

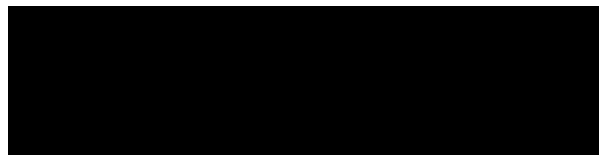
**Samlesbury Estate
Lancashire
Ecological Assessment
December 2017
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1.0 INTRODUCTION

- 1.1 TEP was commissioned in September 2010 to provide ecological services to Harleyford Aggregates Limited with regard to quarry proposals on the Samlesbury Estate. TEP was subsequently commissioned to update the ecological assessment in 2013, 2015 and 2017.
- 1.2 The extent of the proposed quarry area, the plant site and the access road joining to the A59 to the south is shown at Figure 2-1, and on the proposed phasing plan in Appendix 1. The area shown has been reduced from the larger area proposed in 2013, and so previous surveys undertaken in 2010 – 2013 covered a larger area than those in 2015.
- 1.3 Within this report, from hereon in, reference made to the “site” refers to land within the red line boundary shown at Figure 2-1. Appropriate survey areas are referred to separately. The boundaries of survey areas used in 2015 are illustrated at Drawing G5181.008.
- 1.4 The site is currently comprised of arable and pasture, split into two parcels of land. The larger parcel is located within a tight meander of the River Ribble (southeast), as illustrated at Figure 2-1. The smaller corridor associated with the access road is located to the south of the Bezza Brook, to the east of the River Ribble. The proposed access road proceeds south through improved grazed grassland between linear strips of woodland to join the A59 Preston New Road. The majority of the site is relatively flat, although the route of the access road slopes upwards to the A59.
- 1.5 The north western corner of the site, bordered on three sides by the meander of the River Ribble, consists of broadleaved woodland dominated by ash (*Fraxinus excelsior*) and sycamore (*Acer pseudoplatanus*), dense and scattered scrub and standing water, surrounded by semi-improved pasture.
- 1.6 The central areas of the site consist of improved grassland swards dominated by ryegrass (*Lolium perenne*) which is seasonally grazed for part of the year. The fields through which the access road passes are semi-improved and are also grazed. Species-poor hedgerows border the majority of fields.

2.0 SCOPE AND PURPOSE

- 2.1 An interim report (TEP Report Ref: 2609.007) was produced in November 2010 which outlined the ecological surveys and assessments that had been undertaken on the site up to that date. Since then, additional surveys have been completed in 2011, 2013 and 2015.
- 2.2 This report details the findings of all the ecological surveys and outlines constraints, potential mitigation options and ecological enhancement measures.
- 2.3 This report is informed by the route of the access road, as illustrated on the Paul Carpenter Associates Drawing Ref: 9567_502 Revision P2 (Appendix 1). The proposed location of the quarrying activities and the Plant Site is illustrated within the

Paul Carpenter Associates Phasing Plan in Appendix 1. However, at the time of writing, neither the exact boundaries of the quarrying activity nor the exact location of processing plant or any associated buildings is known.

- 2.4 It is understood that the local planning authority has confirmed that an Environmental Statement (ES) will be required to support the application. The ecological assessment set out in this report will inform an Ecology Chapter to be included within the ES.

Figure 2-1: Site location and environs



3.0 SURVEY METHODS

Desktop survey

- 3.1 Information was requested/gathered from the sources listed at Table 1 below, during the course of the ecological investigations at the site.

Table 1: Sources of information accessed for desktop survey

Source	Nature of Information
Lancashire Biodiversity Action Plan (BAP)	Local BAP species and habitats
DEFRA Magic Map Website	Statutory protected sites
Lancashire Environmental Records Network	Local Wildlife Site data
Section 41 List – Natural Environment and Rural Communities Act 2006	Habitats and Species of Principal Importance

Phase 1 Habitat survey

- 3.2 An Extended Phase 1 habitat survey of the site was initially undertaken in September 2010 following JNCC (2010) methodology. An update survey was then carried out in June 2013. The survey recorded the habitats present within the site and their potential to support protected species. Evidence of any invasive species was also recorded during the course of the survey. The 2013 habitat survey was ground-truthed during surveys in 2015 and any notable changes to site conditions were recorded.
- 3.3 The full results of the Extended Phase 1 habitat surveys, including habitat descriptions, species lists and habitat map are present in Appendix 2.

Invasive species

- 3.4 All stands or individual specimens of invasive plant species were identified and mapped during the habitat survey.

Great crested newts

- 3.5 There are 19 ponds located within 500m of the application site, of which 12 are within 250m and four are located within the application site. The pond locations are shown on the habitat plan D2609.001A. Eleven ponds on the site were subject to great crested newt (GCN) survey in May and June 2013. Following revisions to the access route location, twelve ponds were subject to GCN survey in May and June 2015. The locations of the surveyed ponds are shown at Drawing G5181.008. Both the 2013 and 2015 survey methods are shown in Appendix 4.
- 3.6 The GCN survey was undertaken in accordance with the best practice guidance (e.g. English Nature, 2001), using a combination of torch lit survey, bottle trap survey, egg searching and terrestrial search.

- 3.7 Due to the un-seasonally cold weather in spring 2013, and access difficulties, the initial two survey visits could not be undertaken until mid-May. All surveys were complete by mid-June. All survey visits were therefore completed in accordance with guidelines. Two of the ponds (ponds 6 and 7) were found to be entirely dry during the 2013 survey.
- 3.8 Similar constraints were experienced during 2015, with an unseasonally cold spring leading to a later than normal commencement of the surveys; however, as with 2013, the timing of survey visits were scheduled and completed in accordance with guidelines. Four of the ponds (Ponds 1, 5, 6 and 9) were found to be dry during the 2015 survey.
- 3.9 The three ponds in the north of the site (W1, W2 and W3) were subject to eDNA survey to determine presence/absence of great crested newts in 2015. Background to the eDNA survey, including the methods used are detailed in Appendix 5.

Bats

Roosts

- 3.10 Ground-based bat evaluation of trees for their bat roost potential within the site were undertaken in 2010.
- 3.11 In 2013, based upon preliminary proposals for the access road, one tree with bat roost potential was confirmed to be likely to require removal to facilitate the construction of the access road. This tree (T5, Drawing G5181.008) is an oak tree on Potters Lane (GR 59427 30848). This tree was subject to two dawn re-entry and one dusk emergence survey) conducted on the 13th, 20th and 29th August 2013.
- 3.12 In 2015, following refinements to the route for the access road, a ground based bat assessment of all trees that could potentially be affected by the works was undertaken on 7th May by licenced bat ecologist John Crowder. Six trees were identified as having either Category 1 or 1* potential to support roosting bats under the Bat Conservation Trust Guidelines 2012 (Drawing G5181.008). These trees (T1 – T6) were subject to dusk emergence surveys on the 22nd July, 18th August and 1st September 2015.
- 3.13 Surveys were carried out by one or two surveyors per tree, according to the number and position of potential roost features. At least one member of the survey team possessed a minimum Level 2 Class Licence. Surveys commenced 0.5hr before sunset and continued for a minimum of 1.5hrs.

Foraging and Commuting

- 3.14 The mix of woodland, hedgerows, grassland and aquatic habitats indicates the site is likely to provide good foraging opportunities for bats.
- 3.15 Bat activity transects were carried out on the 1st and 13th August 2013. A defined route was walked at a slow pace by two bat surveyors with 17 designated stopping points, with each stop lasting for three minutes. At each stop and each walk in

between, the number of bat passes was recorded in addition to species and flight or foraging behaviour, if observed..

- 3.16 All bat surveys were completed in accordance with the best practice guidance (Hundt, 2012) and at the appropriate time of year.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] and otter

- 3.20 Records for water vole and otter were identified in the landscape surrounding the site. The River Ribble, which bounds the proposed quarried area of the site, and Bezza Brook which bounds the southern end of the proposed quarry area and is to be crossed by the access road, provide potential habitat for otter and water vole.

A survey for these species was undertaken during the course of the Extended Phase 1 habitat surveys in 2010. The water vole and otter survey was updated on 18th October 2013 by ecologists Sarah Sadler and Kerry Stead. During the survey the banks of the River Ribble and Bezza Brook were searched for evidence of use by water voles and was undertaken following guidance provided by the Water Vole Conservation Handbook (3rd Edition). During the survey the banks were also inspected for evidence of use by otter.

- 3.21 The water vole and otter survey of the Bezza Brook and the River Ribble was updated on the 9th September 2015. The same methodology as the 2013 survey was used, with the surveys carried out by ecologists Lee Greenhough and Fleur Wilson.

Reptiles

- 3.22 The site was considered to have limited value for reptiles due to the intensive agricultural use of the site. However, there were some areas of habitat recorded which were considered to provide potential reptile habitat. As a result of this, a targeted reptile survey was completed in 2013 following best practice techniques (Froglife, 1999).

- 3.23 Artificial refugia were laid amongst areas of potential reptile habitat and were allowed to rest for a period of 14 days prior to the first survey visit. A total of seven visits were then undertaken during September and October 2013.

- 3.24 The last two survey visits were completed in October, which is outside the optimum survey period stated in Froglife (1999). However, the weather during October

remained mild and the conditions during the last two survey visits were comparable with September visits; the extension of the survey into October was therefore not considered to present a significant limitation to survey effectiveness.

Birds

- 3.25 The site, with its mature trees, scrub and grassland habitats, provides nesting and foraging habitats for various bird species. Dedicated bird surveys have been undertaken across the site, including:
- Wintering bird survey 2011 - comprising three monthly visits from early January to March 2011;
 - Breeding bird survey 2011 – comprising two visits, one in early May and one in June 2011; and
 - Breeding bird survey 2015 – comprising three monthly visits during May, June and July 2015.
- 3.26 During each survey visit, the surveyor walked a predefined transect route, mapping all birds encountered using the standard British Trust for Ornithology codes. The transect route was designed so that no part of the site was further than 50m from the route. The same transect route was followed during each visit. Survey visits were commenced approximately half an hour after dawn and typically lasted up to four hours in duration.

4.0 SURVEY RESULTS

Desktop survey

Protected Sites

- 4.1 There are no internationally designated wildlife sites within 10km of the Samlesbury site. The closest such sites are the Bowland Fells Special Protected Area (SPA), approximately 12km to the north and the Ribble & Alt Estuaries SPA/Ramsar site approximately 15km to the west.
- 4.2 The Bowland Fells SPA is designated for supporting breeding hen harrier and merlin. It is considered that the proposed works at Samlesbury would not have any impact on these species and would therefore not have an impact on this SPA.
- 4.3 The Ribble and Alt Estuaries SPA is designated for the following species:
- Bewick's swan (Non-breeding)
 - Whooper swan (Non-breeding)
 - Pink-footed goose (Non-breeding)
 - Shelduck (Non-breeding)
 - Wigeon (Non-breeding)
 - Teal (Non-breeding)
 - Pintail (Non-breeding)
 - Oystercatcher (Non-breeding)
 - Ringed plover (Non-breeding)

- Golden plover (Non-breeding)
- Grey plover (Non-breeding)
- knot (Non-breeding)
- Sanderling (Non-breeding)
- Dunlin (Non-breeding)
- Ruff (Breeding)
- Black-tailed godwit (Non-breeding)
- Bar-tailed godwit (Non-breeding)
- Common redshank (Non-breeding)
- Lesser black-backed gull (Breeding)
- Common tern (Breeding)
- Waterbird assemblage
- Seabird assemblage

4.4 There is one nationally designated wildlife site within 2km of the Samlesbury site: the Red Scar and Tun Brook Woods Site of Special Scientific Interest (SSSI). The SSSI constitutes one of the largest areas of deciduous woodlands in Lancashire and includes Boilton and Nab Woods. The SSSI surrounds the western half of the Samlesbury site, but on the opposite side of the River Ribble.

4.5 Within the SSSI, Red Scar Wood consists of valley alderwood on neutral-alkaline soil along the steep escarpment of the Ribble. The steep clay slopes support a rich and lime-loving flora. The other woods in the SSSI consist of ash-wych elm woodland on neutral clay soils with sycamore (*Acer pseudoplatanus*) and wild cherry (*Prunus avium*) occurring regularly, but oak (*Quercus* sp) is sparse. The SSSI supports a good population of birds, including hawfinch and there are also badger setts. The white letter hairstreak butterfly has extended its range to these woods and other woods in the Ribble, its only location in north west England. Oak bush-cricket has also been recorded and is rare in the region.

4.6 There are multiple local designated wildlife sites within a 2km radius of the Samlesbury site. There are four Biological Heritage Sites (BHS), designated by Lancashire County Council, near the area proposed for the access route (which will run between Potter Lane and the A59-located in the road median). These are woodland sites:

- Seed Park BHS;
- Samlesbury Wood BHS; and
- Preston New Road A59 BHS.
- St`s Marys Church Wood BHS

4.7 There are four other BHS adjacent to the main site (the area proposed for aggregate removal), they are:

- River Ribble (from London Road Bridge, Preston, in west to County Boundary, in east) BHS;
- Brockholes Quarry/Meadow BHS;
- Pope Lane Ponds BHS; and
- Bezza Lane BHS.

- 4.8 The River Ribble BHS forms the north, west and south boundaries of the Samlesbury main site. Brockholes BHS is south of the main site on the opposite bank of the River Ribble. Pope Lane Ponds BHS is west of the main site on the opposite side of the River Ribble and the SSSI. Bezza Lane BHS is adjacent to the southeast boundary of the main site, on the northern edge of Seed Park BHS.
- 4.9 The Brockholes Quarry/Meadow BHS is also a Local Nature Reserve (LNR) managed by the Lancashire Wildlife Trust. The boundaries of the LNR are formed by the River Ribble to the east and south, the motorway to the west and the SSSI to the north.

Protected Species

- 4.10 Record searches with Lancashire Environment Record Network revealed a number of protected species records within the site boundary and within a 1km radius of the site boundary. These records are detailed in Table 2. Appendix 1 shows the full results of the desktop study, including all protected species record locations.

Table 2: Protected species records

Protected species	Location
Great crested newt	Within site boundary
Badger	Within site boundary
Eel	Within site boundary
Roe deer	Within site boundary
Brown hare	Within 1km North, east, west
Red squirrel	Within 1km south and north
Water vole	Within 1km north
Otter	Within 1km north
Eel	Within 1km east
Noctule bat	Within 1km west
Pipistrelle sp. bat	Within 1km west

Phase 1 Habitat survey

- 4.11 The full results of the Extended Phase 1 Habitat Survey, including habitat descriptions, species lists and a habitat map, are presented in Appendix 2. In brief, the following habitats were recorded in the site:
- Improved grassland;
 - Semi-improved species poor grassland;
 - Species-poor hedgerow;
 - Scrub;
 - Amenity grassland;
 - Tall ruderal herb;
 - Standing water;

- Running water;
- Semi-natural broadleaved woodland; and
- Scattered broadleaved trees.

4.12 The habitats within the site that are considered to be of greatest ecological value are woodlands, trees, hedgerows and aquatic habitats.

