



Harworth Group PLC

Occupation Lane, Woodville

ECOLOGICAL APPRAISAL

July 2019

THIS REPORT MAY CONTAIN SENSITIVE ECOLOGICAL INFORMATION, IT IS THE RESPONSIBILITY OF THE LOCAL AUTHORITY TO DETERMINE IF THIS SHOULD BE MADE PUBLICLY AVAILABLE.

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1.0 NON-TECHNICAL SUMMARY

- 1.1 A mixed-use development with associated landscaping is proposed on a site located to the north of Occupation Lane, Woodville. An Ecological Appraisal of the site including a desk study for existing baseline ecological data and an extended Phase I Habitat survey have been undertaken, the results of which are provided within this report. Protected and notable species survey results are also provided within this report as well as the standalone Bat and Bird Survey Reports.
- 1.2 The River Mease Special Area of Conservation is located approximately 6km to the south of the site, and five Local Wildlife and potential Local Wildlife Sites are located within 1km of the site. Through good design of the on-site drainage system and public open space, no impacts upon any sites of nature conservation value are anticipated as a result of the development proposals.
- 1.3 The extended Phase I Habitat survey identified that the site predominantly comprised fields of grassland varying in species richness, with boundaries formed of ditches, scrub and hedgerows with mature trees and fence lines. A pond is located in the north of the site and an area of broadleaved and plantation woodland is present in the east. Additional habitats recorded within the site include small areas of disturbed ground, tall ruderal herbs and scattered scrub.
- 1.4 The development proposals have been designed to retain the habitats of conservation value where feasible. The woodland, and the majority of hedgerows and dense scrub are to be retained within the site, and new linear planting will provide mitigation for the small loss of hedgerow, as well as new habitat corridors within the site for wildlife. The pond and ditches are also to be retained within the site within areas of green space which will be managed to promote their biodiversity value. Additional habitats to be created include species-rich grassland, tree planting and attenuation ponds.
- 1.5 Protected species surveys undertaken included those for [REDACTED] bats, reptiles and water vole. No evidence of [REDACTED] or water vole activity was recorded, and no reptiles have been recorded to date; the results of these surveys are provided within this report.
- 1.6 The results of bat activity surveys indicate that the site is used for commuting and foraging by common and widespread species. The results of these surveys are provided in the Bat Survey Report.
- 1.7 Results of previous great crested newt surveys have been reviewed (2012 – 2018). No great crested newts were recorded on-site or within accessible ponds in the vicinity of the site. It is therefore considered that this species is highly unlikely to be present within the site boundary.
- 1.8 Development of the site as proposed will result in negligible impacts to most bird species recorded during the surveys, with the exception of skylark, meadow pipit and linnet. Up to ten breeding pairs of skylark were recorded and a small number of probable breeding meadow pipit, linnet and reed bunting. The loss of the on-site grassland habitat will lead to the loss of these species from the site. Habitat creation has been recommended to provide additional nesting opportunities for several other notable species. Mitigation measures are recommended to minimise disturbance impacts to birds during any clearance in the bird nesting season (March – August, inclusive).
- 1.9 Measures are recommended to ensure the development provides suitable foraging and commuting habitat for hedgehog and common toad, which have been recorded within the site and wider area.

2.0 INTRODUCTION

- 2.1 This Ecological Appraisal has been prepared by FPCR Environment and Design Ltd. on behalf of Harworth Group PLC. and provides details of an ecological assessment undertaken at a site located to the north of Occupation Lane, Woodville (central OS Grid Reference: SK311187).
- 2.2 This assessment has to date involved a desk study, Extended Phase 1 Habitat and hedgerow surveys, [REDACTED] habitat suitability index assessment (HSI) of ponds for great crested newts *Triturus cristatus*, reptile surveys, bat surveys (including seasonal activity surveys and ground-level assessment of trees), a winter bird (scoping) survey and breeding bird surveys, and a water vole *Arvicola amphibius* and otter *Lutra lutra* survey.

Site Context

- 2.3 The site is approximately 21.49ha and comprises three fields of semi-improved grassland. The fields are variously bound by wet and dry ditches, scrub, hedgerows and fence lines. Additional habitats within the site include an area of woodland in the east and a pond (P1) in the north-west.
- 2.4 Land-use to the east and south-east of the site is predominantly urban with residential dwellings along Occupation Lane and Moira Road. The remaining land surrounding the site is occupied by industrial units, with the exception of a small horse-grazed field to the north-east, which also includes a pond (P2).

Planning Policy

- 2.5 The site is allocated within the Adopted Local Plan for South Derbyshire (Policy E6 – Woodville Regeneration Area) for development comprising employment, housing and the Woodville – Swadlincote Regeneration Route (referred to as the Woodville Link Road in this report).

Background

- 2.6 Ecological surveys have previously been undertaken within the site and wider area; most recently in 2018 and 2017 (AECOM), and previously in 2015 (Ramm Sanderson), 2014 and 2012 (Cotswold Wildlife Surveys) and 2008 (Scott Wilson). These surveys were undertaken as part of due diligence works for previous development proposals (within a similar area to the current site boundary in 2014 and 2012), and also more recently (2018 and 2017) to inform a planning application for the Woodville Link Road (South Derbyshire District Council 9/2017/1222) which is currently proposed to run centrally through the site. The Link Road application was granted Full permission in April 2018, and further proposals for this are being developed in tandem with the current Haworth scheme.
- 2.7 The Ecological Reports which detail the results of these previous surveys have been reviewed as part of the current assessment and relevant information from them is included within this report where considered appropriate.

Development Proposals

- 2.8 The proposals for the site include 7.72ha of residential development which is to be located in the eastern half of the site. In the west and south, 4.61ha of development comprising employment land and a local centre (1.37ha) are proposed.

- 2.9 In the north-west, centre and east of the site, areas of green space containing the existing pond P1 and new attenuation ponds, areas of grassland, and existing woodland and hedgerows are included within the scheme. These will form areas of public open space and habitats for wildlife.
- 2.10 The development proposals are detailed on the Illustrative Masterplan (Occupation Lane, Woodville, Derbyshire, Pegasus Design DRG: P16-1422_004) which also shows the route of the Woodville Link Road. The ecological impacts of the Link Road are not discussed in this report as it is the subject of a separate planning application and ecological assessment, however it should be noted that the whole site (including the Link Road land) was surveyed by FPCR in 2019 owing to the position of the Link Road land within the site, and the absence of an obvious site boundary between these areas.

Study Objectives

- 2.11 FPCR were commissioned to undertake an Ecological Appraisal of the site in order to identify habitats or species that may be affected by the proposals. The objectives of the study were to:
- a) Identify the existing on-site habitats;
 - b) Check for evidence of, or potential for, protected species;
 - c) Identify potential ecological impacts relating to the development proposals;
 - d) Identify requirements for further survey; and
 - e) Propose mitigation measures to avoid or reduce ecological impacts as necessary.

3.0 METHODOLOGY

Desk Study

Consultation with Conservation Bodies

- 3.1 To support the field survey and further compile existing baseline information relevant to the site, ecological information was sought from third parties, including records of protected or notable species and sites designated for nature conservation interest.
- 3.2 The Multi Agency Geographic Information for the Countryside (MAGIC) website¹ was reviewed for the presence of any statutory designated sites of international (Special Area of Conservation (SAC), Special Protection Areas (SPA) or Ramsar Sites), national (Site of Special Scientific Interest, (SSSI)) or local nature conservation importance (Local Nature Reserves (LNR)) within 10km, 2km and 1km of the survey site, respectively.
- 3.3 Consultation was also undertaken with Derbyshire Wildlife Trust (DWT) for the presence of non-statutory designated sites of nature conservation importance (Local Wildlife Sites (LWS)) and protected/notable species records within 1km of the survey site.
- 3.4 Colour 1:25,000 OS base maps and aerial photographs from Bing© (<http://www.bing.com/maps>) were also inspected to provide additional context and identify any features of potential importance for nature conservation in the wider landscape.

¹ <https://magic.defra.gov.uk>

Ecological Reports Review

- 3.5 Ecological information within the following reports have been reviewed as part of the desk study, with information provided within the Results section of this Ecological Appraisal where considered relevant.
- Preliminary Ecological Assessment, Proposed Woodville Link Road, Swadlincote (2017) AECOM
 - RammSanderson (2015) Woodville Route Alignment, Ecological Appraisal
 - Cotswold Wildlife Services (May and June 2014) Updated Species Surveys of Land off Occupation Lane, Swadlincote, Derbyshire
 - Cotswold Wildlife Services (April and May 2014) Updated Extended Phase 1 Habitat Survey at land off Occupation Lane, Woodville, Derbyshire
 - Scott Wilson Ltd. (2008) Three Counties, Swadlincote Regeneration Route, Phase 1 Ecology Survey Report

Field Survey - Habitats and Flora

- 3.6 The site was surveyed on 20th May, 5th and 19th June, and 4th July 2019, following survey techniques recommended by Natural England that largely follows JNCC 2010², with the scale of recording of habitat parcels adjusted to provide more detail for smaller sites. The survey comprised a walkover of the site mapping the principal habitat types present and identifying the dominant or characteristic plant species present within them.

Hedgerows

- 3.7 The hedgerows were surveyed on 5th June and 4th July 2019. The value of the hedgerows on the site were assessed in accordance with the Wildlife and Landscape criteria contained within Statutory Instrument No: 1160 – The Hedgerow Regulations 1997 to determine whether they qualified as Important Hedgerows under the Regulations. This was achieved using a methodology in accordance with both the Regulations and DEFRA guidance³.
- 3.8 Hedgerows were also surveyed using the Hedgerow Evaluation and Grading System (HEGS)⁴. This method of assessment includes noting down canopy species composition, associated ground flora and climbers, structure of the hedgerow including height, width and gaps, associated features including number and species of mature trees, banks, ditches and species-rich grass verges.
- 3.9 Each hedgerow is given a grade using HEGS with the suffixes 1+ and 4- representing the upper and lower limits of each grade respectively. These grades represent a continuum on a scale from 1+ (the highest score and denoting hedges of the greatest nature conservation priority) to 4- (representing the lowest score and hedges of the least nature conservation priority) as follows:
- Grade 1 – High to very high value
 - Grade 2 – Moderately high to high value

² JNCC. (2010). Handbook for Phase 1 habitat survey - a technique for environmental audit, ISBN 0 86139 636 7

³ DEFRA. (1997). The Hedgerow Regulations 1997. A Guide to the Law and Good Practice. London: HMSO

⁴ Clements, D.K., & Tofts, R.J. (1992). Hedgerow Evaluation and Grading System (HEGS): A methodology for the ecological survey, evaluation and grading of hedgerows. Countryside Planning and Management

- Grade 3 i Moderate value
- Grade 4 i Low value

3.10 Hedgerows graded 1 or 2 are considered to be a priority for nature conservation.

3.11 Hedgerows were also assessed to determine if they met the habitat descriptions for Hedgerow Habitat of Principal Importance as listed within Section 41 of the NERC Act, (i.e. whether they consisted of 80% or more native woody species).

Fauna

Bats - Ground Level Tree Assessment and Activity Surveys

3.12 Tree assessments were undertaken from ground level, with the aid of a torch and binoculars (where appropriate). These surveys were undertaken on 8th January 2019 by a suitably experienced ecologist. During the survey, Potential Roosting Features (PRF) for bats were sought in accordance with British Standard⁵ and current bat survey guidance⁶.

3.13 Bat activity surveys (comprising walked transect and static monitoring) are currently being undertaken within the site. To date, a spring (20th May 2019) and summer (17th June 2019) survey have been completed, with the autumn survey to be undertaken in September 2019.

3.14 The full details of these surveys are provided in the Bat Survey Report with the results of the autumn survey will be provided within an updated report in due course.

