackthorn
Quercus robur	Pedunculate oak
Rosa sp.	Rose species
Rubus fruticosus agg.	Bramble/Blackberry
Salix sp.	Willow species
Sambucus nigra	Elder
Ulmus sp.	Elm species
Viscum album	Mistletoe
Herbs and ferns	
Apium nodiflorum	Fool's watercress
Arum maculatum	Lords-and-ladies
Asplenium scolopendrium	Hart's-tongue fern
Cirsium arvense	Creeping thistle
Hedera helix	Ivy
Heracleum sphondylium	Hogweed
Hyacinthoides non-scripta	Bluebell
Oenanthe crocata	Hemlock water-dropwort
Polystichum setiferum	Soft shield-fern
Primula vulgaris	Primrose
Ranunculus acris	Meadow Buttercup
Ranunculus ficaria	Lesser celandine
Ranunculus repens	Creeping buttercup
Rumex obtusifolius	Broadleaved dock
Stellaria holostea	Greater Stitchwort
Urtica dioica	Common nettle
Grasses, sedges and rushes	
Dactylis glomerata	Cock's-foot
Glyceria fluitans	Floating sweet-grass
Holcus lanatus	Yorkshire-fog
Juncus effusus	Soft rush
Lolium perenne	Perennial rye-grass
Phalaris arundinacea	Reed canary-grass
Typha latifolia	Bulrush

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ecology

3 Colleton Crescent Exeter EX2 4DG
t: 01392 260420 e: info@eadecology.co.uk
www.eadecology.co.uk