Invasive species

4.13 Both Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*) were observed at various locations on the site, usually in association with watercourses. Both of these species are listed on Schedule 9 of the Wildlife & Countryside Act 1981 (as amended).

Great crested newts

4.14 United Utilities has previously undertaken amphibian surveys in land surrounding the access route area during 2013. These surveys have identified great crested newt (GCN) within ponds north of the A59 and south of Seed Park.

4.15 The results of the 2013 and 2015 surveys are summarised in Table 3. Full results of the 2013 and 2015 TEP surveys, including survey conditions, habitat descriptions and photos, are presented in Appendix 3.

Table 3. Peak counts of amphibians recorded within each pond during 2013 and 2015 amphibian surveys.

Pond Ref	GCN		Smooth/palmate		Toad		Frog	
	2013	2015	2013	2015	2013	2015	2013	2015
1	2 (B)	Dry	3 (B)	Dry		Dry	1 (T)	Dry
2	2 (T)	1 (B)	7 (T)				1 (T)	
3								
4		1 (T)		2 (T)				
5		Dry	2 (B)					
6	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
7	Dry		Dry		Dry		Dry	
8		1 (B)	4 (B)	7 (T)		larvae	2 (T)	1 (T)
9		Dry		Dry		Dry		Dry
W1							larvae	
W2								
W3					larvae			

Key to Table 3:

T = Recorded during torch survey

B = recorded during bottle trap survey.

Cross-hatched cells = eDNA survey only.

4.16 In 2013, a small metapopulation of GCN was confirmed in ponds 1 and 2. GCNs were confirmed to breed in pond 1 (eggs were recorded).

4.17 During 2015, although pond 1 was dry, a small metapopulation of great crested newts was again confirmed, this time with the wider range of Ponds 2, 4 and 8.

4.18 With regard to other amphibian species:

- small populations of smooth newts (*Lissotriton vulgaris*) were recorded in ponds 1, 2, 5 and 8 in 2013 and in ponds 4 and 8 during 2015.
- low populations of common frog (*Rana temporaria*) were recorded in in four of the ponds (ponds 1, 2, 8 and W1) in 2013 but only one pond (pond 8) in 2015;
- a low population of common toad (*Bufo bufo*) was present in only one pond each year of survey (pond W3 in 2013 and pond 8 in 2015).

Bats

Roosts

4.19 The location of the six trees surveyed for roosting bats are illustrated at Drawing G5181.008. No bats were seen entering or emerging from tree 5 during the 2013 activity surveys.

4.20 Results of the emergence surveys at six trees in 2015 are summarised in Table 4. Tree 2 and Tree 5 were confirmed to support a daytime transient bat roost, each utilised by a single bat on a single occasion.

Table 4: Summary of tree roost surveys 2015

Visit 1: 22 nd July		Sunset: 21:25	Start: 20:55 16.6°C	Finish: 22:30 12.6°C	Weather: Dry 40% - 50% cloud Beaufort 1
Tree Ref	Surveyor	First bat	Species Recorded		Emergence (nr. / spp)
T1	Su O'Neill (2015-13768-CLS-CLS)	22:06 My	My (F+C), Pp (F+C), Pg (F+C), Nn (C)		-
T2	Sean Hough	21:58 Un	Pp (F+C), My (F)		21:58 Un x1nr emergence from upper right main stem
T3	Craig Smith	22:01 Pp	Pp (F+C), My (C), Pg (F+C)		-
T4	Zoe Foster + Simon Booth	21:48 Un	Pp (F+C), Nn (C)		-
T5	Peter Bonney + Charlotte Wood	22:00 Pp	Pp (F+C), Mb (C), Pg (C), Nn (C), My (C)		-
T6	Martyn Barnes	21:55 My	My (C), Pp (C), Pg (F+C), Nn (C)		-
Visit 2: 18 th August		Sunset: 20:35	Start: 20:00 16.7°C	Finish: 21:34 16.9°C	Weather: Dry 70% - 90% cloud Beaufort 0-2
Tree Ref	Surveyor	First bat	Species Recorded		Emergence (nr. / spp)

T1	Peter Hilton	21:02 My	My (C), Pp (F+C)	-	
T2	Su O'Neill (2015-13768-CLS-CLS)	20:55 Un	Pp (F+C), Pg (F+C), My (C), Nn (C)	-	
T3	Craig Smith	20:56 Nn	Pp (F+C), My (C), Nn (C)	-	
T4	Beth Walker + Simon Booth	20:46 Pp	Pp (C)	-	
T5	Peter Bonney + Charlotte Wood	20:59 Pp	Pp (F+C), Pg (F+C), Nn (F+C)	-	
T6	Pat Hilton	20:10 Nn	My (F+C), Pp (C), Nn (C)	-	
Visit 3: 1 st September		Sunset: 20:02	Start: 19:30 15.5°C	Finish: 21:07 2°C	Weather: Dry 70% - 90% cloud Beaufort 0 - 1
Tree Ref	Surveyor	First bat	Species Recorded	Emergence (nr. / spp)	
T1	Lyn Eccles (2015-13762-CLS-CLS)	21:05 Un	Pp (F+C), My (C), Pg (C)	-	
T2	Sean Hough	20:38 Pp	Pp (F+C), My (C)	-	
T3	Craig Smith	20:29 Pp	Pp (F+C), My (C), Pg (C)	-	
T4	Zoe Foster + Peter Bonney	20:21 Pg	Pp (F+C), Pg (C), Nn (C), My (C)	-	
T5	Charlotte Wood + Beth Walker	20:18 Pp	Pp (F+C), Pg (F+C), Nn (C), My (C)	20:33 Pg x1nr emergence from main stem, from behind ivy/cavity behind ivy	
T6	Martyn Barnes	20:30 My	My (F+C), Pp (F+C), Pg (F+C)	-	

Pp = common pipistrelle, Pg = soprano pipistrelle, Nn = noctule, My = unidentified myotis species. F = foraging, C = commuting.

Foraging and Commuting

- 4.21 Full results of the bat activity surveys are provided in Appendix 11. Drawing G2609.006 illustrates the bat activity survey area, the transect route, observation points and bat contacts.
- 4.22 The transect surveys, supported by the tree roost surveys, confirmed that a number of bat species use the site for foraging and commuting. The species assemblage includes:
- common pipistrelle (*Pipistrellus pipistrellus*);
 - soprano pipistrelle (*Pipistrellus pygmaeus*);
 - noctule (*Nyctalus noctula*);
 - Brandt's bat (*Myotis brandtii*); and
 - an unidentified bat of the *Myotis* genus.
- 4.23 The highest concentration of passes, during both transect survey visits, was between observation points I and J in the southern section of the site. This area is located to the west of the proposed access route on the far side of a strip of woodland. Potential

commuting routes include potters lane to the west of point J and the A59 and the adjacent strip of woodland at Point I.

- 4.24 The tree lined road between observation points J and K (Potters Lane) was used as a foraging corridor by common pipistrelle and as a commuting route for a noctule bat.

Badgers

- 4.25 During 2013, an outlier badger sett comprising of three holes was found on an embankment close to the east of the wooded area, near the northwest boundary of the site. Evidence of foraging badgers was also observed amongst wooded areas close to the proposed access route.

[REDACTED]

[REDACTED]

[REDACTED]

Water voles and otter

- 4.29 Records for water vole and otter were identified during the desktop survey that are located within 1km to the north of the site, within the Boilton, Nab, Redscar and Tunbrook woods SSSI.
- 4.30 No evidence of water vole or otter was recorded on the section of the River Ribble which bounds the site or on the Bezza Brook in 2010. However, in 2013, otter spraint was identified in five locations along Bezza brook along with one otter footprint. No signs of water vole were found in 2013.
- 4.31 During 2015, otter spraints were observed on the banks of the River Ribble adjacent to the site to the north. No holts or laying up sites were observed and no evidence of otter was observed on the Bezza Brook. The wet woodland areas within the north of the site provide potential laying up sites for otter.
- 4.32 No evidence of water vole was observed within or adjacent to the site. Full results of the water vole and otter surveys are presented in Appendix 6.

Reptiles

- 4.33 The location of the reptile survey tins are shown on the habitat plan D2609.001A. No reptiles were recorded on the site during the course of the reptile surveys.

Birds

- 4.34 Full results of the bird surveys are presented in Appendix 7, 8 and 9. The findings of the three surveys are summarised in Tables 5 to 7. The locations of all Birds of Conservation Concern recorded during the surveys are shown in Drawings G2609.002 – G2609.003 and Drawings G5181.002 – G5181.007.

2012 wintering bird survey

- 4.35 Full details of the winter bird survey are provided at Appendix 7. A total of 44 bird species were recorded utilising the site or immediate environs during the 2011 winter bird survey at Samlesbury; 30 species during the first visit, 28 species during the second and 30 species during the third visit. Table 5 summarises the peak occurrence of the Birds of Conservation Concern that were recorded during the surveys.

Table 5: 2011 summary of wintering use by Birds of Conservation Concern

Species	Peak Count	Conservation status	Notes on site usage
BH – black headed gull	59	A	Occasional groups on grassland
BF - Bullfinch	1	S41 A	Recorded within the scrubby area in the north western end of the site
CM – Common gull	121	A	Occasional groups on grassland
CU - Curlew	21	S41 A	A moderate sized group of nineteen curlew recorded feeding within fields in north western half of the site on one occasion.
D - Dunnock	4	S41 A	Small numbers were recorded within scrub and hedgerows
FF - Fieldfare	34	SCH 1 R	Small groups foraging in hedgerows and scrub.
GJ – Greylag goose	4	A	Small group recorded on grassland near Ribble.
HS – House sparrow	7	S41 R	A small colony of house sparrows (S41 and red listed Bird of Conservation Concern) was recorded at Lower Hall (outside of site boundary)
LB - Lesser black-backed gull	1	A	On grassland.
M – Mistle thrush	2	A	On grassland.
MA - Mallard	22	A	At Ribble and wet areas in north of site.
OC - Oystercatcher	44	SPA, A	Moderate sized groups of oystercatcher (amber listed Bird of Conservation Concern) were recorded using the thin grazed field in

			the northern edge of the north western half of the site. These birds were recorded feeding and loafing within this field and flying between this area and the shingle river banks during the second and third survey visits. The birds were also recorded using the fields on the far side of the River to the north during the second survey visit.
RE - Redwing	9	SCH 1 R	Small groups foraging in hedgerows and scrub.
ST - Song thrush	6	S41 R LBAP	Recorded scattered throughout the site in woody areas
SG - Starling	270	S41 R	A few moderate sized groups of starling (S41 species, and red listed Bird of Conservation Concern) were observed totalling 270 birds within grassland fields in the centre of the site
T - Teal	25	SPA, A	A few groups of teal (amber listed Bird of Conservation Concern) were observed using the ponds within the north of the site during two of the survey visits. Twenty five birds were recorded during the first visit, and five birds during the second

S41 = Section 41 species, Sch1 Schedule 1, WCA 1981, R = red listed BoCC species, A = amber listed species. SPA = Ribble & Alt Estuaries qualifying species.

2011 Breeding bird survey

- 4.36 A total of 42 bird species were observed during the 2011 breeding bird survey at Samlesbury; 32 species in the first visit and 37 during the second visit. Full details of the 2011 breeding bird survey are provided at Appendix 8. Birds of Conservation Concern recorded during the 2011 breeding bird survey are summarised at Table 6 and mapped at Drawing G2609.003.

Table 6: Summary of Birds of Conservation Concern recorded during 2011 Breeding Bird Survey

Species	Conservation Status	Breeding Status	Summary
black headed gull	A	-	
Curlew	S41 A	-	Curlew were recorded feeding within a field in the east of the site, however it is unlikely that this species nested within the site
Dunnock	S41 A	Pr - 2 pairs	Dunnock was confirmed to breed at the site during 2011. It is likely that two pairs of dunnock nested within hedges near to Dean Lane adjacent to the Bezza Brook and a third in the far eastern corner of the eastern site area

Species	Conservation Status	Breeding Status	Summary
Grey wagtail	A	Po	This species was observed at the Bezza Brook. It may have nested near to this location.
House martin	A	Po*	House martin may have nested within farm buildings adjacent to site.
House sparrow	S41 R	Pr* – 4 pairs	House sparrow
Lesser black-backed gull	A	-	
Linnet	S41 R	Po	Possibly nested within scrub in site
Kestrel	A	Po	Possibly nested near to the site.
Mallard	A	Pr – 2 pairs	Probably nested adjacent to the River Ribble or within wet woodland in north of site.
Oystercatcher	A	Pr – 2 pairs	It is likely that two pairs of oystercatcher nested within the site during 2011. No other wading birds were recorded within the site during the 2011 breeding bird survey.
Sand martin	A	C – 2 pairs	Many sand martins were recorded flying over the River Ribble adjacent to the site, and occasionally flying over the western area of the site. Sand martin nest holes were recorded within the river bank on the northern side of the western port of the site and it is likely that a couple of pairs of sand martin nested in this location. The majority of sand martin nest holes were recorded on the far bank of the river, although a few were recorded on the south bank
Song thrush	S41 R LBAP	C – 1 pair	It is likely that song thrush nested just outside of the site boundary within the wooded area south of Dean Lane
Starling	S41 R	Po	Starling may possibly have nested within mature trees in the site.
Swallow	A	Po*	Swallow may have nested within farm buildings adjacent to site.

Species	Conservation Status	Breeding Status	Summary
Whitethroat	A	Pr – 1 pair	Whitethroat are likely to have bred within scrub in the site.
Willow warbler	A	Po	May have nested within woodland within site.

Key: C = confirmed breeding, Pr – probably breeding on site, Po – possible breeding on site
LBAP = Local BAP; S41 = S41 NERC species; R = Red List; A = Amber List; Sch 1 = Schedule 1. * = outside of site boundary.

- 4.37 No Schedule 1 bird species were recorded during the 2011 breeding bird survey.
- 4.38 Six S41 species (curlew, dunnoek, house sparrow, linnet, song thrush, starling) were recorded on site during the 2011 survey. Of these, it is likely that dunnoek, house sparrow, starling nested within the site. Species covered by the Lancashire BAP recorded during the survey included only song thrush, which was also confirmed to nest during the survey, but not within the site.

2015 Breeding bird survey

- 4.39 A total of 63 bird species were observed during the 2015 breeding bird survey at Samlesbury; 47 species in the first visit and 45 during the second and third visits. Birds of Conservation Concern recorded during the 2015 breeding bird survey are summarised at Table 7 and mapped at Drawings G5181.002 – G5181.007.