Amphibians

3.15 Ponds within and adjacent to the site boundary were assessed for their suitability to support great crested newts against the Habitat Suitability Index (HSI) in the field. Ponds within 500m of the site boundary were also sought using colour 1:25 000 Ordnance Survey base maps, and aerial photographs from Google Earth. The locations of ponds are shown on Figure 3.

3.16 The HSI provides a measure of the likely suitability that a waterbody has for supporting great crested newts. In general, ponds with a higher score are more likely to support great crested newts than those with a lower score, and there is a positive correlation between HSI scores and ponds with newts recorded. Ten separate attributes are assessed for each pond including: geographic location, pond area, the likelihood that the pond will dry, water quality, percentage shade, the presence of water-fowl, the presence of fish, the number of linked ponds, the quality of the surrounding terrestrial habitat and the amount of macrophytic coverage. A score is assigned according to the most appropriate criteria level set within each attribute and a total score calculated of between 0 and 1. Pond suitability is then determined according to the scales shown in Table 1.

Table 1: HSI Scores as a measure of Pond Suitability

HSI score	Pond Suitability
<0.5	Poor

⁵ British Standard 8596:2015 Surveying for bats in trees and woodland, October 2015

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

HSI score	Pond Suitability
0.5 - 0.59	Below average
0.6 - 0.69	Average
0.7 - 0.79	Good
>0.8	Excellent

Reptiles

- 3.17 A reptile presence/likely absence survey was undertaken within areas of suitable habitat within the site following the methodology detailed in published guidance^{7,8}. Methods involved a search for basking reptiles on or under naturally occurring and strategically positioned artificial refugia, comprising approximately 0.5m² pieces of bitumen roofing felt. These were placed in locations that offered the most suitable habitat for common reptiles, i.e. where available, structurally diverse grassland habitats with areas of bare ground/short vegetation. Within the site, refugia were placed within suitable habitat along the majority of field boundaries, at the interface between the edges of grassland fields and the boundary features (wet and dry ditches, scrub, pond, hedgerows and off-site bunds). Refugia were also placed in suitable open areas, where grassland with a more developed structure and scattered scrub was present.
- 3.18 A total of 100 refugia were placed within the survey area. After a two week bed-down period they were checked during suitable weather conditions when the ambient air temperature was between 9°C and 18°C and avoiding periods of heavy rain. The indicative location of artificial refugia is shown on Figure 4.
- 3.19 Refugia were approached from downwind and care was taken to avoid casting a shadow, so as not to disturb any basking animals and lifted with care so as to avoid any potential harm to animals underneath them.
- 3.20 The surveys were undertaken during June and July 2019 by suitably experienced ecologists. The prevailing weather conditions, including relative wind speed, cloud cover, ambient temperature and any other notable conditions were recorded for each survey visit.

Table 2: Reptile Presence/Absence Survey Visit Schedule and Conditions

Survey Visit	Date	Air temperature	Start Time	Weather conditions during torch survey
1	17.05.2019	15°C	08:15	Dry, gentle breeze, light cloud (10%), sunny.
2	20.06.2019	17°C	17:30	Survey commenced followed period of rain showers. Dry during survey, light breeze, light cloud (20-30%), sunny.

⁷ Gent, A.H. and Gibson, S.D. 1998. Herpetofauna Workers Manual. Peterborough, Joint Nature Conservation Committee.

⁸ Froglife 1999. Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

Survey Visit	Date	Air temperature	Start Time	Weather conditions during torch survey
3	28.06.2019	14°C	10:30	Dry, light breeze, light cloud (20-30%), sunny.
4	02.07.2019	15°C	09:30	Dry, light to moderate breeze, some cloud (60 - 70%), sunny.
5	05.07.2019	14°C	08:30	Dry, light breeze, light cloud (20-30%), sunny.
6	TBC			
7	TBC			

Water Vole and Otter

- 3.21 Water vole surveys were conducted within the site on 27th June and 1st July 2019 in line with current guidance⁹. The surveys involved searching the banks/margins of the on-site waterbodies and watercourses for evidence of droppings, latrines, feeding stations, burrows, footprints and any runways through bankside vegetation. Descriptions of waterbodies were also made to determine their suitability for this species and aid any enhancement or mitigation recommendations required.
- 3.22 Also on the above survey dates, signs of otter activity were searched for following the methodologies detailed within the New Rivers and Wildlife Handbook (RSPB/NRA 1995)¹⁰.

Additional Protected / Notable Species

- 3.23 During the survey, observations, signs of, and suitable habitat for any species protected under Part 1 of the Wildlife and Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2017 (as amended) and t [REDACTED] were noted. Consideration was also given to the existence and use of the site by other notable fauna such as those listed as Species of Principal Importance for the purpose of conserving biodiversity under the Natural Environment and Rural Communities (NERC) Act 2006, Red Data Book (RDB) species, or Derbyshire Biodiversity Action Plan (BAP) Species.

Limitations

- 3.24 Not all off-site areas within 30m of the site boundary could be surveyed [REDACTED] due to these being within third party ownership. This is not considered to be a significant limitation to the survey results however as [REDACTED] ed on-site, indicating that this species is likely to be absent from the immediate wider area.
- 3.25 Trees on the site boundary were only surveyed from the site for the presence of roosting bats, as off-site areas were under third party ownership. As the majority of boundary trees were semi-mature and did not exhibit features for roosting bats (when viewed from site) this is not

⁹ Dean, M., Strachan, R., Gow and Andrews, R. (2016) *The Water vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*, The Mammal Society, London.

¹⁰ Ward D., Holmes N., Jose P. (eds). (1994). *The New Rivers and Wildlife Handbook* RSPB: Sandy

considered to be a significant limitation to the overall data set. Furthermore, no boundary trees are to be affected by the proposals.

- 3.26 Not all of the waterbodies on-site were surveyed for water vole within the recommended survey period due to extensive periods of heavy rainfall which occurred throughout June. The surveys were undertaken on 27th June and 1st July 2019; the July date is only slightly outside of the recommended survey period (mid-April to end of June) and therefore this is not considered to be a significant limitation to the overall data set.

4.0 RESULTS

Desk Study

- 4.1 Locations of statutory and non-statutory designated sites referred to in the following section are illustrated on Figure 1: Site Location & Consultation Results Plan.

Statutory Designated Sites

- 4.2 The River Mease SAC is located approximately 6km to the south of the site at its closest point, and is a lowland clay river supporting nationally significant populations of spined loach *Cobitis taenia* and bullhead *Cottus gobio* (Annex II species that are a primary reason for selection of this SAC), white-clawed crayfish *Austropotamobius pallipes* and otter *Lutra lutra* (Annex II species present as a qualifying feature, but not a primary reason for site selection).
- 4.3 The site is within the catchment area¹¹ and also the Impact Risk Zone (IRZ) as detailed on the MAGIC website for the River Mease (SAC and SSSI) as well as Carver's Rock SSSI (which is located 3.9km from the site) however Natural England would not expect to be consulted for development proposals of this type, unless proposals will result in the '*discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location)*'.

Non-Statutory Designated Sites

- 4.4 Two LWS and three potential LWS are present within 1km of the site. Potential LWS are defined in the report provided by DWT as '*sites that have been identified as having nature conservation interest, but where that interest has not been fully assessed against the Wildlife Site Selection Guidelines*'. A summary of these sites, including their location relative to the application site is provided in Table 3.

Table 3: Non-statutory Designated Sites

Name	Designation	Ecological Feature / Description	Distance and Bearing (from site boundary)
Swadlincote	pLWS	Habitat mosaic /	320m north

¹¹ Environment Agency Catchment data Explorer [online] Accessed 02.07.2019 <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3303>

Name	Designation	Ecological Feature / Description	Distance and Bearing (from site boundary)
Woods		No description provided.	
Woodville Disused Railway	LWS	Unimproved neutral grassland / Disused railway cutting and embankment comprising a mosaic of open grassland communities, dense scrub, hedges and a stream.	480m east
Land off Penkridge Road	pLWS	Habitat mosaic / No description provided.	480m west
Ski Heath	pLWS	Heathland / No description provided.	600m north-west
Midway Clay Site	LWS	Standing Open Water / Mosaic of wetland habitats including a pond, wet grassland, lowland swamp and semi-improved neutral grassland.	760m north

Protected/Notable Species

- 4.5 DWT also provided records of protected and notable species within 1km of the site. The locations of these records are shown in Figure 1: Site Location & Consultation Results Plan, whilst a summary is provided in Table 4 below.

Table 4: Protected and Notable Species Records

Species	Conservation Status	Number of Records	Closest record to site (approximate distance)
Bats			
Unidentified bat sp. <i>Chiroptera sp.</i>	HabRegs, WCA Sch5	1	Single roost from 2014 located 0.68km north-east.
Birds			
Bullfinch <i>Pyrrhula pyrrhula</i>	BAmb, NERC S41	2	Two records from 1995 and 2000 within Midway Clay Site LWS 0.97km north.
Cuckoo <i>Cuculus canorus</i>	BRed, NERC S41	1	Single record from 1995 within Midway Clay Site LWS 0.97km north.
Dunnock <i>Prunella modularis</i>	BAmb, NERC S41	2	Two records from 1995 and 2000 within Midway Clay Site LWS 0.97km north, and within South Street Grassland 0.48km south-east.
Grey partridge <i>Perdix perdix</i>	BRed, NERC S41	2	Two records from 1995 and 2000 within Midway Clay Site LWS 0.97km north, and within South Street Grassland 0.48km south-east.
House Sparrow	BRed, NERC S41	2	Two records from 1995 and 2000 within

Species	Conservation Status	Number of Records	Closest record to site (approximate distance)
<i>Passer domesticus</i>			Midway Clay Site LWS 0.97km north, and within South Street Grassland 0.48km south-east.
Kingfisher <i>Alcedo atthis</i>	WCA Sch 1, BAmb	1	Single record from 1995 within Midway Clay Site LWS 0.97km north.
Lesser spotted woodpecker <i>Dendrocopos minor</i>	BRed, NERC S41	1	Single record from 1995 within Midway Clay Site LWS 0.97km north.
Linnet <i>Linaria cannabina</i>	BRed, NERC S41	2	Two records from 1995 and 2000 within Midway Clay Site LWS 0.97km north, and within South Street Grassland 0.48 km south-east.
Marsh tit <i>Parus palustris</i>	BRed, NERC S41	1	Single record from 1995 within Midway Clay Site LWS 0.97km north.
Reed bunting <i>Emberiza schoeniclus</i>	BAmb, NERC S41	2	Two records from 1995 and 2000 within Midway Clay Site LWS 0.97km north, and within South Street Grassland 0.48km south-east.
Skylark <i>Alauda arvensis</i>	BRed, NERC S41	2	Two records from 1995 and 2000 within Midway Clay Site LWS 0.97km north, and within South Street Grassland 0.48km south-east.
Song thrush <i>Turdus philomelos</i>	BRed, NERC S41	1	Single record from 2000 located within Foston Village 0.86km south-east.
Starling <i>Sturnus vulgaris</i>	BRed, NERC S41	2	Two records from 1995 and 2000 within Midway Clay Site LWS 0.97km north, and within South Street Grassland 0.48km south-east.
Swift <i>Apus apus</i>	BAmb	1	Single record from 2016 located within Swadlincote 0.82km north.
Yellowhammer <i>Emberiza citrinella</i>	BRed, NERC S41	1	Single record from 2000 within South Street Grassland 0.48km south-east.
Mammals			
Hedgehog <i>Erinaceus europaeus</i>	NERC S41	2	Two records from 2016 i 2017 located 0.02km north and 0.50km north-east.
Water vole <i>Arvicola amphibius</i>	NERC S41	1	Single record from 2002 located 0.65km south-west.
Notable Invertebrates			
Dingy skipper <i>Erynnis tages</i>	NERC S41	12	Twelve records from 2007 i 2014 located within Swadlincote Woods pLWS 0.59 i

Species	Conservation Status	Number of Records	Closest record to site (approximate distance)
			0.69km north-west.
Small heath <i>Coenonympha pamphilus</i>	NERC S41	1	Single record located within Midway Clay Site LWS 0.97km north.
Wall <i>Lasiommata megera</i>	NERC S41	1	Single record located within Midway Clay Site LWS 0.97km north.
Herpetofauna			
Common toad <i>Bufo bufo</i>	NERC S41	3	Three records from 2014 – 2015 located 0.11km north, 0.86km east, and 0.91km south-west.
Grass snake <i>Natrix helvetica</i>	NERC S41	4	Four records from 1998 – 2007 with one records located within the site boundary, and three records between 0.53 – 0.91km north-west.
Great crested newt <i>Triturus cristatus</i>	NERC S41	7	Seven records from 2003 – 2016 located 0.43 – 0.58km south-east, and 0.85km west.
Invasive Plants			
Japanese knotweed <i>Reynoutria japonica</i>	WCA Sch 9	47	Multiple records from 1996 – 2016 with two records on the north-western boundary of the site.
BAMB and Bred - Birds of Conservation Concern (BoCC) in the UK ¹² ; HabRegs - the Conservation of Habitats and Species Regulations 2017 (as amended), NERC S41 – The Natural Environment and Rural Communities Act (2006), [REDACTED] CA Sch5 - Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), WCA Sch 1 - Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), WCA Sch 9 - Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).			