Table 7: Summary of Birds of Conservation Concern recorded during 2015 Breeding Bird Survey

Species	Conservation Status	Breeding Status	Summary
Bullfinch	S41, A	Po	A male bullfinch was recorded on one occasion in scrub to the north of the proposed access road.
Black-headed gull	A	N	Recorded flying over the site and on the River Ribble
Common gull	A	N	Recorded flying over the site and on/adjacent River Ribble
Common sandpiper	A	N	Recorded feeding on shingle within the River Ribble adjacent to the site, although it is unlikely that this species nested within the site itself.
Common tern	A	N	Recorded flying along River Ribble on third survey visit.
Curlew	S41, A	Po	A curlew was recorded feeding on the grassland within the east of the site, however it is also unlikely

Species	Conservation Status	Breeding Status	Summary
			that this species nested within the site.
Dunnock	S41, A	Pr (2)	it is likely two pairs of dunnock nested within hedgerows, trees and scrub within the site during 2015
Green woodpecker	A	Po	A single bird was recorded within the woodlands in the SSSI on the far side of the River Ribble.
Greylag goose	A	Po	Occasionally recorded on fields in north, as well as on the River Ribble
Grey wagtail	A	C*	A pair of grey wagtail were confirmed to breed just outside the site boundary at the shingle banks within the River Ribble to the north of the site
Herring gull	S41, R	N	Recorded flying over site
House martin	A	N	Recorded foraging over fields
House sparrow	S41, R	Po	House sparrow may have nested within hedgerows and scrub on site but were more likely to nest in nearby farm building areas
Kestrel	A	C*	A pair of kestrel were confirmed to nest approximately 200m from the proposed road, just to the south of Seed House Farm
Kingfisher	Sch1 A	Pr (1)	recorded during the 2015 breeding bird survey. During the third visit kingfisher were observed on three occasions flying down the Ribble and on one occasion flying into vegetation on the far bank. It is probable that a pair of kingfisher nests in this location on the far bank of the river to the north of the site
Lapwing	S41, R	Po	It is unlikely that this species nested within the site, although a group of 260 birds was recorded during the third visit on passage.
Lesser black-backed gull	A	N	Recorded flying over site

Species	Conservation Status	Breeding Status	Summary
Mistle thrush	A	Po	It is possible that a pair of this species nested within trees on site.
Mallard	A	C (1)* Pr (1)*	Two pairs of mallard were confirmed to nest either within the site or within the survey buffer on the banks of the River Ribble
Oystercatcher	A	Pr (2)	likely that two pairs of oystercatcher nested within grasslands in the northern part of the site associated with the proposed quarry area.
Redshank	A	Po	Recorded feeding on shingle within the River Ribble adjacent to the site, although it is unlikely that this species nested within the site itself.
Reed bunting	S41, A	Po	Recorded on one occasion on the far bank of the River Ribble to the site.
Sand martin	A	C (1 col)	A total of 19 sand martin nest holes were recorded within the river bank on the western boundary of the site, opposite Brockholes Quarry. A colony of sand martins was observed to be nesting in this location during the breeding bird survey
Shelduck	A	Po	Shelduck were only recorded during the first visit on the River Ribble. No birds were recorded on site.
Skylark	S41, R	Po	A single skylark was recorded within an open field during the third survey visit. It is possible that a pair of skylark nested in this location.
Starling	S41, R	Po	It is possible that starling nested within mature trees in the survey area.
Swallow	A	N	Recorded foraging over site
Swift	A	N	Recorded foraging over site
Song thrush	S41, R	Pr (2)	it is likely that a pair of song thrush nested within hedgerows, trees

Species	Conservation Status	Breeding Status	Summary
			and scrub within the site during 2015
Whitethroat	A	Pr (3)	It is likely that three pairs of whitethroat breed within scrub and hedgerows within the north of the site
Willow warbler	A	Po	Recorded within woodland on far bank of River Ribble.

Key: C = confirmed breeding, Pr – probably breeding on site, Po – possible breeding on site LBAP = Local BAP; S41 = S41 NERC species; R = Red List; A = Amber List; Sch 1 = Schedule 1. * = outside of site boundary.

- 4.40 One Schedule 1 bird species (kingfisher) was recorded during the 2015 breeding bird survey. During the third visit kingfisher were observed on three occasions flying down the Ribble and on one occasion flying into vegetation on the far bank. It is probable that a pair of kingfisher nests in this location on the far bank of the river to the north of the site. Another Schedule 1 species. Whimbrel, was recorded flying over the site during the otter and water vole survey in September 2015. Large numbers of this species are known to use the adjacent Brockholes reserve on passage. No evidence was recorded to suggest that this species uses the Samlesbury site.
- 4.41 Ten S41 species (bullfinch, curlew, dunnock, herring gull, house sparrow, lapwing, reed bunting, skylark, song thrush, starling) were recorded on site during the 2015 survey. Of these, it is likely two pairs of dunnock and a pair of song thrush nested within hedgerows, trees and scrub within the site during 2015. Species covered by the Lancashire BAP recorded during the survey include song thrush only.
- 4.42 Nineteen amber list species which are not S41 species (black-headed gull, common gull, common sandpiper, common tern, greylag goose, grey wagtail, house martin, lesser black-backed gull, kestrel, mistle thrush, mallard, oystercatcher, redshank, sand martin, shelduck, swallow, swift, whitethroat and willow warbler), were also recorded during the survey.
- 4.43 A small heronry consisting of two to three pairs of birds was recorded within the wet woodland in the north of the proposed quarry area. These birds may be associated with the larger known heronry at Bezza Wood to the east of Samlesbury.

5.0 CONCLUSIONS

- 5.1 The proposed access layout and associated locations for new planting were available for assessment, however detailed proposals with regard to the quarry development were not available at the time of writing this report.

- 5.2 The following text provides a general assessment of likely impacts from a quarry development and detailed impacts from the proposals provided. It is understood that a buffer zone at least 20m wide will be created between any quarrying activities and the River Ribble.

Designated Sites

- 5.3 Two SPAs are located within 15km of the site; The Bowland Fells SPA located 12km from the site and the Ribble and Alt Estuaries SPA located 15km from the site.
- 5.4 The Bowland Fells SPA is designated for supporting breeding hen harrier and merlin. It is considered that the proposed works at Samlesbury would not have any impact on these species and would therefore not have an impact on this SPA.
- 5.5 The Ribble and Alt Estuaries SPA is partly designated for its populations of oystercatcher and teal during the winter period. Both of these species were recorded within the Samlesbury site during the winter bird survey. However due to the distance of the site from this SPA it is unlikely that these birds would be associated with this SPA. Even if they were, the low numbers recorded at the Samlesbury site would not be significant.
- 5.6 The Red Scar and Tun Brook Woods Site of Special Scientific Interest (SSSI) lies on the far side of the River Ribble from the proposed quarry site. Potential impacts on this woodland SSSI could include dust/emissions and lighting. Measures should be employed to reduce any potential effects on the SSSI.
- 5.7 The proposed access road lies near to four woodland BHS sites: Seed Park BHS, Samlesbury Wood BHS, Wood by St Mary's Church BHS and Preston New Road A59 BHS.
- 5.8 There are four other BHS adjacent to the main site (the area proposed for aggregate removal), including the River Ribble BHS, Brockholes Quarry BHS, Pope Lane Ponds BHS and Bezza Lane BHS. Potential impacts on these sites include noise, pollution and dust emissions.
- 5.9 Pollution control measures should be employed to prevent contaminants entering the River Ribble. Further measures to reduce impacts on these sites are detailed in the habitats and species conclusions below.

Habitats

- 5.10 The proposals will result in the loss and degradation of, and disturbance to, various habitats within the site. Affected habitats comprise predominantly agricultural grasslands of low intrinsic value, however impacted habitats also include hedgerow, woodland and ponds which are of greater value and qualify as Habitats of Principal Importance.
- 5.11 Current proposals indicate the access road will predominantly run through areas of species-poor semi-improved neutral grassland and improved grassland. The access

road will avoid most of the woodland areas throughout the site. A small section of woodland close to target note T7 will be removed to facilitate installation of the road. It is also likely that a small section of trees associated with Bezza Brook will also be removed to facilitate installation of the road. A few shrubs will also be removed near to target note T3.

- 5.12 Woodland is a habitat of principal importance. Replacement planting of woodland will be required to ensure no net loss. Replacement of woodland habitats will only be achievable in the long term. The margins along the new access road have been identified for new planting.
- 5.13 No ponds will be lost to facilitate the access road, but three ponds will be lost to facilitate the quarry development W1, W2 and W3 which are of low quality, poached by cattle and subject to fluctuations in water levels. The extent of the working area (limit of works boundary) lies adjacent to Pond 3. This pond will not be lost, but may be affected by hydrological change or deterioration of water quality, for example through dust deposition or waterbourne pollutants.
- 5.14 Ponds are a habitat of principal importance. Although W1- 3 are of lower ecological quality, three new ponds will be constructed elsewhere within the site to avoid net loss of the aquatic habitat resource. New ponds will be constructed within 500m (ideally 250m) of an existing retained pond.
- 5.15 Pond 3 and all other waterbodies located within proximity of works areas or access routes will be protected from habitat degradation during the construction and operational phases of the scheme. For examples, habitats will be fenced out to prevent encroachment and surface water run-off will be controlled during construction. These and other protection measures will be detailed in a Construction Environment Management Plan (CEMP).
- 5.16 The extent of the working area lies adjacent to a narrow flowing ditch leading from Pond 3 as well as an area of woodland and a species-poor intact hedge. These habitats will be protected by fencing to protect against encroachment during works. This measure will be detailed in the CEMP.
- 5.17 The current proposals for the crossing of Bezza Brook indicate that the brook will be spanned by a bridge and there will be no significant loss of bankside habitats. If it is necessary to lose any bankside habitats, this loss should be kept to a minimum.
- 5.18 The proposals currently intersect a number of hedgerows and a small loss of hedgerow will therefore result from the proposals. Hedgerows are an S41 habitat of principal importance. The loss of hedgerows will be offset by new hedgerow planting elsewhere within the site. This will be achieved through gap-planting of retained hedgerows or including hedgerow planting alongside the new access road.

Great crested newt

- 5.19 The route of the proposed access road passes within 250m of Pond 1 (240m northeast), Pond 2 (approx. 160m northeast) and Pond 8 (70m south). A small population of GCN was recorded in ponds 1 and 2 in 2013 and in ponds 2, 4 and 8 in

2015. The creation of the access road will therefore lead to losses of intermediate GCN terrestrial habitat.

- 5.20 GCN and their habitats receive full protection under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Species and Habitats Regulations 2010 (as amended) (commonly referred to as the Habitats Regulations).
- 5.21 As a result, a European Protected Species (EPS) Licence will be required from Natural England prior to the commencement of works. This could only be obtained following the grant of full planning permission (with all pre-commencement conditions relating to wildlife discharged). A detailed mitigation strategy will be designed in support of the licence application. The mitigation strategy will ensure the 'favourable conservation status' of GCNs will be maintained.
- 5.22 There will be no loss of GCN breeding habitat or of immediate terrestrial habitat. Terrestrial habitat loss is limited to a small proportion of available intermediate GCN terrestrial habitat. As the metapopulation was recorded to expand to Pond 8 in 2015 to the south side of the proposed road, the road construction could lead to some fragmentation effects, however due to the low proposed usage of the access road this is unlikely. To prevent fragmentation between the ponds, consideration will need to be given to habitat links and wildlife corridors to ensure GCN are able to move freely between foraging grounds within the site and associated breeding ponds. Drop curbs should be used along sections of road near to existing pond locations, this will ensure GCN dispersal is possible. The usage of gully pots should also be avoided to prevent trapping of GCN.
- 5.23 Trapping and exclusion of great crested newts will be necessary under licence during construction of the road. This will involve a minimum of 30 days of trapping from the exclusion area and maintenance of amphibian fencing during construction works.
- 5.24 Common toad, recorded in low numbers in pond W3 and pond 8, is a S41 Species of Principal Importance under the NERC Act 2006. Unlike GCN, common toad does not receive any statutory protection, however the presence of this species will be a material consideration in the planning process.

Bats

- 5.25 Bats are a UK and European Protected Species. Two trees were identified during initial survey work that were subsequently identified to support transient bat roosts. The design of the access road has been finalised to avoid these trees. No works are anticipated within 20m of any tree confirmed to support a bat roost or identified to have bat roost potential. There will therefore be no impacts on these trees and it is not anticipated that a bat licence will be required in order for the works to proceed.
- 5.26 Foraging and commuting bats were noted recorded over the site, particularly in the southern section. There will be no lighting associated with the road and there will therefore be no lighting impacts on bats.

5.27 The hedgerow losses associated with the access road are unlikely to cause fragmentation and the small tree losses will be mitigated through the new planting areas associated with the new access road.

[REDACTED]

[REDACTED]

[REDACTED]

5.30 As with the GCN licence, the [REDACTED] can only be applied for following the consent of full planning permission. The licence application will include a mitigation strategy based upon the following principals:

- Prior to works affecting the [REDACTED] a [REDACTED] will be created in a suitable location on or adjacent to the site. Current proposals indicate new sett create can be accommodated within the design.
- To avoid harm to [REDACTED]. This will be achieved through gradual exclusion [REDACTED] and gates.
- Measures will be implemented through the construction programme to ensure entrapment or other form of harm [REDACTED] avoided during works.

Water vole and otter

5.31 No evidence of water vole or otter was noted during the survey in 2010. However, field signs of otter were identified along Bezza Brook in 2013. No field signs of otter were identified on the Bezza Brook in 2015, but fieldsigns of otter, including spraint, were observed on the River Ribble adjacent to the site.

5.32 Otter range over large distances and although no evidence of otter was recorded on the Bezza Brook during 2015, this species is known to occasionally use this watercourse for foraging. It will be necessary for a Mitigation Method Statement for Otters is produced prior to the commencement of works within the site in order to comply with current legislation. The objective of the method statement will be to ensure that otters are not negatively affected by proposals and any impacts are kept to a minimum.

5.33 Although no evidence of water vole was found, this species is highly transient and therefore it is recommended that a 20m wide habitat buffer strip is maintained between the proposed quarrying works and the banks of the River Ribble. These measures will ensure that current proposals will have no adverse impacts on otter or water vole.

- 5.34 The proposals are for a bridge crossing of the Bezza Brook, with no culvert needed. Works will therefore be within 20m of the Brook for a short distance, although there will be no works on the Brook banks or on the bed of the Brook.
- 5.35 A buffer of at least 8m from the top of the banks of Bezza Brook should be adhered to. This approach is recommended in case water vole (which have been recorded in the wider area) colonise the brook prior to development.
- 5.36 New roads (and some existing ones) can be a particular problem for otters and may lead to significant mortality amongst the local population. Road mortalities tend to occur at times when rivers are in spate and otters are obliged to leave the watercourse and cross roads.
- 5.37 The ideal is to design river crossings that retain a wide strip of accessible riparian habitat on either side, which can accommodate river spates, thereby providing a safe route under the bridge at all times. Mitigation can take a number of forms set out below, some of which may also be appropriate in other situations.
- 5.38 Culverts designed primarily to allow the passage of water, sometimes are impossible for otters to move up stream when in spate. A ledge should be installed which will enable otters to avoid the water and use the culverts successfully.
- 5.39 Otter fencing should be installed to guide otters towards them if they are to be effective. Additional native plantings can be used to provide cover.
- 5.40 Discussions with Natural England would be appropriate before mitigation is proposed.

Reptiles

- 5.41 As reptiles were not recorded during the survey there are no implications for them in relation to the development proposals.

Birds

- 5.42 Due to the small numbers recorded regularly using the site, the quarry proposals are unlikely to negatively impact upon populations of S41 or red-listed Birds of Conservation Concern.
- 5.43 All nesting birds are protected under the *Wildlife and Countryside Act 1981* (as amended). There is no provision under the licensing system for disturbance/destruction of nests to facilitate development. As such, there may be further nesting bird implications for site clearance works.
- 5.44 It is possible that a pair of kingfisher could nest within or adjacent to the site in future years. Kingfisher is listed on Schedule 1 of the *Wildlife and Countryside Act 1981*, and so is also protected against disturbance while at the nest. As such, there may be further nesting bird implications for site clearance works regarding kingfisher.
- 5.45 The River Ribble BHS is partly designated for supporting breeding sand martin. If works are to be carried out within 20m of the existing colony (See Drawing g5181.006) it is possible that this colony could be displaced. Due to the abundance of suitable nesting habitat within the area it is unlikely that this would negatively impact the local population of species and the River Ribble BHS with regards to sand martin. However

measures are recommended in Section 6 of this report to enhance breeding habitat for this species.

- 5.46 Two pairs of oystercatcher were recorded breeding within fields towards the western end of the site. Development of the site would therefore result in a displacement of two pairs of oystercatcher. There is however, abundant habitat in the wider area and so this loss would be highly unlikely to result in a significant impact on the local oystercatcher population (Lancashire estimated breeding oystercatcher population = 2,500 pairs).
- 5.47 Moderate numbers of starling were recorded using the site, but only during one survey visit, and so the site is thought to only be occasionally used by this species during the winter period.
- 5.48 The development may result in the displacement of a pair of song thrush and two pairs of dunnock (both S41 species), although there is plenty of breeding habitat within the surrounding area for these species, and the breeding locations of these birds were along Dean Lane, which would be unaffected by the development. The areas of new planting along the new access road could be designed to enhance habitat for these species.
- 5.49 It is likely that a small grey heron colony (heronry) would be displaced from the wet woodland in the north of the site. Future remediation works should include the creation of an area of wet woodland suitable for supporting breeding grey heron.

Other issues

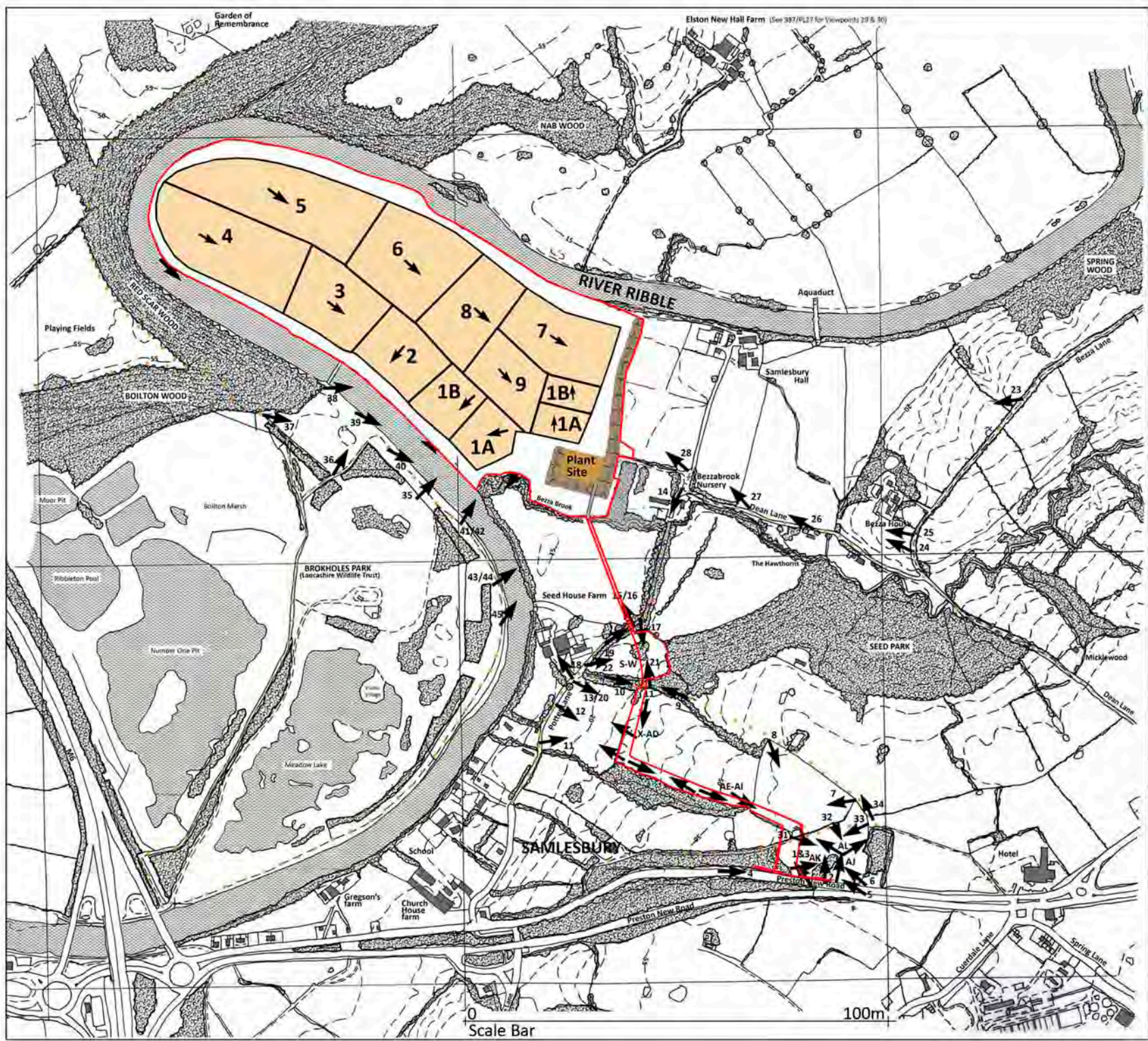
- 5.50 Both Himalayan balsam and giant hogweed are present on the site and may be disturbed by the proposed works. Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) makes it an offence to cause these invasive species to grow or spread in the wild. A management/removal plan will be required to deal with this species where it coincides with working areas.

6.0 RECOMMENDATIONS

- 6.1 Due to the transient nature of bats, updated bat surveys of potential roosts and foraging/commuting corridors on the site should be undertaken prior to any works commencing. If any bat roosts are found that could be affected by the works, a bat EPS Licence from Natural England will be required.
- 6.2 In order to inform the application for a GCN EPS Licence from Natural England, an updated amphibian survey will be required to determine the current population size of GCN in all ponds within the vicinity of the works. As this project is proposed to be phased over a 20 year period, updated surveys should target each pond that may be affected by the next upcoming phase.
- 6.3 An updated water vole and otter survey will be necessary prior commencement of construction activities near to the River Ribble or the Bezza Brook.

- 6.13 Current proposals have identified areas along the proposed access road that will be used for habitat creation. Detailed planting proposals are not currently available but this could potentially involve additional tree planting and new hedgerow planting.

APPENDIX 1. Site Proposals Plans



- KEY**
- Existing Vegetation
 - Water Areas
 - Existing Contours
 - Public Footpaths etc.
 - Application Site
 - Public Viewpoint Locations
 - Site Photograph Locations
See Site and Visibility Photographs Sheets
 - Plant Site
 - Screen Bunds
 - Phased Working Areas



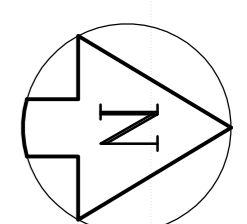
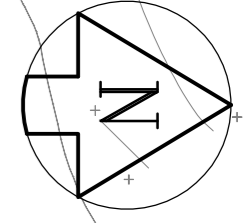
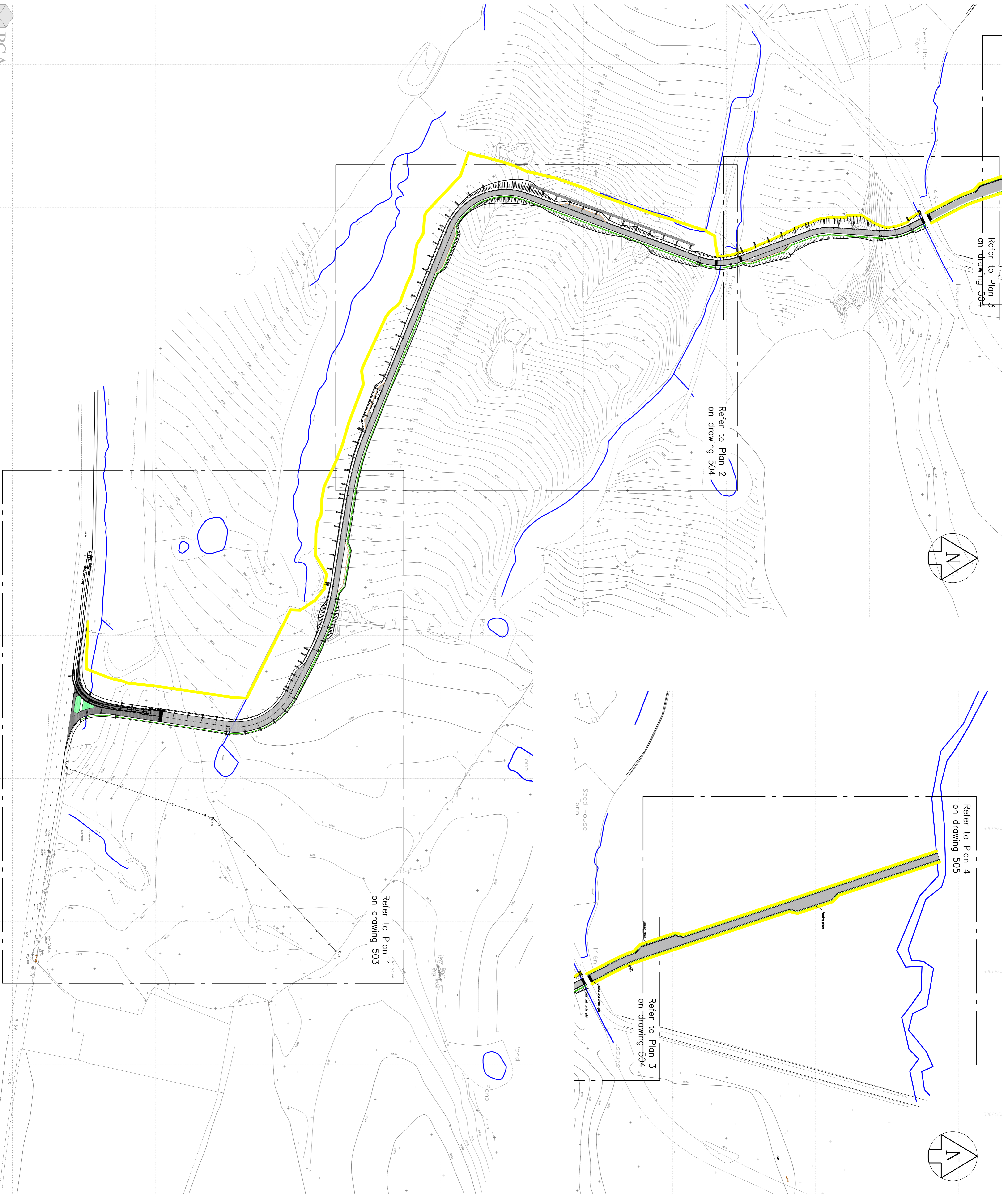
LOWER HALL FARM, SAMLESBURY
 PRESTON, LANCASHIRE
 PROPOSED SAND AND GRAVEL EXTRACTION
 FOR HARLEYFORD AGGREGATES LIMITED
 LANDSCAPE & VISUAL IMPACT ASSESSMENT

PETER SWANN & ASSOCIATES
 20 WINE COURT, WILMINGTON, WILMSHIRE, BA12 8TB
 Plan showing Phased Working

Drawing No. /

Scale Bar

100m



GENERAL NOTES

- This drawing is to be read in conjunction with all other relevant Architect's, Engineers & Specialist drawings, details and the relevant Health and Safety Plan (as appropriate).
- DO NOT SCALE FROM THIS DRAWING. Use figured dimensions only.

KEY

- Limit of works boundary
- Stock proof fencing

REV.	DATE	DETAILS	DRAWN	CHECKED
P3	17.01.14	Main junction altered	JRAC	JRAC
P2	27.08.13	Road extended. Works boundary and fence detail	TR	JRAC
P1	02.08.13	First Issue	TR	JRAC

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SAMLESBURY
PRESTON

OVERALL PLAN

SCALE 1:1250 @ A1

DRAWING NUMBER
9567_502

REVISION
P3

Drawn by **TR** Date **AUG 13**

Checked by **JAC** Date **AUG 13**

PROVISIONAL

LOWER HALL FARM, SAMLESBURY
 PRESTON, LANCASHIRE
 PROPOSED SAND AND GRAVEL EXTRACTION
 FOR HARLEYFORD AGGREGATES LIMITED
 LANDSCAPE & VISUAL IMPACT ASSESSMENT

PETER SWANN & ASSOCIATES
 Chartered Landscape Architects
 20 Were Close, Warminster, Wiltshire, BA12 8TB
 1/2,500 scale RESTORATION CONCEPT PLAN

Drawing No. 987/PL28 Rev. Date
 28th January 2014

- KEY
-  Existing Vegetation
 -  River
 -  Access Road
 -  Plant Site
 -  Surfacing Strip
 -  Screen Bund
 -  Extraction this Phase
 -  Direction of Working
 -  New Planting
 -  Silt Pond
 -  Clean Water Pond
 -  Reed beds