Habitats and Flora

- 4.6 The locations of the habitats described in the following sections can be found on Figure 2: Phase I Habitat Plan. Botanical species lists are provided at Appendix A.

Grassland

Field 1

- 4.7 Field 1, located in the east of the site was noted to be the smallest of the three fields (approximately 2.2ha) and the grassland was generally homogenous in structure and species composition throughout. The grassland was unmanaged during the survey, and no evidence of recent grazing was noted however images on GoogleEarth show potential grazing activity in

¹² Eaton MA, Aebischer N, Brown A, Hearn R, Lock L, Musgrove A, Noble D, Stroud D and Gregory RD (2016) *Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man*. British Birds 108, pp708-746

2016, and previously, mowing in 2006. The sward was also noted to lack a dense thatch layer, and limited dead matter from previous years' growth was noted.

- 4.8 Abundant broad-leaved grass species, including crested dog's-tail *Cynosurus cristatus*, sweet vernal grass *Anthoxanthum odoratum* and Yorkshire-fog *Holcus lanatus*, formed the majority of the sward, along with meadow buttercup *Ranunculus acris* and common vetch *Vicia sativa* which were abundant and frequent throughout the field, respectively. Additional grass species (recorded frequently) included meadow foxtail *Alopecurus geniculatus*, perennial rye-grass *Lolium perenne* and rough meadow-grass *Poa trivialis*, with common bent *Agrostis capillaris*, red fescue *Festuca rubra* and soft brome *Bromus hordeaceus* also noted. Herb species indicative of more improved conditions included frequent common ragwort *Jacobaea vulgaris*, dandelion *Taraxacum* agg. and white clover *Trifolium repens*, whilst those indicative of more species-rich grassland were rare, such as meadow vetchling *Lathyrus pratensis*, common bird's-foot trefoil *Lotus corniculatus* and red clover *Trifolium pratense*.
- 4.9 Along the north-western boundary there was an area of wet and soft ground (TN1), where species characteristic of these conditions were noted, including hard rush *Juncus inflexus*, compact rush *Juncus conglomeratus*, marsh foxtail *Alopecurus geniculatus*, brooklime *Veronica beccabunga*, and tufted hair grass *Deschampsia caespitosa*. These species (with the exception of brooklime) were also noted to be scattered (although rarely) throughout the field.
- 4.10 Owing to the overall dominance of grasses and small numbers of herb species (namely meadow buttercup and common vetch), the grassland was considered to be representative of poor semi-improved grassland.

Field 2

- 4.11 Field 2, located in the south of the site was the largest of the three grassland fields (approximately 11ha). Owing to this part of the site's previous industrial use (open cast clay/coal workings and spoil heaps, which were located within fields F2 and F3) and subsequent restoration, the centre of the field was raised above the surrounding landscape, and sloped downwards at its western, southern and eastern edges. The field was unmanaged during the survey, however sheep-grazing was noted during the site visit (prior to the Phase I survey) in January 2019. The grassland sward was tussocky in places with a thatch layer present, and varied in composition and structure across the field.
- 4.12 Through the centre of the field from west to east the sward was tall and dominated by broad-leaved grass species with abundant and frequent soft brome, crested dog's tail, red fescue, Yorkshire-fog, common bent and false oat-grass *Arrhenatherum elatius*. Scattered and occasional herb species included common vetch, oxeye daisy *Leucanthemum vulgare*, wild carrot *Daucus carota*, meadow buttercup, lesser trefoil *Trifolium dubium*, white clover, grass vetchling *Lathyrus nissolia* and smooth tare *Vicia tetrasperma*. Species which were infrequent (recorded as rarely occurring) included meadow vetchling, common bird's-foot trefoil, perforate St. John's-wort *Hypericum perforatum*, red clover, bee orchid *Ophrys apifera* and tufted vetch *Vicia cracca*. These areas were considered to be representative of species-poor grassland.
- 4.13 Localised areas of greater species diversity and herb content were noted in places at the peripheries of the field, surrounding pond P1 and adjacent to hedgerow H5, where meadow vetchling, grass vetchling, common bird's-foot trefoil, oxeye daisy, hairy *Vicia hirta* and smooth tare, red clover, cat's-ear *Hypochaeris radicata*, common knapweed *Centaurea nigra*, self-heal

Prunella vulgaris and creeping cinquefoil *Potentilla reptans* were occasional to locally frequent. Pyramidal orchid *Anacamptis pyramidalis* was recorded in the south-west of the field (single stem only), and scattered spiked sedge *Carex spicata*, glaucous sedge *Carex flacca* and hairy sedge *Carex hirta* were recorded.

- 4.14 At the south-eastern corner (TN2), species of wetter ground conditions were dominant within the sward including locally abundant spiked sedge, and frequent or occasional tufted hair-grass, hairy sedge, oval sedge *Carex leporina*, glaucous sedge, and hard rush, in addition to frequent meadow vetchling and grass vetchling.
- 4.15 In the south-west of the field (TN3) and along the southern boundary, the grassland exhibited a coarser structure with a higher ruderal herb content including curled dock *Rumex crispus*, creeping thistle *Cirsium arvense* and common nettle *Urtica dioica*, with scattered hawthorn *Crataegus monogyna* and rose *Rosa* sp. scrub, in addition to those species mentioned above.

Field 3

- 4.16 Field 3, located in the north of the site was of moderate size in the context of the site (approximately 4.9ha), and largely similar to field F2 with graded edges and a grassland which varied in structure and composition. The field was unmanaged during the survey, however sheep-grazing was noted in January 2019.
- 4.17 The central area of field F3 was dominated by broadleaved grass species, largely similar to field F2, but with frequent cock's-foot *Dactylis glomerata*, and scattered common couch *Elymus repens* and Timothy *Phleum pratense*. Scattered and occasional herbs included common bird's-foot trefoil, ribwort plantain *Plantago lanceolata*, red clover, oxeye daisy, common vetch, hairy and smooth tare, white clover, wild carrot and lesser trefoil.
- 4.18 Areas of increased diversity and herb content were present along the northern boundary (TN4, where the ground slopes downwards to ditch D1). Here, oxeye daisy was abundant, along with frequent common bird's-foot trefoil, meadow vetchling, wild carrot, common cat's-ear and red clover, and occasional or rarely recorded common centaury *Centaurea erythraea*, lady's bedstraw *Galium verum*, self-heal, perforate St. John's-wort and pignut *Conopodium majus*. Further areas of increased diversity were noted around the margins of pond P1, where a marsh orchid *Dactylorhiza* sp., mouse-ear hawkweed *Pilosella officinarum*, field wood-rush *Luzula campestris* and a hawkweed *Hieracium* sp. were recorded.
- 4.19 Additional areas noted included to the east of pond P1, and north-east corner of the field, where frequent sedges and tufted hair-grass were noted, in association with hard rush and compact rush. Along the edge of the woodland in the east of the field, localised patches of species indicative of acidic conditions were noted including abundant sheep's sorrel *Rumex acetosella* and squirreltail fescue *Vulpia bromoides*.

TN5 - West of Ditch D3

- 4.20 One additional small area of species-rich grassland was noted within the west of the site, to the west of ditch D3. Here, species composition reflected the more diverse areas of fields F2 and F3 (as outlined above), with additional foxglove *Digitalis purpurea*, yellow loosestrife *Lysimachia vulgaris*, wild strawberry *Fragaria vesca* and rosebay willowherb *Chamerion angustifolium* recorded.

Woodland

- 4.21 In the north-east of the site was an area of broadleaved semi-natural and plantation woodland surrounded by a post and wire fence. To the east of the public right of way (which runs through the woodland), were two bands of plantation, with a canopy of semi-mature and immature ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus* and pedunculate oak *Quercus robur* (some trees still supporting rabbit guards), no shrub layer, and limited ground flora of wood avens *Geum urbanum*, common hogweed *Heracleum sphondylium*, common nettle, chickweed *Stellaria media* and rough meadow-grass. Between the areas of plantation woodland, dense, mature hawthorn scrub was present, beneath which bare ground and leaf litter were dominant, with occasional mosses.
- 4.22 To the north and west of the public right of way, the plantation woodland continued with additional ground flora species recorded including male fern *Dryopteris filix-mas* and tufted hair-grass. To the west of the plantation, a steep earth bank separated the plantation from a small area of semi-natural broadleaved woodland (to the west) comprising mature sycamore, with a very limited shrub layer of scattered hawthorn and elder *Sambucus nigra*. The ground flora was dominated by common nettle, with bramble *Rubus fruticosus* agg., rough meadow-grass, cock's-foot and wood avens. On the outer (western) edge of the woodland, areas of dense scrub were present, with hawthorn, bramble and young silver birch *Betula pendula* and oak saplings.

Scrub

- 4.23 Scattered scrub was present within the site, particularly within the south of field F1, south and west of field 2, along the central ditches D1 and D2, and around the pond P1. Species recorded included hawthorn, dog-rose *Rosa canina* agg., bramble, an elm *Ulmus* sp. and silver birch.
- 4.24 Dense stands of scrub were also present within the site. These were located to the north of the pond P1 where an area of almost continuous scrub was present between the pond and the northern site boundary, in the south-western corner of the site, and in the east of the site (to the west and south-east of the woodland). The stands of scrub were all of a similar composition, with silver birch, hawthorn, and dog-rose present throughout. Along the northern boundary and to the north of the pond, willow *Salix* sp. and gorse *Ulex europaeus* were also noted.

Hedgerows

- 4.25 Hedgerows were largely present in the east of the site where five (H1 – H5) formed boundaries to field F1 and the Public Right of Way (PRoW). One non-native hedgerow (H6) was also present along a section of the south-west boundary of field F2, and self-set scrub and semi-mature trees formed a continuous hedgerow along the northern boundaries of the site (H7).
- 4.26 Hedgerows H1 and H2 were present along the northern boundaries of field F1. Hedgerow H1 comprised largely mature and immature sycamore trees, with a hedgerow canopy of hawthorn, bramble and a dog-rose beneath. A shallow flowing wet ditch was present to the north of the hedgerow. Hedgerow H2 was also formed largely of mature trees, with ash present as well as sycamore. Additional species included elder, a honeysuckle *Lonicera* sp. and an apple *Malus* sp. tree, and the hedgerow canopy was much denser than H1.
- 4.27 Hedgerows H3 and H4 formed a corridor along the PRoW and were similar in structure and composition, with hawthorn forming the main hedgerow canopy, with bramble, a rose, elder and

guelder-rose *Viburnum opulus* also present. Hedgerow H3 supported a shallow dry ditch for part of its (southern) length and hedgerow H4 had a hedgebank associated with its northern extent.