BROCKHOLES PARK

Bezza Brook Nursery

Bezza Brook

Screen bund retained

Reedbeds

Reedbeds

Reedbeds

Screen bunds removed & spoil spread unevenly over former plant area

Wet woodland

Low level woodland

Shallocky Island

River Ribble

River Ribble

Dean Lane

RED SCAR WOOD

BOILTON WOOD

APPENDIX 2. Desktop survey results

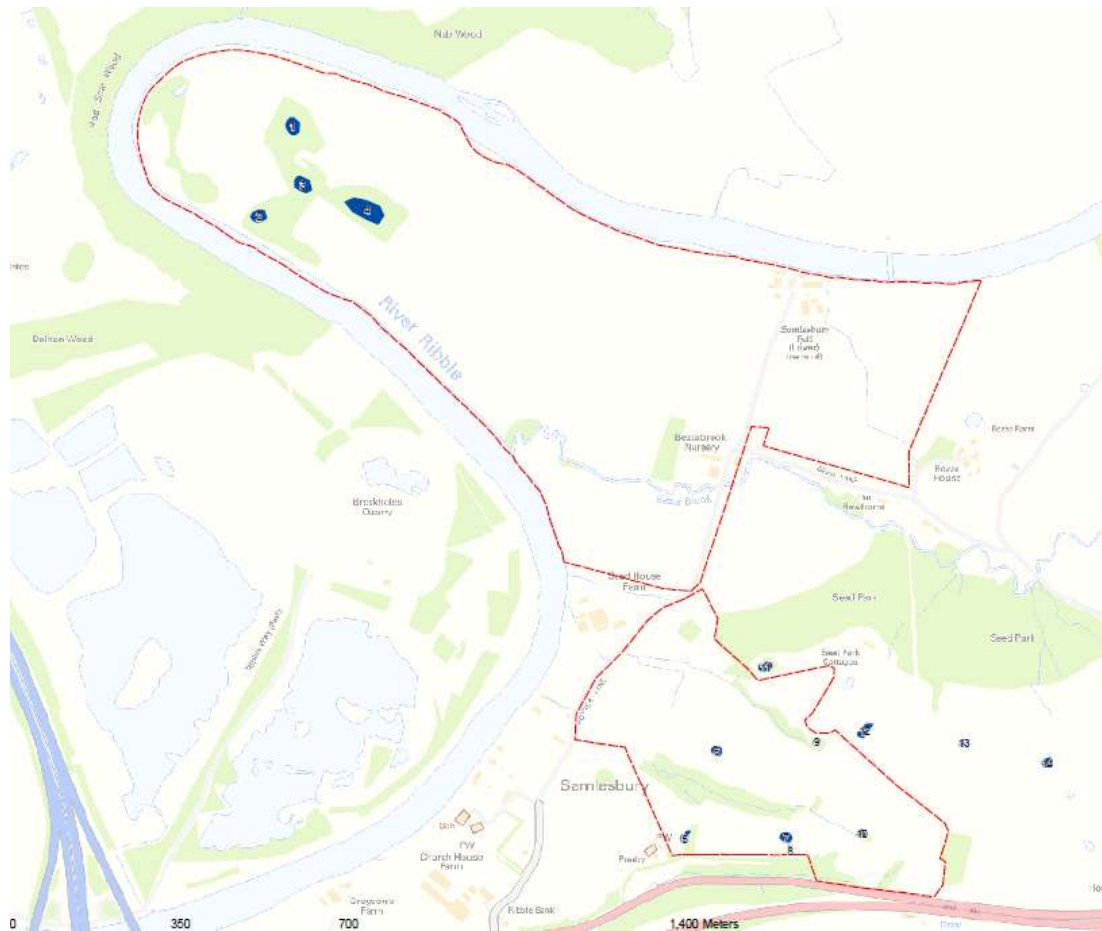
Desk Based Ecology Assessment

Salmesbury Quarry Estate Approximate Central Grid Reference: SD 589 315

Contents

- **Site location plan**
- **Extract from local plan**
- **Extracts of relevant planning policies**
- **Local site designations**
- **Local species records**
- **National site designations**
- **Habitat inventory records**
- **Wildlife site citations**

Site location plan



Contains Ordnance Survey data © Crown copyright and database right 2011

Extract of South Ribble Borough Council *Local Plan* (adopted Feb 2000) and supporting key

Map is only available directly from the Council.

Extracts of relevant planning policies and supplementary planning guidance

South Ribble Borough Council Local Plan - currently under review and will remain in force until Site Allocations DPD is adopted.

ENV2 - ENVIRONMENT POLICY 2: SITES OF SPECIAL SCIENTIFIC INTEREST

Development will not be permitted which would destroy or adversely affect directly or indirectly, a designated or proposed Site of Special Scientific Interest, or National Nature Reserve. The Council will comply with the UK's international obligations in respect of those sites designated as "Ramsar" sites, Special Protection Areas or Special Areas of Conservation.

ENV3 - ENVIRONMENT POLICY 3: PROTECTING OTHER SITES AND FEATURES OF NATURE CONSERVATION INTEREST

The Council will protect Local Nature Reserves, Biological and Geological Heritage Sites and other features of County or District importance for their wildlife, geological and geomorphological significance.

Development which would destroy or adversely affect such a site or feature will only be permitted where it is demonstrated that the benefits of the development outweigh the conservation considerations.

In such circumstances any direct or indirect adverse effects of development on the nature conservation value of these sites should be minimised. The Council will seek to mitigate any decrease in the nature conservation value of the site or feature by requiring habitat creation or enhancement within the site or in the local area. Planning conditions or obligations will be used to achieve this.

ENV4 - ENVIRONMENT POLICY 4: PROTECTION OF THE HABITATS OF WILDLIFE

Development which would harm or destroy the habitat of a species protected by law will not be permitted.

The Council will protect those traditional landscape features which are of importance for wild flora and fauna against any development which may destroy or adversely affect either directly or indirectly their value for nature conservation. Where there is an overriding need for development it is important these features are satisfactorily retained and maintained or replaced as part of the scheme. Planning conditions and obligations will be used to secure the retention and management of features of the landscape which are of major importance for wild flora and fauna.

ENV5 - ENVIRONMENT POLICY 5: HABITAT CREATION

On appropriate sites new development schemes shall include proposals to permit the enhancement or creation of new habitats either within the site or the local area. Such proposals could form part of the structural landscaping or amenity planting areas.

ENV6 - ENVIRONMENT POLICY 6: WILDLIFE CORRIDORS

The Council will protect and improve the wildlife corridors defined on the Proposals Map. Development will not be permitted where it will destroy or impair the integrity of wildlife corridors. Where there is an overriding need for development, proposals should include suitable compensatory features for those which would be lost. New development, where appropriate, will be expected to provide new links and consolidate and expand the corridors.

ENV7 - ENVIRONMENT POLICY 7: PROTECTION OF TREES AND WOODLANDS

Planning permission will not be permitted where the proposal adversely affects trees and woodlands which are:

- a) Protected by a Tree Preservation Order;
- b) Ancient Woodlands defined in English Nature's inventory of ancient woodlands;
- c) In a Conservation Area; and
- d) Within a recognised Nature Conservation site.

ENV8 - ENVIRONMENT POLICY 8: TREES AND DEVELOPMENT

Development proposals should minimise adverse effects upon existing tree cover and wherever practicable should include new tree planting. Planning conditions will be imposed to secure this.

Central Lancashire Core Strategy (adopted July 2012) - Policies

Policy 18: Green Infrastructure

Manage and improve environmental resources through a Green Infrastructure approach to:

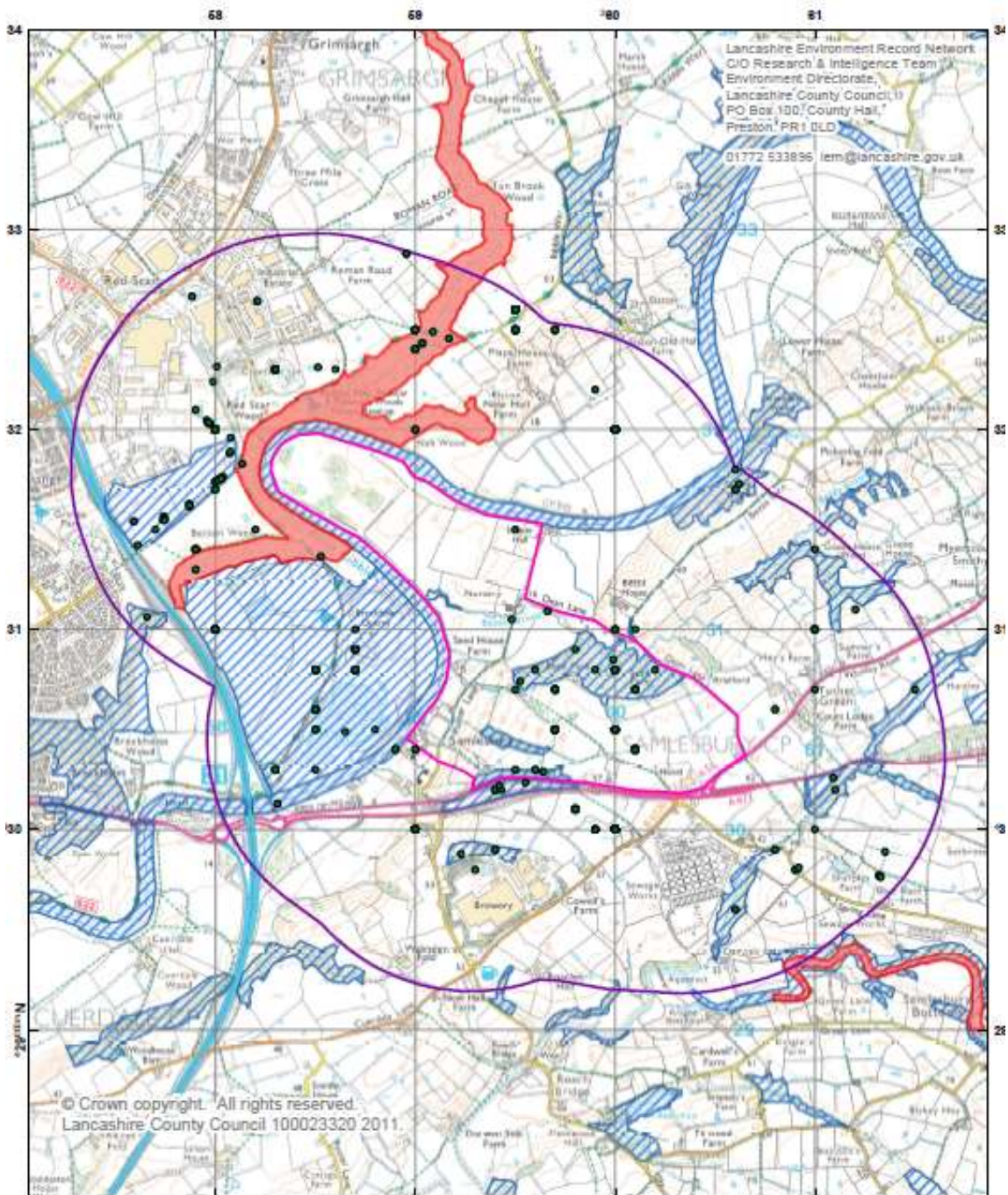
- (a) protect and enhance the natural environment where it already provides economic, social and environmental benefits;
- (b) invest in and improve the natural environment, particularly;
 - i. the river valley networks including:
 - the River Ribble at Penwortham and south to Lostock Hall and Bamber Bridge, to create a 'central park' area incorporating footpaths, cycleways and a Local Nature Reserve;
 - Savick Brook upstream of Preston;
 - the River Darwen between Roach Bridge and Walton-le-Dale; and
 - the Yarrow and Cuerden Valley Parks.
 - ii. the canal networks including:
 - the Lancaster Canal into Preston; and
 - the Leeds and Liverpool Canal through Chorley and Adlington.
 - iii. where it contributes to the creation of green wedges and the utilisation of other green open spaces that can provide natural extensions into the countryside.
- (c) secure mitigation and/or compensatory measures where development would lead to the loss of, or damage to, part of the Green Infrastructure network.

Policy 22: Biodiversity and Geodiversity

Conserve, protect and seek opportunities to enhance and manage the biological and geological assets of the area, through the following measures:

- (a) Promoting the conservation and enhancement of biological diversity, having particular regard to the favourable condition, restoration and re-establishment of priority habitats and species populations;
- (b) Seeking opportunities to conserve, enhance and expand ecological networks;
- (c) Safeguarding geological assets that are of strategic and local importance.

Map provided by Lancashire Environment Record Network of site designations and species records within 1km



Legend

- Salmesbury_Key_Species
- Salmesbury 1km Buffer
- Salmesbury
- ▨ Biological Heritage Sites
- SSSI



1:24,250 Date: 08/11/2013



Extract of species data provided by Lancashire Environment Network within 1km

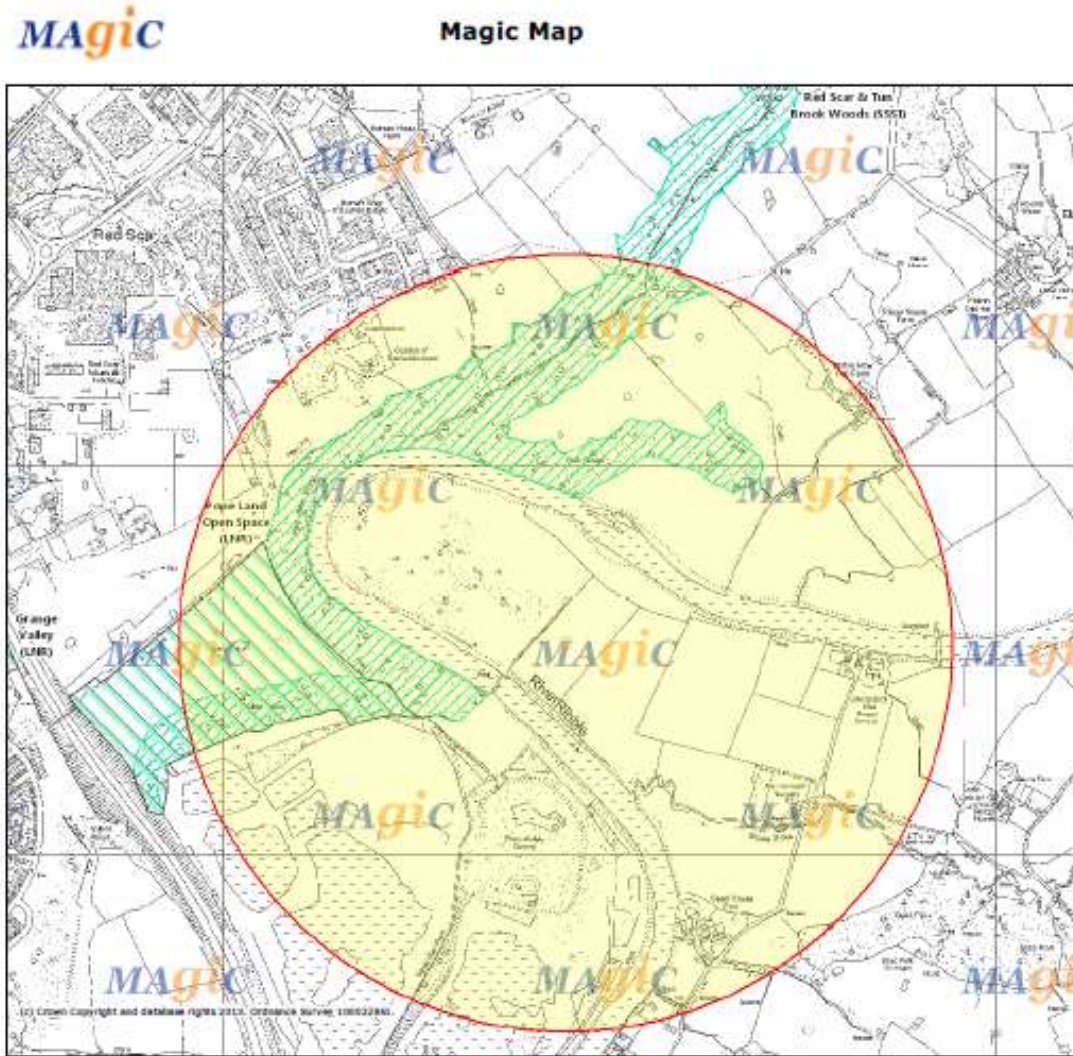
England NERC S.41	Taxon group	Taxon Status Constraint	Taxon Latin Name	Taxon Common Name	Sample Location	Sample Date	Sample Spatial Reference	Obs Abundances (LC)
Yes	insect - moth	Added	<i>Dasytopia templi</i>	Brindled Ochre	West Lancashire	1887	SD52	1 Count of Adult; 1 Count of -
Yes	flowering plant	Lancashire Endangered Plant	<i>Stellaria palustris</i>	Marsh Stitchwort	South Lancashire	01/01/1903	SD52	
Yes	bird	Lancs BAP Provisional Long List	<i>Muscicapa striata</i>	Spotted Flycatcher		1999	SD63A	1 Count of possible breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Muscicapa striata</i>	Spotted Flycatcher	South Ribble District	10/06/2013	SD6131	
Yes	bird	Lancs BAP Provisional Long List	<i>Muscicapa striata</i>	Spotted Flycatcher		1999	SD63B	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Muscicapa striata</i>	Spotted Flycatcher		1998	SD53R	1 Count of possible breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Muscicapa striata</i>	Spotted Flycatcher		1998	SD53V	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Muscicapa striata</i>	Spotted Flycatcher		1999	SD53R	1 Count of proved breeding
Yes	terrestrial mammal	Lancs BAP Provisional Long List	<i>Lutra lutra</i>	Otter	Red Scar and Tun Brook	01/07/1998	SD590324	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	<i>Lutra lutra</i>	Otter		May 1938	SD62	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	<i>Lutra lutra</i>	Otter		27/09/1967	SD590325	
Yes	bird	Lancs BAP Provisional Long List	<i>Perdix perdix</i>	Grey Partridge	Brockholes Quarry BHS	1999	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Perdix perdix</i>	Grey Partridge	Brockholes Quarry BHS	2004	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Perdix perdix</i>	Grey Partridge	Brockholes Quarry BHS	2005	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Perdix perdix</i>	Grey Partridge		1998	SD53V	1 Count of possible breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Perdix perdix</i>	Grey Partridge		1998	SD62E	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Perdix perdix</i>	Grey Partridge		2000	SD53R	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Perdix perdix</i>	Grey Partridge		1999	SD63B	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Perdix perdix</i>	Grey Partridge		1998	SD53R	1 Count of possible breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Perdix perdix</i>	Grey Partridge		1999	SD53R	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark	Brockholes Quarry BHS	2000	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark	Brockholes Quarry BHS	2004	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark	Brockholes Quarry BHS	2002	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark	Brockholes Quarry BHS	1999	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark	Brockholes Quarry BHS	2003	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark	Brockholes Quarry BHS	2001	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark	Brockholes Quarry BHS	2005	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark	Brockholes Nature Res	25/06/2011	SD53V	
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark		1999	SD63B	2 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark		1998	SD52Z	2 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark		1998	SD62E	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark		1999	SD63A	3 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark		1998	SD53R	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Alauda arvensis</i>	Skylark		1998	SD53W	1 Count of possible breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Coccothraustes coccyzina</i>	Hawfinch	Red Scar and Tun Brook	1986	SD590324	
Yes	insect - moth	Lancs BAP Provisional Long List	<i>Arctia caja</i>	Garden Tiger	South Lancashire	1961	SD52	1 Count of -; 1 Count of Adult
Yes	insect - moth	Lancs BAP Provisional Long List	<i>Arctia caja</i>	Garden Tiger	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth	Lancs BAP Provisional Long List	<i>Arctia caja</i>	Garden Tiger	West Lancashire	11/07/2009	SD587309	3 Count of -
Yes	insect - moth	Lancs BAP Provisional Long List	<i>Chesias legatella</i>	Streak	West Lancashire	1889	SD52	1 Count of Adult; 1 Count of -
Yes	bird	Lancs BAP Provisional Long List	<i>Cuculus canorus</i>	Cuckoo		1998	SD62E	1 Count of possible breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Cuculus canorus</i>	Cuckoo	Brockholes Nature Res	25/06/2011	SD53V	
Yes	bird	Lancs BAP Provisional Long List	<i>Cuculus canorus</i>	Cuckoo		1998	SD53V	1 Count of possible breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Numenius arquata</i>	Curlew	Brockholes Nature Res	25/06/2011	SD53V	
Yes	bird	Lancs BAP Provisional Long List	<i>Numenius arquata</i>	Curlew		1999	SD63A	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Numenius arquata</i>	Curlew		1998	SD53V	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Numenius arquata</i>	Curlew		1998	SD62E	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Numenius arquata</i>	Curlew	South Ribble District	10/06/2013	SD6131	
Yes	bird	Lancs BAP Provisional Long List	<i>Numenius arquata</i>	Curlew		1998	SD52Z	1 Count of possible breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Numenius arquata</i>	Curlew		1999	SD63B	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Numenius arquata</i>	Curlew		1999	SD62E	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Phylloscopus sibilatrix</i>	Wood Warbler		1998	SD53V	1 Count of possible breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing	Brockholes Quarry BHS	1999	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing	Brockholes Quarry BHS	2001	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing	Brockholes Quarry BHS	2004	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing	Brockholes Quarry BHS	2000	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing	Brockholes Quarry BHS	2005	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing	Brockholes Quarry BHS	2002	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing	Brockholes Quarry BHS	2003	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing		1999	SD63B	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing		1998	SD53W	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing	Brockholes Nature Res	25/06/2011	SD53V	
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing		1999	SD62E	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing		1998	SD53R	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing		1999	SD63A	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	<i>Vanellus vanellus</i>	Lapwing		1998	SD53V	1 Count of proved breeding
Yes	flowering plant	Lancs BAP Provisional Long List	<i>Luronium natans</i>	Floating Water-Plant	Pope Lane Ponds	27/05/2013	SD5807631960	
Yes	flowering plant	Lancs BAP Provisional Long List	<i>Luronium natans</i>	Floating Water-Plant	Pope Lane Ponds	27/05/2013	SD5807431889	
Yes	flowering plant	Lancs BAP Provisional Long List	<i>Luronium natans</i>	Floating Water-Plant	Pope Lane Ponds	June 2011	SD5807031880	
Yes	flowering plant	Lancs BAP Provisional Long List	<i>Luronium natans</i>	Floating Water-plant	West Lancashire	01/06/2011	SD53V	Not Count of present; Present
Yes	flowering plant	Lancs BAP Provisional Long List	<i>Platanthera bifolia</i>	Lesser Butterfly-Orch	South Lancashire	01/01/1850	SD53Q	Not Count of present; Present
Yes	flowering plant	Lancs BAP Provisional Long List	<i>Platanthera bifolia</i>	Lesser Butterfly-Orch	South Lancashire	01/01/1865	SD52	
Yes	flowering plant	Lancs BAP Provisional Long List	<i>Platanthera bifolia</i>	Lesser Butterfly-Orch	South Lancashire	01/01/1950	SD52	
Yes	insect - butterfly	Lancs BAP Provisional Long List	<i>Satyrion w-album</i>	White Letter Hairstre	Red Scar and Tun Brook	1987	SD5903532432	
Yes	insect - moth	Lancs BAP Provisional Long List	<i>Macaria wauraria</i>	V-moth	South Lancashire	1970	SD62	1 Count of Adult; 1 Count of -
Yes	insect - moth	Lancs BAP Provisional Long List	<i>Mythimna comma</i>	Shoulder-striped Wa	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth	Lancs BAP Provisional Long List	<i>Tholera cespitis</i>	Hedge Rustic	West Lancashire	1889	SD52	1 Count of -; 1 Count of Adult
Yes	insect - moth	Lancs BAP Provisional Long List	<i>Xanthia gilvago</i>	Dusky-lemon Sallow	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	terrestrial mammal	Lancs BAP Provisional Long List	<i>Arvicola terrestris</i>	Water Vole		27/09/1967	SD5932	1 Count of adult
Yes	terrestrial mammal	Lancs BAP Provisional Long List	<i>Arvicola terrestris</i>	Water Vole		27/09/1967	SD590325	

Yes	terrestrial mammal	Lancs BAP Provisional Long List	Arvicola terrestris	Water Vole		27/09/1967	SD590325	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	Lepus europaeus	Brown Hare	Brockholes Quarry BHS	04/06/2010	SD585308	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	Lepus europaeus	Brown Hare		23/05/2008	SD5829	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	Lepus europaeus	Brown Hare		07/06/2008	SD63B	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	Lepus europaeus	Brown Hare	Seed Park	29/01/2011	SD600308	1 Count of present
Yes	terrestrial mammal	Lancs BAP Provisional Long List	Lepus europaeus	Brown Hare	Brockholes Nature Res	25/06/2011	SD53V	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	Lepus europaeus	Brown Hare		27/09/1967	SD590325	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	Sciurus vulgaris	Red Squirrel		August 1938	SD63	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	Sciurus vulgaris	Red Squirrel		26/06/1962	SD63	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	Sciurus vulgaris	Red Squirrel		27/09/1967	SD590325	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	Sciurus vulgaris	Red Squirrel		1970	SD52	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	Sciurus vulgaris	Red Squirrel		1970	SD63	
Yes	terrestrial mammal	Lancs BAP Provisional Long List	Sciurus vulgaris	Red Squirrel		1994	SD52	1 Count of present
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting	Preston Borough	July 1990	SD5820932644	
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting	Preston Borough	May 1990	SD5851332311	
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting	Preston Borough	May 1990	SD5895632879	
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting	Brockholes Quarry BHS	2000	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting	Brockholes Quarry BHS	1999	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting	Brockholes Quarry BHS	2005	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting	Brockholes Quarry BHS	2003	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting	Brockholes Quarry BHS	2002	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting	Brockholes Quarry BHS	2001	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting	Brockholes Quarry BHS	2004	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting	Brockholes Nature Res	25/06/2011	SD53V	
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting		1999	SD63A	2 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting		1998	SD53R	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting		1998	SD53V	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	Emberiza schoeniclu	Reed Bunting		1998	SD53W	1 Count of proved breeding
Yes	insect - moth	Lancs BAP Provisional Long List	Diloba caeruleoceph	Figure of Eight	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	bird	Lancs BAP Provisional Long List	Passer montanus	Tree Sparrow	Brockholes Quarry BHS	2000	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Passer montanus	Tree Sparrow	Brockholes Quarry BHS	2004	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Passer montanus	Tree Sparrow	Brockholes Quarry BHS	1999	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Passer montanus	Tree Sparrow	Brockholes Quarry BHS	2002	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Passer montanus	Tree Sparrow	Brockholes Quarry BHS	2003	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Passer montanus	Tree Sparrow	Brockholes Quarry BHS	2001	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Passer montanus	Tree Sparrow	Brockholes Quarry BHS	2005	SD5830	1 Count
Yes	bird	Lancs BAP Provisional Long List	Passer montanus	Tree Sparrow	Brockholes Nature Res	25/06/2011	SD53V	
Yes	bird	Lancs BAP Provisional Long List	Passer montanus	Tree Sparrow		1998	SD53V	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	Passer domesticus	House Sparrow	Brockholes Nature Res	25/06/2011	SD53V	
Yes	bird	Lancs BAP Provisional Long List	Passer domesticus	House Sparrow		1999	SD62E	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	Passer domesticus	House Sparrow		1999	SD63B	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	Passer domesticus	House Sparrow		1998	SD53W	1 Count of possible breeding
Yes	bird	Lancs BAP Provisional Long List	Passer domesticus	House Sparrow		1998	SD53R	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	Passer domesticus	House Sparrow	South Ribble District	25/05/2013	SD6131	
Yes	bird	Lancs BAP Provisional Long List	Passer domesticus	House Sparrow		1998	SD52Z	1 Count of proved breeding
Yes	bird	Lancs BAP Provisional Long List	Passer domesticus	House Sparrow		1999	SD63A	1 Count of proved breeding
Yes	amphibian	Lancs BAP Provisional Long List	Bufo bufo	Common Toad	West Lancashire	23/05/2006	SD595326	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Bufo bufo	Common Toad	West Lancashire	23/05/2006	SD595326	10 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Bufo bufo	Common Toad	Brockholes Nature Res	25/06/2011	SD53V	
Yes	amphibian	Lancs BAP Provisional Long List	Bufo bufo	Common Toad	Pope Lane Pond 1	17/06/1999	SD57593154	sev. 1000s Count of larva
Yes	insect - moth	Lancs BAP Provisional Long List	Asteroscopus sphinx	Sprawler	West Lancashire	1892	SD52	1 Count of -
Yes	insect - moth	Lancs BAP Provisional Long List	Graphiphora augur	Double Dart	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth	Lancs BAP Provisional Long List	Trichiura crataegi	Pale Eggar	West Lancashire	1856	SD52	1 Count of Adult; 1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Preston Borough	10/05/2012	SD579321	2 Count of immature; 4 Count
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	17/05/2006	SD601304	2 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	07/06/2006	SD599300	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	West Lancashire	23/05/2006	SD595326	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	West Lancashire	16/05/2006	SD595326	2 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	07/06/2006	SD600305	2 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	17/05/2006	SD600305	2 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	30/05/2006	SD595326	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	17/05/2006	SD601304	2 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	31/05/2006	SD597307	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	10/05/2006	SD601304	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	West Lancashire	23/05/2006	SD595326	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	West Lancashire	16/05/2006	SD595326	2 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	07/06/2006	SD600305	3 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	31/05/2006	SD600305	2 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	17/05/2006	SD601304	2 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	10/05/2006	SD601304	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	17/05/2006	SD597305	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	17/05/2006	SD597305	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	West Lancashire	23/05/2006	SD595326	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	West Lancashire	16/05/2006	SD595326	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	31/05/2006	SD597307	2 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	West Lancashire	30/05/2006	SD595326	3 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	17/05/2006	SD601304	2 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	31/05/2006	SD597307	2 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	West Lancashire	16/05/2006	SD595326	2 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	07/06/2006	SD600305	2 Count of -

Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	31/05/2006	SD600305	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	07/06/2006	SD598301	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	West Lancashire	30/05/2006	SD595326	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	17/05/2006	SD597305	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	17/05/2006	SD601304	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	31/05/2006	SD597305	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	West Lancashire	09/05/2006	SD595326	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	West Lancashire	09/05/2006	SD595326	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	17/05/2006	SD598301	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	31/05/2006	SD598301	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	07/06/2006	SD597305	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	10/05/2006	SD598301	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	West Lancashire	23/05/2006	SD595326	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	31/05/2006	SD601304	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	10/05/2006	SD597305	1 Count of -
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	07/06/2006	SD601304	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	South Lancashire	07/06/2006	SD600305	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Tunbrook Wood	27/09/1967	SD590325	1 Count of present
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Pope Lane Pond 5	1990	SD580317	1 Count
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Pope Lane Pond 2	16/06/1999	SD57743155	1 Count of present
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Wyre Borough	2003	SD5795532048	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Preston Borough	2003	SD5796832035	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Preston Borough	2002	SD5796832036	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Preston Borough	2003	SD5796232034	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Pope Lane Ponds	2003	SD5774431556	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Pope Lane Ponds	2003	SD5787031616	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Pope Lane Ponds	2003	SD5803031754	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Preston Borough	27/09/1967	SD590325	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Red Scar and Tun Brook	01/05/1970	SD53	
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Red Scar and Tun Brook	May 1970	SD53	1 Count of present
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Pope Lane Pond 2	May 2004 - June 2004	SD5774531546	4 Count of present
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Pope Lane Pond 3	May 2004 - June 2004	SD5787031623	1 Count of present
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Pope Lane Pond 5	May 2004 - June 2004	SD5803631764	1 Count of present
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Preston Borough	May 2004 - June 2004	SD5797532031	37 Count of present
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Preston Borough	May 2004 - June 2004	SD5798932239	8 Count of present
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Preston Borough	May 2004 - June 2004	SD5800832315	114 Count of present
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Preston Borough	May 2004 - June 2004	SD5788232666	8 Count of present
Yes	amphibian	Lancs BAP Provisional Long List	Triturus cristatus	Great Crested Newt	Pope Lane Pond 4	1990	SD580317	1 Count
Yes	flowering plant		Centaurea cyanus	Cornflower		01/01/1950	SD62	
Yes	bird		Carduelis cabaret	Lesser Redpoll		1999	SD63A	1 Count of possible breeding
Yes	bird		Carduelis cabaret	Lesser Redpoll		1999	SD63B	1 Count of possible breeding
Yes	bony fish (Actinopterygii)		Anguilla anguilla	Eel		27/09/2011	SD5908932490	2 Count of -
Yes	bony fish (Actinopterygii)		Anguilla anguilla	Eel		27/09/2011	SD5948131049	9 Count of -
Yes	bony fish (Actinopterygii)		Anguilla anguilla	Eel		27/09/2011	SD5966031091	1 Count of -
Yes	flowering plant		Bupleurum rotundifolium	Thorow-Wax		01/01/1950	SD62	
Yes	flowering plant		Lolium temulentum	Darnel		01/01/1970	SD62	
Yes	flowering plant		Lolium temulentum	Darnel		01/01/1950	SD62	
Yes	flowering plant		Ranunculus arvensis	Corn Buttercup		01/01/1918	SD62	
Yes	insect - moth		Agrochola lychnidis	Beaded Chestnut	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Amphipyra tragopogon	Mouse Moth	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Amphipyra tragopogon	Mouse Moth	West Lancashire	1976	SD63	1 Count of -
Yes	insect - moth		Brachyolomia viminalis	Minor Shoulder-knot	West Lancashire	08/08/2001	SD5831	1 Count of Adult; 3 Count of -
Yes	insect - moth		Caradrina morpheus	Mottled Rustic	West Lancashire	11/07/2009	SD587309	1 Count of -; 1 Count of Adult
Yes	insect - moth		Chiasmia clathrata	Latticed Heath	South Lancashire	1970	SD62	1 Count of Adult; 1 Count of -
Yes	insect - moth		Chiasmia clathrata	Latticed Heath	West Lancashire	08/08/2001	SD5831	1 Count of -; 1 Count of Adult
Yes	insect - moth		Ennomos erosaria	September Thorn	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Ennomos erosaria	September Thorn	West Lancashire	1975	SD63	1 Count of -; Not Count of pre:
Yes	insect - moth		Ennomos erosaria	September Thorn	West Lancashire	31/08/2002	SD597325	1 Count of -; 1 Count of Adult
Yes	insect - moth		Ennomos fuscantaria	Dusky Thorn	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Entephria caesiata	Grey Mountain Carpet	West Lancashire	1890	SD63	1 Count of Adult; 1 Count of -
Yes	insect - moth		Eugnorisma glareosa	Autumnal Rustic	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Eugnorisma glareosa	Autumnal Rustic	West Lancashire	1975	SD63	1 Count of -; Not Count of pre:
Yes	insect - moth		Eugnorisma glareosa	Autumnal Rustic	West Lancashire	1889	SD63	1 Count of -; 1 Count of Adult
Yes	insect - moth		Eulithis mellinata	Spinach	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Eulithis mellinata	Spinach	West Lancashire	1889	SD52	1 Count of -; 1 Count of Adult
Yes	insect - moth		Hepialus humuli	Ghost Moth	West Lancashire	04/07/1973	SD53	1 Count of -; Not Count of pre:
Yes	insect - moth		Hepialus humuli	Ghost Moth	West Lancashire	04/07/1973	SD53	1 Count of -; Not Count of pre:
Yes	insect - moth		Hepialus humuli	Ghost Moth	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Hepialus humuli	Ghost Moth	West Lancashire	11/07/2009	SD587309	1 Count of -; 1 Count of Adult
Yes	insect - moth		Hepialus humuli	Ghost Moth	West Lancashire	15/07/2004	SD585306	1 Count of Adult; 1 Count of -
Yes	insect - moth		Hepialus humuli	Ghost Moth	West Lancashire	11/07/2009	SD587309	1 Count of Adult; 1 Count of -
Yes	insect - moth		Hepialus humuli	Ghost Moth	West Lancashire	15/07/1996	SD5832	1 Count of Adult; 1 Count of -
Yes	insect - moth		Hepialus humuli	Ghost Moth	West Lancashire	15/07/1996	SD5832	1 Count of Adult; 1 Count of -
Yes	insect - moth		Hepialus humuli	Ghost Moth	West Lancashire	15/07/2004	SD585306	1 Count of Adult; 1 Count of -
Yes	insect - moth		Hoplodrina blanda	Rustic	West Lancashire	1889	SD52	1 Count of Adult; 1 Count of -
Yes	insect - moth		Hoplodrina blanda	Rustic	West Lancashire	1889	SD52	1 Count of Adult; 1 Count of -
Yes	insect - moth		Hoplodrina blanda	Rustic	West Lancashire	11/07/2009	SD587309	1 Count of Adult; 2 Count of -
Yes	insect - moth		Hoplodrina blanda	Rustic	West Lancashire	11/07/2009	SD587309	1 Count of Adult; 2 Count of -
Yes	insect - moth		Hoplodrina blanda	Rustic	West Lancashire	08/08/2001	SD5831	1 Count of -; 1 Count of Adult
Yes	insect - moth		Hoplodrina blanda	Rustic	West Lancashire	08/08/2001	SD5831	1 Count of -; 1 Count of Adult

Yes	insect - moth		Hydraecia micacea	Rosy Rustic	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Hydraecia micacea	Rosy Rustic	West Lancashire	29/08/2002	SD597325	1 Count of -; 1 Count of Adult
Yes	insect - moth		Hydraecia micacea	Rosy Rustic	West Lancashire	29/08/2002	SD597325	1 Count of -; 1 Count of Adult
Yes	insect - moth		Hydraecia micacea	Rosy Rustic	West Lancashire	19/08/2011	SD583303	1 Count of Adult; 1 Count of -
Yes	insect - moth		Hydraecia micacea	Rosy Rustic	West Lancashire	19/08/2011	SD583303	1 Count of Adult; 1 Count of -
Yes	insect - moth		Melanchna persicaria	Dot Moth	West Lancashire	04/07/1973	SD53	1 Count of -; Not Count of pre
Yes	insect - moth		Melanchna persicaria	Dot Moth	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Melanchna pisi	Broom Moth	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Mesoligia literosa	Rosy Minor	West Lancashire	08/08/2001	SD5831	1 Count of Adult; 2 Count of -
Yes	insect - moth		Orthonama vittata	Oblique Carpet	West Lancashire	1889	SD52	1 Count of Adult; 1 Count of -
Yes	insect - moth		Spilosoma lubricipe	White Ermine	South Lancashire	1940	SD52	1 Count of -; 1 Count of Adult
Yes	insect - moth		Spilosoma lubricipe	White Ermine	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Spilosoma lubricipe	White Ermine	West Lancashire	10/05/2004	SD585306	1 Count of -; 1 Count of Adult
Yes	insect - moth		Spilosoma lubricipe	White Ermine	West Lancashire	26/05/2004	SD585306	1 Count of Adult; 1 Count of -
Yes	insect - moth		Spilosoma lubricipe	White Ermine	West Lancashire	04/06/2008	SD585305	1 Count of Adult; 1 Count of -
Yes	insect - moth		Spilosoma lubricipe	White Ermine	West Lancashire	26/08/2010	SD583303	1 Count of -; 1 Count of Adult
Yes	insect - moth		Spilosoma lubricipe	White Ermine	West Lancashire	26/08/2010	SD583303	1 Count of -; 1 Count of Adult
Yes	insect - moth		Stilbia anomala	Anomalous	West Lancashire	1889	SD63	1 Count of -; 1 Count of larva
Yes	insect - moth		Tholera decimalis	Feathered Gothic	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Tholera decimalis	Feathered Gothic	West Lancashire	1976	SD63	1 Count of -; Not Count of pre
Yes	insect - moth		Tholera decimalis	Feathered Gothic	West Lancashire	29/08/2002	SD597325	1 Count of Adult; 8 Count of -
Yes	insect - moth		Tholera decimalis	Feathered Gothic	West Lancashire	31/08/2002	SD597325	1 Count of Adult; 1 Count of -
Yes	insect - moth		Tyria jacobaeae	Cinnabar	South Lancashire	1961	SD52	1 Count of -; 1 Count of Adult
Yes	insect - moth		Tyria jacobaeae	Cinnabar	West Lancashire	19/08/2011	SD583303	1 Count of larva; 40 Count of -
Yes	insect - moth		Tyria jacobaeae	Cinnabar	West Lancashire	08/07/2009	SD587309	1 Count of larva; 7 Count of -
Yes	insect - moth		Tyria jacobaeae	Cinnabar	Brockholes Nature Rese	25/06/2011	SD53V	
Yes	insect - moth		Tyria jacobaeae	Cinnabar	West Lancashire	04/06/1997	SD5832	1 Count of -; 1 Count of Adult
Yes	insect - moth		Tyria jacobaeae	Cinnabar	West Lancashire	12/06/2009	SD585305	1 Count of Adult; 2 Count of -
Yes	insect - moth		Watsonalla binaria	Oak Hook-tip	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Watsonalla binaria	Oak Hook-tip	West Lancashire	08/08/2001	SD5831	1 Count of Adult; 2 Count of -
Yes	insect - moth		Xanthorhoe ferrugata	Dark-Barred Twin-Sp	West Lancashire	15/07/2004	SD585306	1 Count of Adult; 2 Count of -
Yes	insect - moth		Xanthorhoe ferrugata	Dark-barred Twin-sp	West Lancashire	08/08/2001	SD5831	1 Count of -; 1 Count of Adult
Yes	insect - moth		Xanthorhoe ferrugata	Dark-barred Twin-sp	West Lancashire	08/08/2001	SD5832	1 Count of -; 1 Count of Adult
Yes	insect - moth		Xanthorhoe ferrugata	Dark-barred Twin-sp	West Lancashire	04/05/2010	SD583303	1 Count of -; 1 Count of Adult
Yes	insect - moth		Xanthorhoe ferrugata	Dark-Barred Twin-Sp	West Lancashire	10/05/2004	SD585306	1 Count of Adult; 2 Count of -
Yes	terrestrial mammal		Nyctalus noctula	Noctule Bat		18/05/2010	SD579314	1 Count of present
Yes	terrestrial mammal		Nyctalus noctula	Noctule Bat		26/05/2010	SD587308	1 Count of present
Yes	terrestrial mammal		Nyctalus noctula	Noctule Bat		02/06/2010	SD587308	1 Count of present
Yes	terrestrial mammal		Nyctalus noctula	Noctule Bat		09/06/2010	SD587308	1 Count of present
Yes	terrestrial mammal		Nyctalus noctula	Noctule Bat		16/09/2010	SD587308	1 Count of present
Yes	terrestrial mammal		Nyctalus noctula	Noctule Bat		21/07/2010	SD587308	1 Count of present
Yes	terrestrial mammal		Pipistrellus pygmaeus	Soprano Pipistrelle		18/05/2010	SD579314	1 Count of present
Yes	terrestrial mammal		Pipistrellus pygmaeus	Soprano Pipistrelle		26/05/2010	SD587308	1 Count of present
Yes	terrestrial mammal		Pipistrellus pygmaeus	Soprano Pipistrelle		16/09/2010	SD587308	1 Count of present
Yes	terrestrial mammal		Pipistrellus pygmaeus	Soprano Pipistrelle		12/05/2010	SD579314	1 Count of present
Yes	insect - moth		Acronicta rumicis	Knot Grass	South Lancashire	1970	SD62	1 Count of Adult; 1 Count of -
Yes	insect - moth		Allophyes oxyacanth	Green-brindled Cresc	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Apamea anceps	Large Nutmeg	West Lancashire	1889	SD52	1 Count of -
Yes	flowering plant		Carum carvi	Caraway	South Lancashire	01/01/1959	SD52	
Yes	flowering plant		Carum carvi	Caraway	South Lancashire	01/01/1959	SD52	
Yes	flowering plant		Coeloglossum viride	Frog Orchid	South Lancashire	01/01/1950	SD52	
Yes	insect - moth		Agrochola helvola	Flounced Chestnut	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Amphipoea oculaea	Ear Moth	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Amphipoea oculaea	Ear Moth	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Apamea remissa	Dusky Brocade	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Apamea remissa	Dusky Brocade	West Lancashire	25/06/2011	SD587309	1 Count of -
Yes	insect - moth		Catocala promissa	Light Crimson Underw	West Lancashire	1887	SD52	1 Count of Adult; 1 Count of -
Yes	insect - moth		Diarsia rubi	Small Square-spot	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Diarsia rubi	Small Square-spot	West Lancashire	1975	SD63	1 Count of -; Not Count of pre
Yes	insect - moth		Diarsia rubi	Small Square-spot	West Lancashire	08/08/2001	SD5831	1 Count of Adult; 2 Count of -
Yes	insect - moth		Diarsia rubi	Small Square-spot	West Lancashire	08/08/2001	SD5832	1 Count of -; 1 Count of Adult
Yes	insect - moth		Diarsia rubi	Small Square-spot	West Lancashire	10/05/2004	SD585306	1 Count of Adult; 2 Count of -
Yes	insect - moth		Diarsia rubi	Small Square-spot	West Lancashire	26/05/2004	SD585306	1 Count of Adult; 2 Count of -
Yes	insect - moth		Ecliptopera silaceata	Small Phoenix	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Ecliptopera silaceata	Small Phoenix	West Lancashire	1975	SD63	1 Count of -; Not Count of pre
Yes	insect - moth		Ecliptopera silaceata	Small Phoenix	West Lancashire	1889	SD52	1 Count of -; 1 Count of Adult
Yes	insect - moth		Ecliptopera silaceata	Small Phoenix	West Lancashire	08/08/2001	SD5831	1 Count of Adult; 5 Count of -
Yes	insect - moth		Ecliptopera silaceata	Small Phoenix	West Lancashire	08/08/2001	SD5832	1 Count of Adult; 21 Count of -
Yes	insect - moth		Ecliptopera silaceata	Small Phoenix	West Lancashire	05/06/2002	SD5832	1 Count of Adult; 1 Count of -
Yes	insect - moth		Ecliptopera silaceata	Small Phoenix	West Lancashire	10/05/2004	SD585306	1 Count of Adult; 1 Count of -
Yes	insect - moth		Euxoa nigricans	Garden Dart	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Scotopteryx chenop	Shaded Broad-bar	West Lancashire	08/08/2001	SD5831	1 Count of Adult; 3 Count of -
Yes	insect - moth		Scotopteryx chenop	Shaded Broad-bar	West Lancashire	28/06/2004	SD5832	1 Count of Adult; 1 Count of -
Yes	insect - moth		Scotopteryx chenop	Shaded Broad-bar	West Lancashire	08/07/2009	SD587309	1 Count of -; 1 Count of Adult
Yes	insect - moth		Scotopteryx chenop	Shaded Broad-bar	West Lancashire	11/07/2009	SD587309	1 Count of Adult; 1 Count of -
Yes	insect - moth		Scotopteryx chenop	Shaded Broad-bar	West Lancashire	06/07/2009	SD587309	1 Count of -; 1 Count of Adult
Yes	insect - moth		Scotopteryx chenop	Shaded Broad-bar	West Lancashire	24/07/2006	SD585305	1 Count of Adult; 3 Count of -
Yes	insect - moth		Scotopteryx chenop	Shaded Broad-Bar	West Lancashire	15/07/2004	SD585306	1 Count of Adult; 2 Count of -
Yes	insect - moth		Spilosoma luteum	Buff Ermine	South Lancashire	1970	SD62	1 Count of -; 1 Count of Adult
Yes	insect - moth		Spilosoma luteum	Buff Ermine	Brockholes Nature Rese	25/06/2011	SD53V	
Yes	insect - moth		Xanthia icteritia	Sallow	West Lancashire	1976	SD63	1 Count of -; Not Count of pre