- 4.28 Hedgerow H5 continued north from H4, however comprised largely self-set hawthorn, bramble and a rose, with immature and mature oak, willow, silver birch and sycamore trees along a hedgebank and above ditch D4.
- 4.29 Hedgerow H6 comprised non-native species in the majority with a *Pyracantha* sp. forming the majority of the canopy, along with hawthorn.
- 4.30 Hedgerow H7 comprised self-set scrub and mature trees forming a continuous corridor along the northern boundary ditch D2. The hedgerow was tall and unmanaged, with sections present on both sides of the ditch.
- 4.31 A summary of the hedgerow survey is provided below in Table 5.

Table 5: Hedgerow Survey Summary

Ref	Canopy Sp.	Height / Width (m)	Length (m)	Species per Av. 30m	Notes	HEGS	Import. HR*
H1	<i>Ap, Cm, Rf, Rosa</i>	2-4 / 1-2	70	4	<30% gaps, connection score 4, 1 tree per 50m, shallow ditch	-2	No
H2	<i>Ap, Cm, Fe, Lon, Malus, Rf, Rosa, Sn</i>	4+ / 1-2	70	5	No gaps, connection score 2, 1 tree per 50m	-1	No
H3	<i>Cm, Sn, Rf, Rosa</i>	2-4 / 1-2	110	4	No gaps, connection score 2	3+	No
H4	<i>Cm, Fe, Rosa, Rf, Sa, Sorbus, Vo</i>	2-4 / 2-3	100	3	<10% gaps, connection score 1, hedgebank	3	No
H5	<i>Ap, Bp, Cm, Qr, Rosa, Rf, Salix</i>	2-4 / 3+	70	4	No gaps, connection score 1, 1 tree per 50m, hedgebank	2+	No
H6	<i>Cm, Fe, Pyra, Prunus, Rosa</i>	2-4 / 1-2	105	3	Non-native dominated hedgerow, no gaps, connection score 2	3+	No
H7	<i>Bp, Bud, Ca, Cm, Cxl, Prunus, Pyra, Rosa, Salix, Sf</i>	4+ / 2-3	410	4	<10% gaps, connection score >4, 1 tree per 50m, Wet, flowing ditch, Non-native species present (<i>leylandii</i> , Japanese knotweed, Himalayan balsam, butterfly-bush)	-1	No

Species Key: *Ap Acer pseudoplatanus* – sycamore, *Bp Betula pendula* – silver birch, *Bud Buddleja davidii* – butterfly-bush, *Cm Crataegus monogyna* – hawthorn, *Cxl – Cupressus x leylandii*, *Fe Fraxinus excelsior* – ash, *Lon Lonicera sp.* – a honeysuckle, *Malus* – an apple, *Prunus* – a cherry, *Pyra - a Pyracantha*, *Qr Quercus robur* – pedunculate oak, *Rf Rubus fruticosus* – bramble, *Rosa* – rose species, *Sa Sorbus aucuparia* – rowan, *Sf – Salix fragilis* – crack willow, *Salix* – a willow, *Sorbus* – a whitebeam, *Sn Sambucus nigra* – Elder, *Sorbus aucuparia*, *Vo Viburnum opulus* – guelder-rose.

- 4.32 As a result of their structure and connections to other hedgerows, hedgerows H1, H2, H5 and H7 were found to be of High (grade 2 or higher) conservation value through the HEGS assessment.
- 4.33 None of the hedgerows subject to assessment were identified as being important in accordance with Wildlife and Landscape criteria of the Hedgerow Regulations 1997.
- 4.34 All hedgerows, except H6, comprised at least 80% cover of native woody species and meet the criteria to be defined as a Habitat of Principal Importance under Section 41 of the NERC Act 2006.

Trees

- 4.35 Outside of the woodland (in the east of the site), trees were limited to field boundaries only. Semi-mature and immature silver birch were recorded throughout the site, particularly along the banks of ditches and the pond P1. In the south of the site, a small group of linear planting was present with silver birch and Austrian pine *Pinus nigra* ssp. *nigra*.
- 4.36 To the north of the pond P1, and along hedgerow H7 and ditch D2, semi-mature crack willow *Salix fragilis*, goat willow *Salix caprea*, ash and silver birch were present.
- 4.37 A small group of semi-mature wild cherry *Prunus avium* and silver birch were also present along the north-eastern boundary of field F1.

Pond

- 4.38 A single pond, P1, was present within the site boundary adjacent to the northern boundary and between fields F2 and F3. The pond has a connection to the northern boundary ditch (D2), and the central on-site ditch (D1) also appeared likely to discharge into the pond (when wet). The banks of the pond were of shallow earth with some steep sections present. The base of the pond appeared to have a build-up of sediment.
- 4.39 Surrounding the body of water, marginal vegetation included stands of common reed *Phragmites australis*, hard rush, common spike-rush *Eleocharis palustris* and grey club-rush *Schoenoplectus tabernaemontani*, along with a sweet-grass *Glyceria* sp., greater reed-mace *Typha latifolia*, water plantain *Alisma plantago-aquatica* and celery-leaved buttercup *Ranunculus sceleratus*. Horned pondweed *Zannichellia palustris* and lesser pondweed *Potamogeton pusillus* were recorded within the pond.
- 4.40 A fence partially surrounded the pond and the banks supported species consistent with those recorded in the adjacent grassland, as well as scattered scrub. To the north, dense scrub (as described above) was present along the bank.

Ditches

- 4.41 A number of ditches were present within the site located along field boundaries. Ditch D1, which ran through the centre of the site (bisecting fields F2 and F3) was dry during the surveys, although was considered to be an ephemeral wet drainage ditch. Soft mud, and species

characteristic of wet ground conditions were present in the base of the ditch including tufted hair-grass, soft-rush and hard rush, as well as coarse grass, tall ruderal and scrub species including false oat-grass, creeping thistle, common sorrel *Rumex acetosa* and bramble. The banks were steep, and thinly vegetated, with a loose substrate of made ground visible along the ditch. Species recorded included sheep's sorrel, cat's-ear, common bent, perforate St. John's wort and oxeye daisy.

- 4.42 Ditch D2 ran the length of the north-eastern site boundary (and the northern boundaries of fields F2 and F3). Flowing water was present throughout, and the ditch was variously vegetated with tall emergent species including pendulous sedge *Carex pendula*, fool's-water-cress *Helosciadium nodiflorum*, great willowherb, a bur-reed *Sparganium sp.*, flag iris *Iris pseudacorus* and Himalayan balsam *Impatiens glandulifera*, although lengths of bare soft sediment were also present, particularly where shading was heaviest from the adjacent hedgerow H7.
- 4.43 Ditch D3 was present in the south-west of the site, and separates a small area of dense scrub and neutral grassland (TN5) from the remainder of the site. The ditch is deep, and heavily-vegetated along the majority of its length by great reedmace and greater willowherb *Epilobium hirsutum*.
- 4.44 Shorter lengths of ditch were also present in the east of the site, along the western (D4) and northern (D5) boundaries of field F1. Ditch D4 was dry during the surveys but found to contain soft mud, tufted hair-grass and rush species. Ditch D5 was over-shaded by hedgerow H1, and was largely dry during the survey and vegetated with common nettle.

Disturbed and Bare Ground

- 4.45 Small areas of bare ground were noted through fields F2 and F3. A large patch of bare ground was also present centrally within field F3, which has been continuously present (based on GoogleEarth imagery), potentially as the result of poor ground conditions which has limited vegetation growth. No vegetation was recorded in association with these areas, however creeping soft-grass *Holcus mollis* formed the margins of the larger area in field F3.

Tall Ruderal

- 4.46 Small patches of tall ruderal herbs were recorded in association with the site boundaries (south eastern boundary fence of field F1 and southern boundary of field F2). These were dominated by common nettle, with creeping thistle, teasel and broadleaved dock also present.

Invasive non-native plant species

- 4.47 Himalayan balsam and Japanese knotweed *Reynoutria japonica* were recorded within the site, and have also been noted as present during previous year's surveys. Japanese knotweed was noted in four locations, in stands of various sizes, the largest of which were along the southern edge of the woodland (TN6) which measured approximately 3m by 3m, and also along the banks of ditch D2 (TN7) which measured approximately 1m wide by 20m long. The two other stands (TN8 and TN9) were small, comprising a few plants in each.
- 4.48 Himalayan balsam was recorded in ditch D1, with only scattered plants recorded during the survey in the north-west of the site (TN10).

Fauna

Amphibians

- 4.49 A number of habitats on-site offer potential opportunities to notable amphibians, including great crested newt and common toad *Bufo bufo*.
- 4.50 The unmanaged grassland across the site provided suitable terrestrial habitat and potential foraging opportunities, however the field boundary features (hedgerow bases and scrub (and associated root systems), and tussocky vegetation within ditches) provided more optimal conditions for foraging, commuting and sheltering amphibians.
- 4.51 Pond P1 (see above for description) within the north-west of the site was found to provide good habitat suitability with an HSI score of 0.70 (predicted presence 0.79) during the Phase I Habitat survey.
- 4.52 Pond P2 was located adjacent to the northern site boundary in the east of the site, and between field F1 and the off-site horse-grazed field. The pond was vegetated at the margins with tall emergent species including flag iris, with a sweet-grass also present. Surrounding the pond, rush, tall ruderal and scrub species were present, including compact and soft-rush, common nettle, bramble and hawthorn. Pond P2 was found to provide average habitat suitability with an HSI score of 0.60 (predicted presence 0.55).
- 4.53 All ditches on-site were found to be either dry, or contain flowing water, and therefore were not suitable to support breeding amphibians.
- 4.54 Previous surveys for amphibians have been completed on ponds within the site and surrounding area, with the results provided in the aforementioned Ecological Reports. In addition to ponds P1 and P2, pond P3, located approximately 65m off-site to the north, was also surveyed. The following table provides a summary of the results from surveys undertaken during previous years.

Table 6: Pond Survey Results for Great Crested Newts

Year	Pond Number	Survey type undertaken	Results
2018	Pond P1 Pond P2 Pond P3	eDNA	All negative for great crested newt eDNA
2015	Pond P3	eDNA Aquatic presence/absence	All negative for great crested newt, and great crested newt eDNA
2014	Pond P1 Pond P2	Aquatic presence / absence	All negative for great crested newts No smooth newts Large population of common toad (P1) Small population of common frog (noted in dry ditches)
2012	Pond P1 Pond P2	Aquatic presence / absence	No great crested newts

- 4.55 In addition to the ponds P1, P2 and P3, three further ponds are shown on OS mapping websites, which were also identified within the previous Ecological Reports. These are indicated on Figure 3: Pond Location Plan however from a review of aerial images they appear to be no longer present, being replaced by hardstanding and industrial development.

4.56

4.57

Bats

- 4.58 Suitable habitats for foraging and commuting bats were present within the site in the form of grasslands, woodland, hedgerows, areas of scrub and the pond. No trees with suitable features to support roosting bats were recorded on-site. The results of bat activity surveys undertaken (to date) in 2019 are provided in the Bat Survey Report.

Birds

- 4.59 Suitable nesting and foraging habitats for a range of bird species were present within the site. The Bird Survey Report provides the results of surveys undertaken, and an assessment of the impacts of development.

Reptiles

- 4.60 The unmanaged grassland, particularly at the edges of fields around the ponds and within ditches (where the grassland exhibited a more tussocky structure), the bases of hedgerows and scrub, and the waterbodies and watercourses provided suitable foraging and commuting conditions for common reptile species, with more open areas of disturbed ground providing suitable basking opportunities. In addition, the scrub, hedgerows and off-site woodland to the south provided potential shelter and hibernation opportunities.
- 4.61 No evidence of reptile species was found during the Phase 1 Habitat, presence/likely absence surveys (to date) or any other surveys/site-visits.
- 4.62 Reptiles have previously been recorded within the site, as detailed in the aforementioned Ecological Reports. In summary, a single grass snake *Natrix helvetica* record was provided by Derbyshire Amphibian and Reptile Group in 2012 whilst previous surveys were on-going, and a shed skin of a grass snake was noted during the surveys in 2012.

Water Vole

- 4.63 The network of waterbodies on-site provided potential suitable habitat for water vole, however this was limited by the degree of shading, lack of water and the isolation of the site by the surrounding built development. Areas of longer grassland within dry ditches and adjacent to pond P1 provided potential suitable areas for nest ball creation.
- 4.64 The soft mud banks associated with pond P1, which ranged from being shallow to steeply angled and 0.5m high, in association with areas of marginal vegetation, provided potential suitable

habitat for water vole. No evidence of water vole activity was recorded in association with the pond, however field vole *Microtus agrestis* droppings and feeding remains (small piles of cut vegetation) were recorded.

- 4.65 The ditches were of mixed suitability. Ditch D1 through the centre of the site was dry during the survey and was considered to be a seasonally-wet drainage ditch of limited suitability for water vole. No evidence of water vole activity was recorded in association with the ditch. Small feeding piles were recorded however these were considered likely to be from field or bank vole *Myodes glareolus* activity.
- 4.66 Ditch D2 along the northern site boundary was heavily overshadowed along the majority of its length and therefore of limited suitability for this species. At its north-eastern end, the ditch was approximately 4m wide, with steep mud banks of between 1.5m and 4m high. The water depth was between 30cm to 1m, with a slow flow, and heavy sediment was noted (up to approximately 1m deep). The ditch narrowed towards its south-western end, becoming 2m wide and with banks between 0.5m and 1m high, again with a heavy sediment (up to 1m deep), and a water depth of approximately 10cm. The length of the ditch was heavily overshadowed and largely enclosed by the adjacent scrub and mature trees, although emergent and long marginal vegetation was present in places (see above for species). The ditch was inaccessible in places owing to its heavily vegetated nature, steep banks and deep sediment. Some pollution was noted with debris and a film on the water surface. No evidence of water vole activity, or other riparian mammal species, was noted in association with the ditch D2.
- 4.67 Ditch D3 in the west of the site comprised a central open section measuring approximately 3m wide, with 0.5m high and steep soft mud banks. The ditch contained very shallow flowing water with a deep sediment (approximately 30cm) and dense tall emergent vegetation. To the north and south of this, dense scrub and mature trees were present, heavily overshadowing the ditch, and as such these sections were considered largely unsuitable for water vole. No evidence of water vole or any other riparian mammal was recorded in association with ditch D3.
- 4.68 Ditch D4 along the western boundary of field F1 was dry during the survey and was considered to be a seasonally wet drainage ditch of limited suitability for water vole. Small feeding piles were recorded however these were considered likely to be from field or bank vole activity.
- 4.69 Ditch D5 was a short section of ditch along the northern side of hedgerow H1 which measured approximately 0.5m wide, with banks up to 0.5m high. The ditch was largely dry and the banks were heavily vegetated with common nettle. No evidence of water vole was recorded however small rodent prints and a small burrow, considered likely to be of bank vole, were noted.
- 4.70 No nest balls were recorded in association with any areas of grassland where surveyed (adjacent to ditches and ponds P1 and P2).

Otter

- 4.71 The waterbodies within the site were considered to be limited for otter due to their isolated nature and limited connectivity into the surrounding environment. The pond P1 would provide potential foraging habitat (fish were previously recorded during great crested newt surveys) however the ditches are not considered suitable for foraging otter, given the shallow water levels (at most) which are likely to support only small species of fish. No evidence of otter activity was recorded during the survey.

Habitats and Flora

5.5 The degree to which habitats receive consideration within the planning system relies on a number of mechanisms, including:

- Inclusion within specific policy (e.g. veteran trees, ancient woodland and linear habitats in the National Planning Policy Framework (NPPF), or non-statutory site designation).
- Identification as a Habitat of Principal Importance (HPI) for biodiversity under Natural Environment and Rural Communities Act (NERC) 2006 and consequently identification as a Priority Habitat within the Lowland Derbyshire Biodiversity Action Plan (BAP).
- Under the NPPF development should seek to contribute a net gain in biodiversity with an emphasis on improving ecological networks and linkages where possible.

Grassland

HPI and Lowland Derbyshire BAP Evaluation

5.6 Grasslands can qualify as HPI as listed on Section 41 of the NERC Act (2006) and Lowland Derbyshire BAP habitats with neutral grassland (such as that found within the site) habitats being classified as Lowland Meadow or Upland Hay Meadows. Given the location of the site, Lowland Meadow would be the only category applicable to the on-site grasslands, these are:

“...taken to include most forms of unimproved neutral grassland across the enclosed lowland landscapes of the UK. In terms of National Vegetation Classification plant communities, they primarily embrace each type of Cynosurus cristatus-Centaurea nigra grassland, Alopecurus pratensis-Sanguisorba officinalis floodplain meadow and Cynosurus cristatus-Caltha palustris flood-pasture. The plan is not restricted to grasslands cut for hay, but also takes into account unimproved neutral pastures where livestock grazing is the main land use. On many farms in different parts of the UK, use of particular fields for grazing pasture and hay cropping changes over time, but the characteristic plant community may persist with subtle changes in floristic composition”.

5.7 Although specific surveys using the National Vegetation Classification survey methodology have not been undertaken, it is considered highly unlikely that the grasslands on-site would meet the definition of Lowland Meadow based on the species data collected during the Phase 1 Habitat survey.

Local Wildlife Site Evaluation

5.8 The Derbyshire Local Wildlife Sites Handbook provides a set of criteria to ‘enable the identification of those sites that, together with statutory sites, make the most significant contribution to the biological diversity of Derbyshire, and can therefore be considered to be of county importance¹⁵’. The Guidelines provide criteria for the assessment of grassland habitats, as well as other habitats recorded within the site boundary including woodland, hedgerows and scrub and freshwater habitats, which are discussed below.

¹⁵ Derbyshire Wildlife Trust. (2011). *Guidelines for the Selection of Local Wildlife Sites September 2003 (Revised 2011)* Belper: Derbyshire Wildlife Trust

- 5.9 Grassland habitats can qualify for LWS selection under five different criteria (Gr1 to Gr5). The species lists collated during the Phase I Habitat survey for fields F1, F2 and F3 were reviewed in accordance with two of these criteria: Gr2 (*'Areas of semi-natural grassland including grassland mosaics...'*) and Gr4 (*'Areas of semi-natural grassland that have arisen within post-industrial sites that are at least 0.25 ha in size...'*). Under both of these criteria, a total value of eight (as the site is located in the Leicestershire and South Derbyshire Coalfield Natural Character Area) is required, which is determined by reviewing the species lists collected against Table 2 in the Guidelines (page 43 onwards). For most species, 1 point is awarded however some species, grass vetchling for example, score 2 points.
- 5.10 For criterion Gr2, these indicator species have to be present and at least occasional or locally frequent over a significant part of the site. For criterion Gr4, these species can be present at any frequency. Indicator species recorded during the survey are shown in bold in the species lists for the individual fields (at Appendix A) and Table 7 below provides a summary.

Table 7: Summary of Grassland Indicator Species

Field	Gr2		Gr4	
	Number of Indicator Species that are at least Occasional to Locally Frequent	Points achieved from Table 2	Number of species recorded	Points achieved from Table 2
Field 1	1	1	5	5
Field 2	4	5	25	26
Field 3	5	5	26	27

- 5.11 As indicated in Table 7, fields F2 and F3 contain sufficient indicator species to qualify for LWS selection under the Gr4 criterion, but not under the Gr2 criterion. As described above, this is because under the Gr2 criterion, species have to be present as occasional or locally frequent over a significant part of the site. Therefore, given that a high proportion (84% for field F2 and 81% for field F3) of species were only recorded as occurring rarely (or very locally frequently in the context of the entire fields), fields F2 and F3 do not meet the thresholds for qualification under Gr2. As described in the Results section (and evidenced in the field), this is due to significant areas of the site being dominated by a mix of grass species with only occasional and scattered herbs. Areas of grassland with higher species diversity and herb content are largely restricted to the site boundaries, and in the context of the wider fields, these are relatively small.
- 5.12 Sites can also qualify for LWS selection under the Flowering Plants, Ferns and Allies Criteria. The Red Data List of Derbyshire Vascular Plants¹⁶ has been adopted to form these selection guidelines, and identifies plant species of conservation concern within the county. This list encompasses plant species native to Derbyshire which are of conservation concern at levels ranging from international through to local. Fields F2 and F3 support populations of grass vetchling, a species listed as *locally rare* on the Red Data List of Derbyshire Vascular Plants. As such, both fields qualify for LWS selection under criterion Ff2. It should be noted however that,

¹⁶ Moyes, N.J. & Willmot, A. (2009) Red Data List of Derbyshire's Vascular Plants. Derby Museum

under this criterion, populations which are the result of deliberate introductions (such as seeding, unless part of a species recovery programme) do not count. Given the site's previous industrial use and subsequent restoration, there is a high likelihood for this species to have been introduced as part of a seed mix in the past.

Mitigation

- 5.13 The development will lead to the loss of the majority of the grassland within fields F2 and F3, and therefore the loss of these habitats will be compensated for with the retention and provision of grasslands throughout the site which will be managed for their biodiversity value. Such areas could include the grassland surrounding pond P1, along the northern site boundary, and the attenuation pond in the south west of the site. The area of grassland at TN5 will be retained where feasible, and it is also recommended that informal areas of grassland are incorporated along road verges and into the employment area in the west of the site, where appropriate. Depending on development and phasing timescales, this grassland could either be seeded with green hay collected from the species-rich areas of the site, or a suitable nearby donor site, through natural regeneration or through seeding with a suitable species-rich seed mix. The grassland (and all other areas of retained habitat within the site) will be subject to a suitable management regime, guided by a Landscape and Ecological Management Plan, which could entail rotational cutting during late summer and autumn.
- 5.14 In addition to the above, areas of retained or created species-rich grassland should also include, and be specifically managed for grass vetchling, to ensure the retention of this Derbyshire Red Data List species.

Hedgerows, Woodland and Scrub

- 5.15 Hedgerows H1-H5 and H7 are Habitats of Principal Importance under Section 41 of the NERC Act (2006). Hedgerow H6 comprised non-native species in the majority and is therefore of low conservation value. The majority of hedgerows are to be retained within the development proposals with the exception of a central section of H7 which will be lost to facilitate the construction of a balancing pond in the north of the site (and also part of the Woodville Link Road, which is the subject of a separate planning application). Replacement native species hedgerow and linear woodland block planting will be undertaken within the proposals to mitigate for the loss of hedgerow and also provide additional hedgerow habitats within the site.
- 5.16 The woodland and dense scrub in the east and west of the site are to be retained within the development proposals, and the woodland is to be buffered by an area of green open space, to include grassland and tree planting. Measures to direct recreation within the woodland, such as well-designed footpaths and thorny native scrub planting could be provided as part of the detailed landscaping for the site to reduce the impacts of increased use such as noise and human disturbance. A sensitive external lighting scheme to the development edge should be designed to ensure the woodland edge is not subject to increased lighting levels.

Pond and Ditches

- 5.17 The pond P1 in the north of the site and all on-site ditches, are to be retained within the proposals within areas of green space. The pond is considered to qualify as a Habitat of Principal Importance under Section 41 of the NERC Act (2006) and, owing to the presence of horned

pondweed, also qualifies for selection as a LWS under criterion Ff3 (any site that supports a population of plant species categorised as ~~Locally Scarce~~ or ~~Declining~~ within the Red Data List of Derbyshire's Vascular Plants where the population is considered to be native to that site).

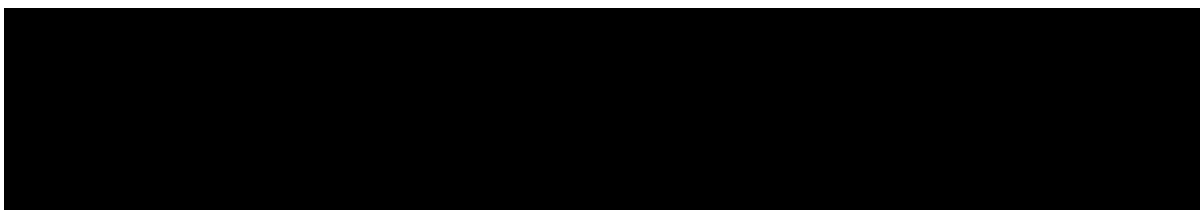
- 5.18 The pond is to be subject to works to increase its capacity for surface water drainage (as part of the overall SUDS system within the development proposals), such as raising of the banks with earth bunds, and therefore measures to ensure that this is achieved in an ecologically sensitive manner will be required to maintain the biodiversity value of the pond. Works to the pond and all on-site ditches should be undertaken in line with appropriate guidance, such as (the now withdrawn) Pollution Prevention Guidelines and all construction activities will be undertaken in accordance with a Construction Environmental Management Plan (CEMP).
- 5.19 Works will also need to ensure that the population of horned pondweed within the site is maintained during and after construction. Depending on the extent of works required to the pond P1, this may include temporary removal of horned pondweed such as through scraping (with a large machine bucket) of the existing silt where the species occurs and transferring this sediment to a temporary stockpile nearby. This stockpile should ideally be kept wet/damp throughout works. Once works to pond P1 are complete, the sediment containing the horned pondweed would be returned. Full details would be provided in a Mitigation Strategy for this species.

Invasive Non-Native Plant Species

- 5.20 Japanese knotweed and Himalayan balsam are classified as invasive weeds under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to cause these species to grow in the wild. Liability may also extend in situations where a landowner has knowingly permitted the spread of these species onto neighbouring land.
- 5.21 Precautionary measures to guide construction works will be provided as part of a Method Statement to ensure that Japanese knotweed and Himalayan balsam are not spread around the site during works. Toolbox talks will also be provided to ensure that all contractors and site personnel on site receive relevant training in identification and any relevant site practices before they commence work.
- 5.22 The stands of Japanese knotweed will be subject to a remediation strategy to be prepared by specialist contractors to ensure the eradication of the species from the site prior to the commencement of works. As part of the management of retained habitats, a long-term appropriate mitigation strategy would be implemented to prevent to minimise the occurrence of Himalayan balsam along the existing watercourses and prevent its spread into the on-site green space.

Fauna

- 5.23 Principal pieces of legislation protecting wild species are Part 1 of the Wildlife and Countryside



- 5.24 This guidance states that as the presence of protected species is a material consideration in any planning decision, it is essential that the presence or otherwise of protected species, and the extent to which they are affected by proposals is established prior to planning permission being granted. Furthermore, where protected species are present and proposals may result in harm to the species or its habitat, steps should be taken to ensure the long-term protection of the species, such as through attaching appropriate planning conditions for example.
- 5.25 In addition to protected species, there are those that are otherwise of conservation merit, such as species of principal importance for the purpose of conserving biodiversity under the Natural Environment and Rural Communities (NERC) Act 2006. These are recognised in the NPPF, which advises that when determining planning applications, LPAs should aim to conserve and enhance biodiversity by applying a set of principles including:
- If significant harm resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
 - Development proposals where the primary objective is to conserve or enhance biodiversity should be encouraged.
- 5.26 The implications for the proposed development as informed by the ecological assessments undertaken, are outlined below:

Amphibians

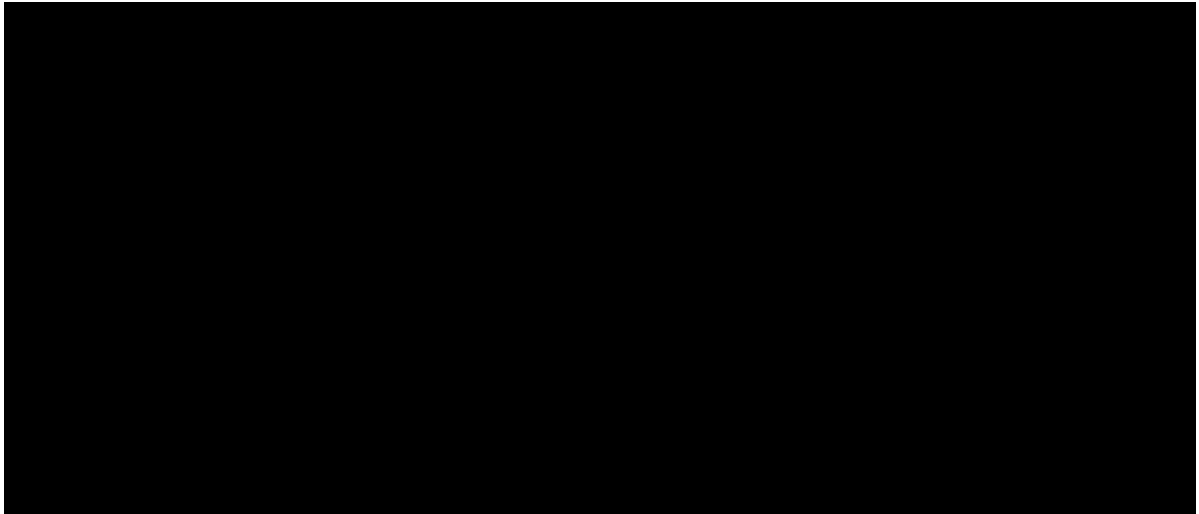
Great Crested Newts

- 5.27 Suitable aquatic and terrestrial habitat for great crested newts is present within the site however the results of previous year's surveys indicate that this species has been recorded as absent on four survey occasions (over a period of seven years). It is therefore considered that the presence of great crested newts within the site is highly unlikely, and this species is therefore not considered to be constraint to the proposed development.

Common Toad

- 5.28 During the 2014 aquatic presence/absence surveys, large numbers of common toad, a Species of Principal Importance under the NERC Act (2006), were recorded within the pond P1, and common toad have also been recorded within the site during the 2019 reptile surveys.
- 5.29 As detailed in the reptile section below, appropriate habitat clearance measures will ensure that this species can be displaced to areas of the site that are to be retained and unaffected by construction works, and any individuals found during site clearance would also be moved by hand to an unaffected area.
- 5.30 It is understood that the Woodville Link Road will potentially include a toad tunnel under the road, in a location to the north-east of pond P1 and a Common Toad Mitigation Strategy was required as a condition of this previous planning application (Condition 7 of 9/2017/1222). To complement this mitigation, it is recommended that areas of suitable terrestrial habitat for common toad are provided within the northern area of green space, on either side of the road. This could include areas of informally managed and tussocky grassland with scrub planting and hibernacula or log piles.

5.31



Bats

- 5.32 No trees within the site were found to support features suitable for roosting bats however the range of habitats within the site provide suitable foraging and commuting habitat.
- 5.33 In order to avoid any impacts associated with light spill on bat flight-lines or foraging habitat, it is recommended that the lighting strategy adopts the following:
- The avoidance of direct lighting of existing trees, hedgerows and the brook, and proposed areas of habitat creation / landscape planting;
 - Where appropriate the road and flood lighting should use low pressure sodium or high pressure sodium lighting instead of mercury or metal halide lamps;
 - Lighting columns would in general be as short as possible, although in some locations taller columns would allow reduced horizontal spill, and
 - Lighting levels would be as low as guidelines permit and only used where required for public safety.
- 5.34 The Bat Survey Report provides the results of bat activity surveys undertaken within the site.

Birds

- 5.35 As detailed in the Bird Survey Report, the assemblage recorded was typical of the habitats present, comprising common and widespread species and the site is considered to be of no more than local importance for birds. Development of the site as proposed will result in negligible impacts to most species, with the exception of skylark *Alauda arvensis*, meadow pipit *Anthus pratensis* and linnet *Linaria cannabina*. Up to ten breeding pairs of skylark were recorded and a small number of probable breeding meadow pipit, linnet and reed bunting *Emberiza schoeniclus*. The loss of this habitat will lead to a local adverse impacts for all three species. The retention of more established habitats and the habitat creation proposals included within the proposals will lead to negligible or beneficial impacts on the remainder of the assemblage recorded
- 5.36 Habitat creation has been recommended to provide additional nesting opportunities for several notable species. Mitigation measures are recommended to minimise disturbance impacts to birds during any clearance in the bird nesting season (March to August, inclusive).

- 5.37 A range of enhancement opportunities have been suggested based on the habitats and bird species recorded in order to achieve biodiversity gains. These include sensitive planting schemes and the provision of a range of nest boxes.

Reptiles

- 5.38 All common reptile species, including grass snake, slow-worm *Anguis fragilis* and common lizard *Zootoca vivipara* are partially protected under Section 9(1) and 9(5) of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This legislation protects these animals from:
- Intentional killing and injury;
 - Selling, offering for sale, possessing or transporting for the purpose of sale or publishing advertisements to buy or sell a protected species.
- 5.39 This partial protection does not directly protect the habitat of these reptile species. Where these animals are present on land that is to be affected by development, the implications of legislation are that providing that killing can *reasonably be avoided* then an operation is legal. This requires that:
- the animals must be protected from injury or killing;
 - mitigation should be provided to maintain the conservation status of the species;
 - following operations the population should be monitored.
- 5.40 No evidence of reptiles has been recorded to date during the presence/absence surveys undertaken in 2019. Grass snake have been recorded on-site in the past, albeit in very low numbers, and therefore it is considered that either a very small, or transitory population is present on-site.
- 5.41 To ensure compliance with relevant wildlife legislation it is therefore recommended that a passive displacement approach is undertaken during works in any areas which may potentially be used by reptiles. This passive dispersal exercise will comprise vegetation being slowly, directionally trimmed in the direction of appropriate retained habitats. The vegetation will be given two cuts, the first to a height of 200mm and the second 1-2 hours later to 50mm. All arisings will be removed from the working areas to prevent potential areas of refugia from being used by any animals moving across the site. Passive displacement works will only be undertaken during suitable weather conditions (April to October at temperatures consistently above 10°C with no rain). This practice is undertaken to prevent injury and death to any animals potentially present. The aforementioned works are to be conducted under ecological supervision. In the unlikely event that any reptiles are found, works must be stopped and further advice sought.

Water Vole

- 5.42 No evidence of water vole or otter was observed in association with any of the watercourses or waterbodies located within or in close proximity to the site in 2019, or during previous surveys for these species. The on-site habitats were considered to be largely sub-optimal for this species, being either heavily shaded, dry, isolated or polluted and therefore a second survey for water vole (during the 2019 July to September survey period) is not considered necessary.
- 5.43 The on-site pond P1 is to be retained within the development proposals, however works to the banks are likely to be required to increase its capacity for surface water attenuation. The on-site

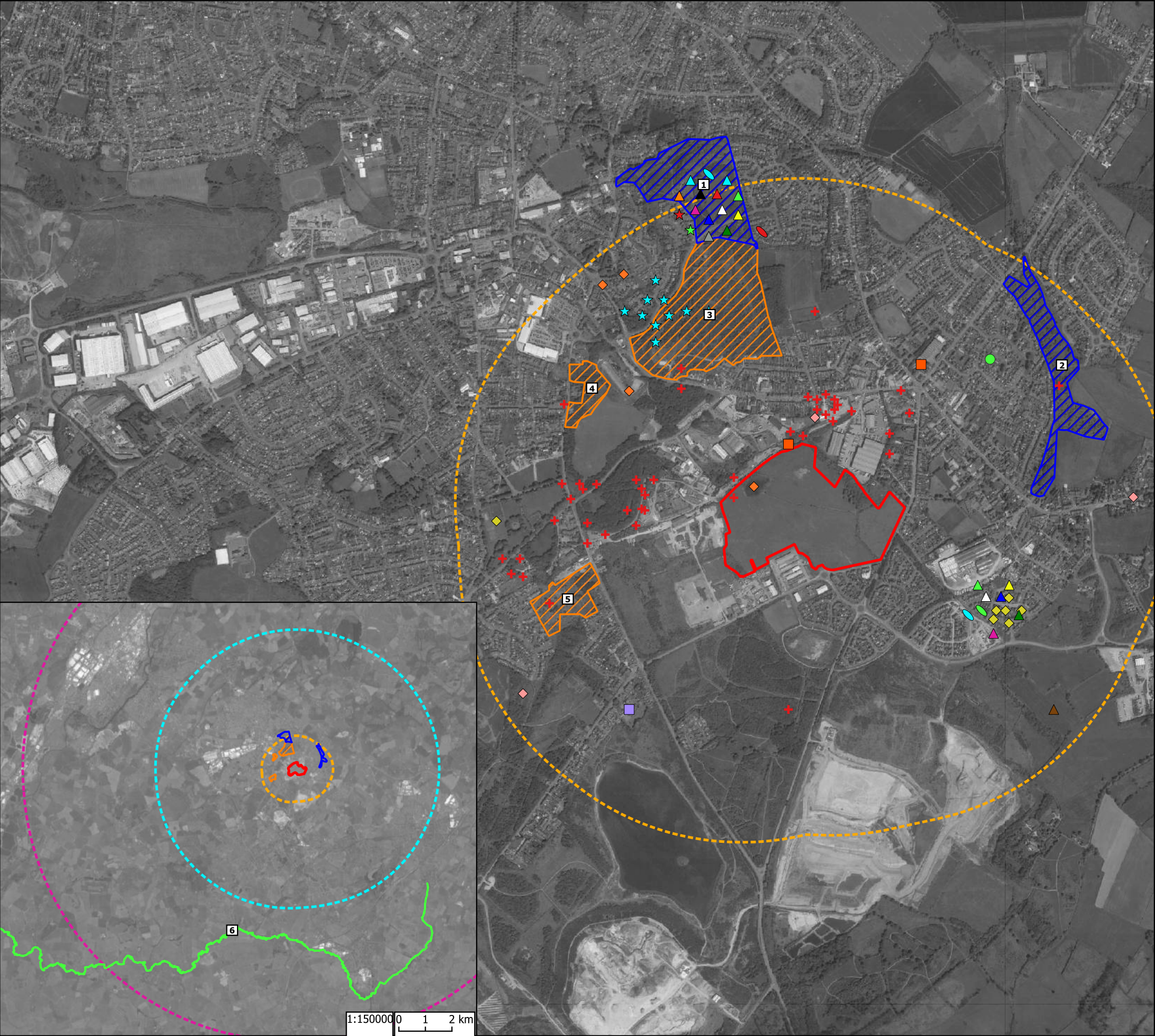
ditches are also to be retained in the majority however construction of outfalls or other drainage works might impact the banks. Due to the readiness of this species to colonise habitats, an update survey is recommended prior to the commencement of construction works within the site. The survey should be undertaken between mid-April and the end of June, or between July and September.

Other Notable/Protected species

- 5.44 Hedgehog have been recorded within industrial and residential areas to the north and east of the site and habitat suitable for hedgehog is present on site (woodland, hedgerows, scrub). To maintain connectivity for this species and ensure that gardens are accessible for foraging, small gaps (measuring approximately 15cm x 15cm) should be created at the bottom or in the corner of all garden fences to allow movement of hedgehog and other wildlife across the site.

6.0 ECOLOGICAL ENHANCEMENT

- 6.1 In line with NPPF, it is recommended that the development results in a gain in value for wildlife by incorporating biodiversity in and around the development via the use of ecological enhancement measures.
- 6.2 Areas of green space area to be created through the centre and east of the site. It is recommended that these include the following, where feasible:
- Tree planting i using native species and good landscape planting, to habitat corridors through the site for wildlife;
 - Species-rich grassland i As detailed above, these could be created through the retention of on-site grassland, or seeding using green hay or a suitable seed mix of a composition appropriate to natural character area of the site. The subsequent management of these habitats would be undertaken to encourage the development of diverse swards;
 - Ponds i new waterbodies created as part of the Sustainable Urban Drainage System (SUDS) for the proposals, and designed to be of value to wildlife;
 - A strategy to ensure the eradication of Japanese knotweed from the site;
 - As part of the management of the green space, a long-term strategy will be implemented to minimise the occurrence of Himalayan balsam along the existing watercourses and prevent its spread into other adjacent habitats; and
 - A series of bat and bird boxes/tubes will be installed on the existing mature and early-mature trees and proposed buildings within the site to increase roosting opportunities for local bats, and nesting opportunities for birds;
- 6.3 In addition to the above, the following general recommendations are relevant for this specific site:
- Encouragement of planting of fruit trees in residential gardens to provide resources for invertebrates, including pollinating insects, and the fauna that preys upon them such as birds and bats;
 - Provision of gaps under fences to allow the free movement of hedgehogs between gardens and along boundary habitats.



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Key

- Site Boundary
- 1km Buffer
- 5km Buffer
- 10km Buffer
- Designated Sites**
 - Local Wildlife Sites (LWS)
 - Potential Local Wildlife Sites (pLWS)
 - Special Area of Conservation (SAC)

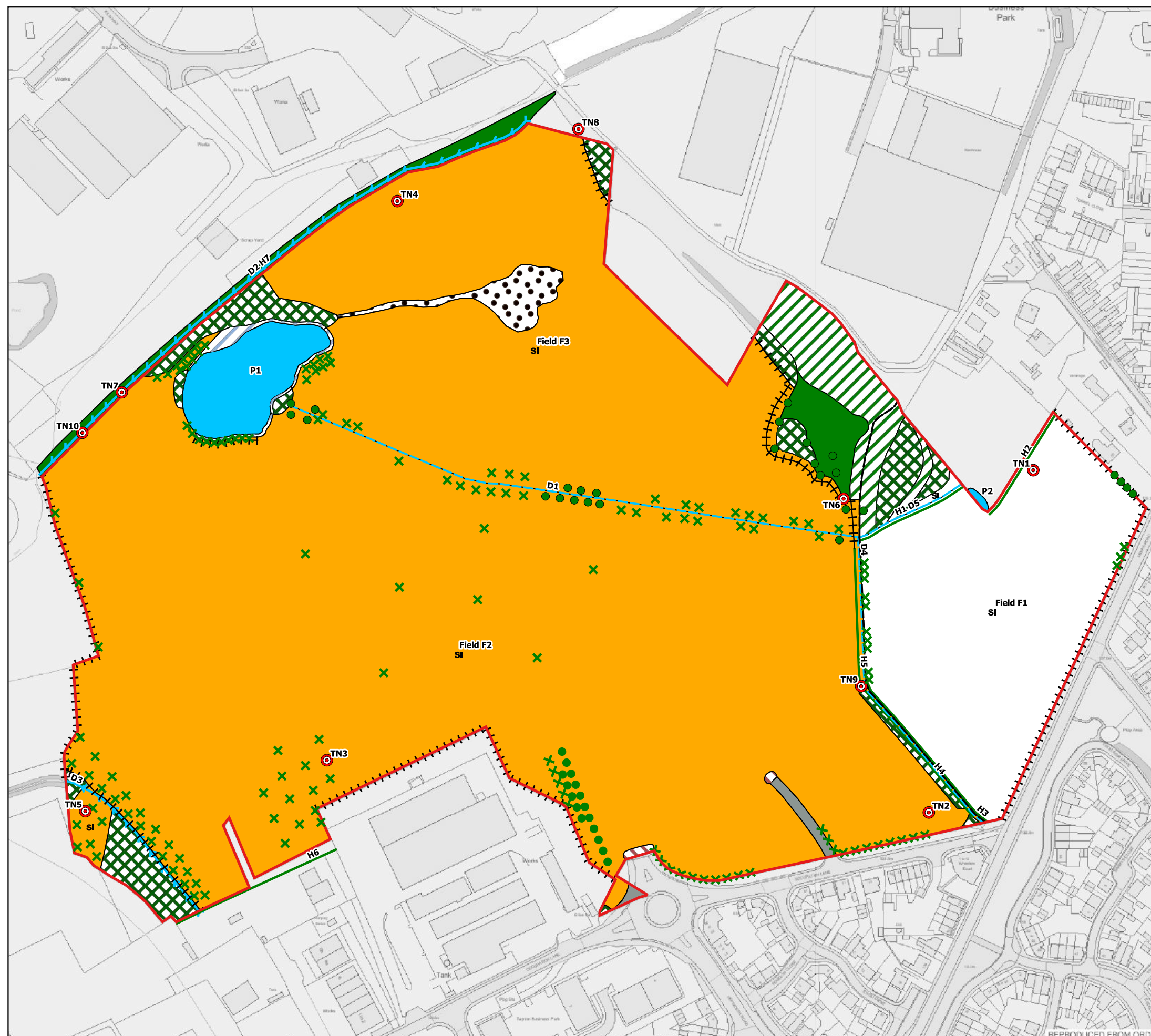
- 1 - Midway Clay Site LWS
- 2 - Woodville Disused Railway LWS
- 3 - Swadlincote Woods pLWS
- 4 - Ski Heath pLWS
- 5 - Land off Penkridge Road pLWS
- 6 - River Mease SAC

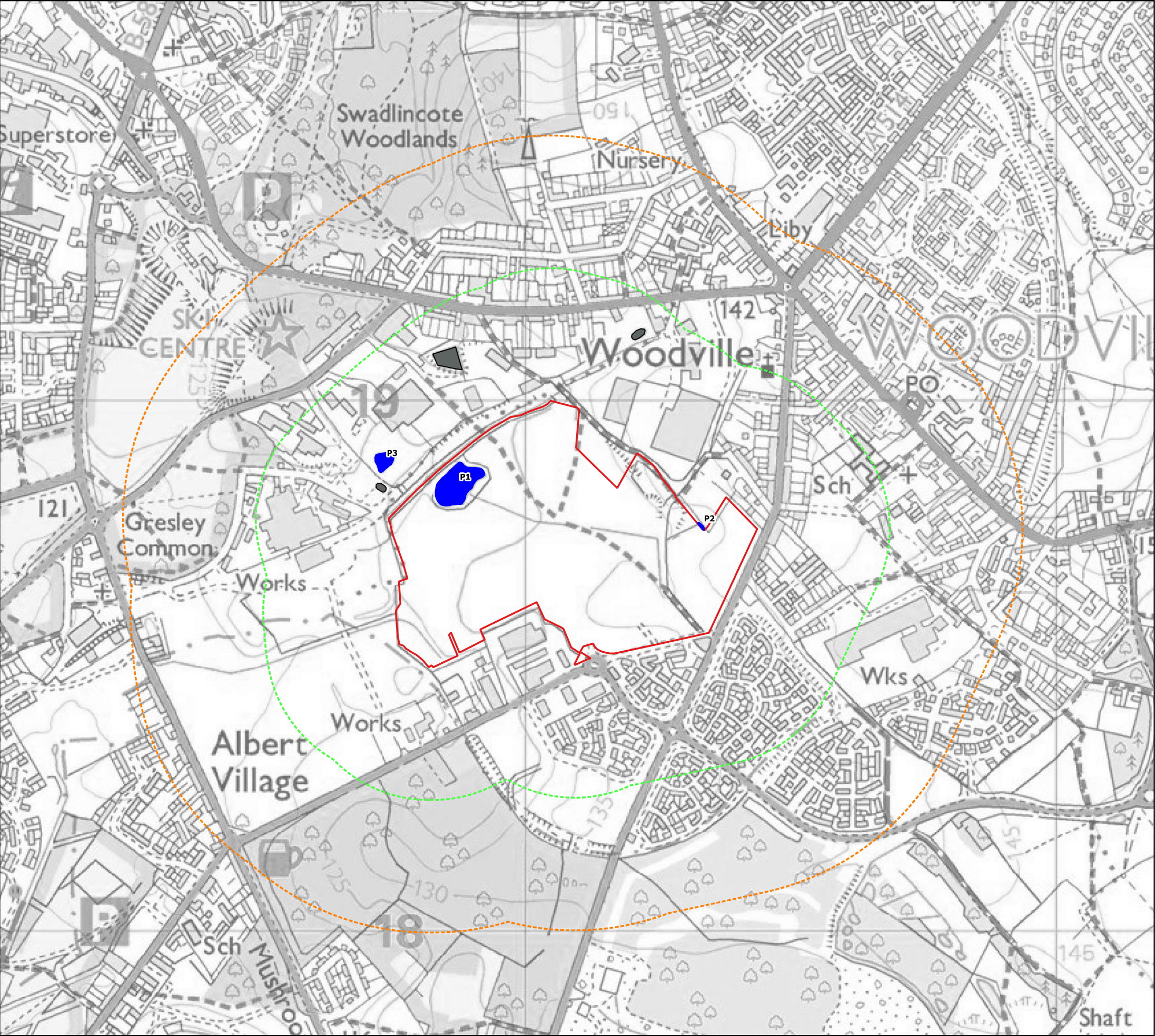
Species Records

- | | |
|---------------------------|----------------------|
| Bullfinch | Linnet |
| Common toad | Marsh Tit |
| Cuckoo | Reed Bunting |
| Dingy skipper | Skylark |
| Duncock | Small Heath |
| Grass Snake | Song Thrush |
| Great crested newt | Starling |
| Grey Partridge | Swift |
| Hedgehog | Unidentified bat sp. |
| House Sparrow | Wall |
| Japanese knotweed | Water vole |
| Kingfisher | Yellowhammer |
| Lesser-Spotted Woodpecker | |

Key

-  Site Boundary
-  Bare ground
-  Broadleaved woodland - plantation
-  Broadleaved woodland - semi-natural
-  Built Environment: Buildings/hardstanding
-  Marginal and inundation - marginal vegetation
-  Neutral grassland - semi-improved
-  Other tall herb and fern - ruderal
-  Poor semi-improved grassland
-  Scrub - dense/continuous
-  Standing water
-  Broadleaved trees
-  Footpath
-  Flowing ditch
-  Intact hedge - species-poor
-  Fence
-  Dry ditch
-  Scrub - scattered
-  Target Note (with reference)



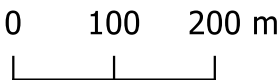


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Key

- Site Boundary
- 250m Buffer
- 500m Buffer
- Pond (with reference)
- Pond no longer present



client
Harworth Group PLC
project
Occupation Lane,
Woodville
drawing title
POND LOCATION PLAN

scale @ A3
1:7500

drawn
LG / ERD

issue
15/7/2019

drawing / figure number
Figure 3

rev
8794-E-03



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Key

- Site Boundary
- Temporary Artificial Refugia

Appendix A - Botanical Species Lists (Fields F1, F2 and F3 Grassland)

Species		F1		F2		F3	
		Frequency	Notes	Frequency	Notes	Frequency	Notes
Bee orchid	<i>Ophrys apifera</i>	-		R		-	
Broad-leaved dock	<i>Rumex obtusifolius</i>	R		-		-	
Brooklime	<i>Veronica beccabunga</i>	R	TN1	-		-	
Bulbous buttercup	<i>Ranunculus bulbosus</i>	-		R		-	
Cat's ear	<i>Hypochaeris radicata</i>	-		R	vLF at field edges	R	vLF - TN4
Cocksfoot	<i>Dactylis glomerata</i>	R	O at boundaries	O		F	
Common bent	<i>Agrostis capillaris</i>	F - LA		F - LA		F	
Common bird's-foot trefoil	<i>Lotus corniculatus</i>	R		R	vLF at field edges, TN2, TN3	F	
Common centaury	<i>Centaureum erythraea</i>	-		R		R	O - TN4
Common couch	<i>Elymus repens</i>	R		O		R	
Common daisy	<i>Bellis perennis</i>	R		O		R	
Common hogweed	<i>Heracleum sphondylium</i>	R	O at boundaries	R	O at field edges and TN3	R	
Common knapweed	<i>Centaurea nigra</i>	-		R	vLF at field edges	R	O - TN4
Common mouse-ear	<i>Cerastium fontaun</i>	R		O		F	
Common nettle	<i>Urtica dioica</i>	R	O - TN1	R	O - TN3	R	
Common sorrel	<i>Rumex acetosa</i>	R		R		-	
Common vetch	<i>Vicia sativa</i>	F - LA		F		F	
Compact rush	<i>Juncus conglomeratus</i>	R	LF - TN1	R		R	O - east of pond and north-east corner of field
Cleavers	<i>Galium aparine</i>	-	O at boundaries	-		-	
Creeping bent	<i>Agrostis stolonifera</i>	R		R		R	
Creeping buttercup	<i>Ranunculus repens</i>	O		F		R	

Creeping cinquefoil	<i>Potentilla reptans</i>	R		R	vLF at field edges	R	LF - TN4
Creeping soft grass	<i>Holcus mollis</i>	-		-		R	vLF - around edges of bare ground
Creeping thistle	<i>Cirsium arvense</i>	R	O at boundaries	O	O - TN3	R	
Crested dog's-tail	<i>Cynosurus cristatus</i>	F - LA		F	LA in central areas	F	
Cuckoo flower	<i>Cardamine pratensis</i>	-		R		-	
Curled dock	<i>Rumex crispus</i>	R	O - TN1	R	O - TN3	R	
Cut-leaved cranesbill	<i>Geranium dissectum</i>	R		F		O	
Dandelion	<i>Taraxacum</i> agg.	F		O		O	
Dog rose	<i>Rosa canina</i>	-		R		R	
False oat grass	<i>Arrhenatherum elatius</i>	R	O at boundaries	O	LF in central areas	R	
Field wood rush	<i>Luzula campestris</i>	-		-		R	Around pond
Fox and cubs	<i>Pilosella aurantiaca</i>	-		R		-	
Glaucous sedge	<i>Carex flacca</i>	-		R	O - TN2	R	
Goat's beard	<i>Tragopogon pratensis</i> agg.	-		R		R	
Grass vetchling	<i>Lathyrus nissolia</i>	-		O	vLF at field edges, TN2, TN3	R	
Great willowherb	<i>Epilobium hirsutum</i>	R	O + LF - TN1	R		-	
Hairy sedge	<i>Carex hirta</i>	-		R	O - TN2	R	O - east of pond
Hairy tare	<i>Vicia hirta</i>	R	vLF	R	vLF at field edges, TN2, TN3	F	
Hard rush	<i>Juncus inflexus</i>	R		R	O - TN2	R	O - east of pond and north-east corner of field
Hawkbit sp.	<i>Leontodon</i> sp.	-		R		O	
Hawkweed sp.	<i>Hieracium</i> sp	-		R		R	Around pond
Hawthorn	<i>Crataegus monogyna</i>	R		R		-	

Hedge bindweed	<i>Calystegia sepium</i>	-	O - TN1	-		-	
Lady's bedstraw	<i>Galium verum</i>	-		R		R	O - TN4
Lesser stitchwort	<i>Stellaria graminea</i>	-		-		R	
Lesser trefoil	<i>Trifolium dubium</i>	O		F		F	
Lupin	<i>Lupinus sp.</i>	-		-		R	
Marsh foxtail	<i>Alopercus geniculatus</i>	R	vLF- TN1	-		-	
Marsh orchid	<i>Dactylorhiza sp.</i>	R		R		R	O around pond
Meadow buttercup	<i>Ranunculus acris</i>	F - LA		F		O	LA in places
Meadow foxtail	<i>Alopercurus pratensis</i>	F		R		R	
Meadow vetchling	<i>Lathyrus pratensis</i>	R		R	vLF at field edges, TN2, TN3	R	vLF - TN4
Moss		R	O - TN1	R		R	
Mouse-eared hawkweed	<i>Hieracium pilosus</i>	-		-		R	Around pond
Oval sedge	<i>Carex leporina</i>	-		R		R	
Ox-eye daisy	<i>Leucanthemum vulgare</i>	-		F		F	LA - TN4
Perennial ryegrass	<i>Lolium perenne</i>	F		O		R	
Perforate St. John's-wort	<i>Hypericum sp.</i>	-		R	vLF in small areas	R	O - TN4
Pignut	<i>Conopodium majus</i>	-		-		R	TN4 only
Prickly sow thistle	<i>Sonchus asper</i>	-		-		R	
Pyramidal orchid	<i>Anacamptis pyramidalis</i>	-		R		R	
Ragwort sp.	<i>Senecio sp.</i>	F		F		R	
Red clover	<i>Trifolium pratense</i>	R		O		F	
Red fescue	<i>Festuca rubra</i>	O		F		F	
Ribwort plantain	<i>Plantago lanceolata</i>	R		O		F	
Rough meadow grass	<i>Poa trivialis</i>	F		F		F	
Self-heal	<i>Prunella vulgaris</i>	-		R		R	O - TN4
Sheep's sorrel	<i>Rumex acetosella</i>	-		R		R	
Silverweed	<i>Potentilla anserina</i>	-		R		-	

Smooth tare	<i>Vicia tetrasperma</i>	R		F		F	
Soft brome	<i>Bromus hordeaceus</i>	R		F	LA in central areas	R	
Soft rush	<i>Juncus effusus</i>	-		R		R	
Spear thistle	<i>Cirsium vulgare</i>	R		R		R	
Spiked sedge	<i>Carex spicata</i>	-		R	vLF i A - TN2 and southern field edge	R	vLF - north-east corner of field
Squirrel-tail fescue	<i>Vulpia bromoides</i>	-		-		R	vLF - north-east field edge
Sweet vernal grass	<i>Anthoxanthum odoratum</i>	F		R		R	
Tansy	<i>Tanacetum vulgare</i>	-		R		-	
Thyme leaved speedwell	<i>Veronica serpyllifolia</i>	-		R		-	
Timothy	<i>Phleum pratense</i>	-		R		R	
Tufted hair grass	<i>Deschampsia caespitosa</i>	R		R	O i LF - TN2	R	LF - pond edge and north-east corner of field
Tufted vetch	<i>Vicia cracca</i>	-		R	O - TN2	R	vLF - TN4
White clover	<i>Trifolium repens</i>	O		F		F	
Wild carrot	<i>Daucus carota</i>	-		F		F	
Willowherb sp.	<i>Epilobium sp.</i>	R		R		-	
Wood avens	<i>Geum urbanum</i>	O at boundaries		-		-	
Yarrow	<i>Achillea millefolium</i>	-		R		R	
Yorkshire fog	<i>Holcus lanatus</i>	F		F	LA in central areas	F	