Magic Map 1km search zone for designated wildlife sites - Map



Legend

Environmentally Sensitive Areas (England)	Special Protection Areas (Wales)
Local Nature Reserves (England)	Biosphere Reserves (England)
National Nature Reserves (England)	
National Parks (England)	
National Parks: Lake District and Yorkshire	
Deas Variation Orders 2012 - subject to confirmation (England)	
Surface Water	
Groundwater	
Eutrophic	
Ramsar Sites (England)	
Sites of Special Scientific Interest (England)	
Sites of Special Scientific Interest (Scotland)	
Special Areas of Conservation (England)	
Special Protection Areas (England)	

Projection = OSGB36
 datum = 192720
 datum = 193630
 datum = 199000
 datum = 112000

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Magic Map 1km search zone for designated wildlife sites - Report

Local Nature Reserves (England) - points

Reference	1082887
Name	POPE LAND OPEN SPACE
Hectares	23.37
Hyperlink	http://www.lnr.naturalengland.org.uk/special/lnr/lnr_details.asp?themeid=1082887

Local Nature Reserves (England)

Reference	1082887
Name	POPE LAND OPEN SPACE
Hectares	23.37
Hyperlink	http://www.lnr.naturalengland.org.uk/special/lnr/lnr_details.asp?themeid=1082887

Sites of Special Scientific Interest (England) - points

Name	RED SCAR AND TUN BROOK WOODS
Reference	1003786
Natural England Contact	JON HICKLING
Natural England Phone Number	0845 600 3078
Hectares	63.62
Citation	1001907
Hyperlink	http://www.sssi.naturalengland.org.uk/special/sssi/sssi_details.cfm?sssi_id=1001907

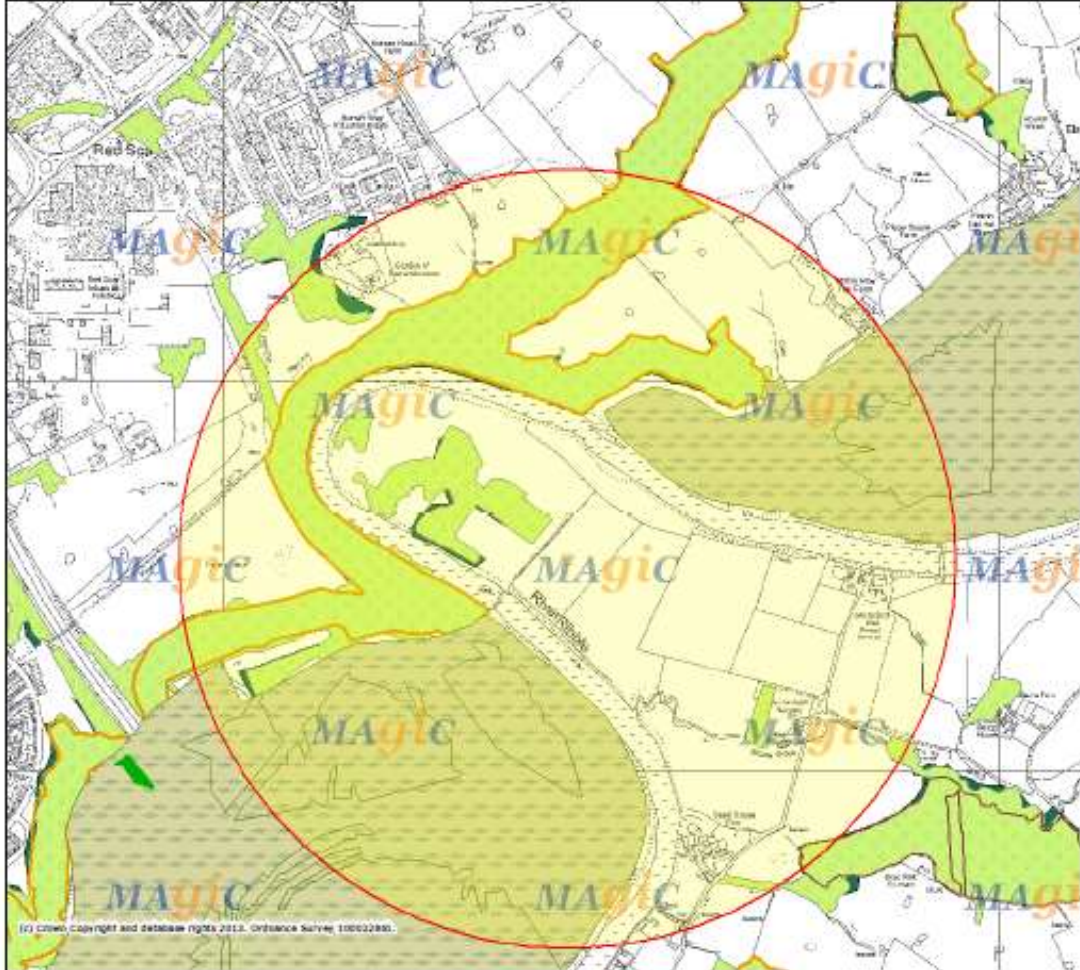
Sites of Special Scientific Interest (England)

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Magic Map 1km search zone for habitat inventory data

MAGIC

Magic Map



Legend

<ul style="list-style-type: none"> Lowland Calcareous Grassland SAP Priority Habitat (England) Lowland Dry Acid Grassland SAP Priority Habitat (England) Lowland Meadows SAP Priority Habitat (England) Undetermined Grassland SAP Priority Habitat (England) Upland Calcareous Grassland SAP Priority Habitat (England) Upland Hay Meadow SAP Priority Habitat (England) Lowland Heathland SAP Priority Habitat (England) Upland Heathland SAP Priority Habitat (England) Limestone Pavements SAP Priority Habitat (England) Coastal Sand Dune SAP Priority Habitat (England) Sand Dunes (Wales) 	<ul style="list-style-type: none"> Coastal Vegetated Shingle SAP Priority Habitat (England) Coastal and Floodplain Grazing Marsh SAP Priority Habitat (England) Maritime Cliffs and Slopes SAP Priority Habitat (England) Mudflat SAP Priority Habitat (England) Saltmarsh (Wales) Saline Lagoons SAP Priority Habitat (England) Saline Lagoons (Wales) Seagrass (Wales) Nationally Important Intertidal Habitats (Wales) Boulders/Loose Rock Gravel Made Ground (Man Made) Mud 	<ul style="list-style-type: none"> Mud and Gravel Not Present Rock Platform Rock Platform with Bank of Gravel Rock Platform with Boulders/Loose Rock Sand Sand and Gravel Sand and Mud Unspecified Mud Mud/Shingle Rock Rock/Shingle Sand 	<ul style="list-style-type: none"> Sand/Shingle Shingle Blanket Bog SAP Priority Habitat (England)
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Projection = OSGB36
 utm = 298260
 ytm = 619400
 zone = 30QUD
 pric = 612900

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Wildlife Site Citations

a. Roach Bridge Woods	Biological Heritage Site
b. Brewery Wood	Biological Heritage Site
c. Roach Road Wood	Biological Heritage Site
d. Preston New Road A59T	Biological Heritage Site
e. Brockholes Wood	Biological Heritage Site
f. Pope Lane Ponds	Biological Heritage Site
g. Brockholes Quarry	Biological Heritage Site
h. Salmesbury Wood	Biological Heritage Site
i. Wood by St Mary's Church	Biological Heritage Site
j. Mason's Wood	Biological Heritage Site
k. Darwen River Section Woods (inc. Sharples Wood & Kiln Wood)	Biological Heritage Site
l. Spring Wood	Biological Heritage Site
m. Seed Park	Biological Heritage Site
n. Bezza Lane	Biological Heritage Site
o. River Ribble from London Rd Bridge to County Boundary	Biological Heritage Site
p. Goose House Wood	Biological Heritage Site
q. Bezza Brook Woods	Biological Heritage Site
r. Huntley Wood	Biological Heritage Site
s. Hermitage Meadows	Biological Heritage Site
t. Knipe Wood	Biological Heritage Site

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Site Name: Roach Bridge Woods

Site Ref: 52NE20

Approved: 01 November 1997

Area (ha): 2.65

Date written/last updated: 01 March 2000

Grid Ref: SD598290

Owner/Occupier: Private

Districts:

South Ribble

Parishes:

Salmesbury

Description:

The site comprises woodland occupying steep ground on both sides of the River Darwen at Roach Bridge. The woodland is ancient, semi-natural in character. Outcrops and cliffs of Triassic sandstone occur.

The woodland canopy is dominated by sycamore and ash, with more occasional oak, wych elm, rowan, wild cherry and bird cherry. Hawthorn, elder and hazel form the scrub layer. The ground flora includes the following species: dog's mercury, ramsons, wood avens, bluebell, enchanter's-nightshade, moschatel, herb-robert, wood-sorrel, wood anemone, primrose, opposite-leaved golden-saxifrage, lesser celandine, wood melick, great wood-rush, lady-fern and broad buckler-fern. Wood fescue, a species listed in the *Provisional Lancashire Red Data List of Vascular Plants*, is present at the site.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd2)

Flowering Plants and Ferns [(F14b)]

Other Information/Comments:

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Site Name: Brewery Wood

Site Ref: 52NE18

Approved: 01 September 1993

Area (ha): 2.36

Date written/last updated: 21 November 2011

Grid Ref: SD594299

Owner/Occupier: Private

Districts: South Ribble
Parishes: Salmesbury

Description:

The site comprises a small woodland of an ancient, semi-natural character, situated just above the southern terrace of the River Ribble.

The canopy is made up of oak, alder and ash, with holly, hazel and elm as the understorey. Guelder-rose has also been recorded here. The ground flora predominantly comprises creeping soft-grass, bluebell, wood sorrel, bramble, broad buckler-fern and ivy. Other species include moschatel, ramsons, Lords-and-Ladies, lady-fern, false-brome, enchanter's-nightshade, pignut, giant fescue, herb-Robert, wood avens, yellow pimpernel, dog's mercury, wood anemone, hearts-tongue fern and red campion.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd2)

Other Information/Comments:

Lowland Mixed Deciduous Woodland is a UKBAP priority habitat.

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Site Name: Roach Road Wood

Site Ref: 52NE19

Approved: 01 November 1997

Area (ha): 1.04

Date written/last updated: 01 March 2000

Grid Ref: SD594291

Owner/Occupier: Private

Districts: South Ribble
Parishes: Salmesbury

Description:

The site consists of woodland situated along a tributary of the River Darwen. The woodland is ancient, semi-natural in character.

The canopy comprises ash, oak, sycamore and wild cherry, with an understorey of holly, elder and hazel. Bramble is frequent and field-rose more occasional. The following species are present in the ground flora: creeping soft-grass, tufted hair-grass, false brome, bluebell, wood anemone, wood-sorrel, red campion, herb-robert, ramsons, dog's mercury and broad buckler-fern. On wetter ground alongside the stream plants such as opposite-leaved golden-saxifrage, marsh marigold, large bitter-cress and reed canary-grass are found.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd2)

Other Information/Comments:

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Site Name: Preston New Road A59T

Site Ref: 53SE08

Approved: 01 September 1993

Area (ha): 3.58

Date written/last updated: 01 February 2002

Grid Ref: SD594302

Owner/Occupier: Public

Districts: South Ribble
Parishes: Salmesbury

Description:

The site comprises an area of woodland and species rich grassland bounded to the north and south by the carriageways of Preston New Road (A59(T)). The wooded area runs across the northern section of the site with the grassland areas occupying a thin strip to the south.

The woodland canopy comprises mainly sycamore with ash, beech, elm, oak and some tall hawthorn. Dense stands of bramble dominate the understorey with extensive spreads of ivy across the floor and on trees. The ground flora includes giant fescue, broad buckler-fern, creeping soft-grass, bluebell, wood anemone, lesser celandine, false brome, tufted hair-grass, Lord's-and-Ladies, great horsetail, dog's mercury, enchanter's-nightshade and red campion. A small clearing contains marsh ragwort, marsh thistle and bittersweet.

The main grassland area occupies a bank above the westbound carriageway of the A59T. Common knapweed, common centaury and common spotted-orchid occur in abundance together with ribwort plantain, greater bird's-foot-trefoil, selfheal, red fescue, sweet vernal-grass, field horsetail, marsh thistle, common mouse-ear, meadow vetchling, crested dog's-tail, hard rush, glaucous sedge and autumn hawkbit. Bee orchid has been recorded for this site.

An area of rank grassland and scrub between the wood and the bank contains sneezewort, common spotted-orchid and glaucous sedge.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd2)

Artificial Habitats (Ar2)

Other Information/Comments:

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Site Name: Brockholes Wood

Site Ref: 53SE05

Approved: 01 September 1993

Area (ha): 28.17

Date written/last updated: 01 April 2004

Grid Ref: SD575305

Owner/Occupier: Public

Districts: Preston
Parishes: Preston

Description:

The site comprises a large area of broad-leaved woodland occupying the steep clay slopes of old terraces of the River Ribble, immediately to the north of Brockholes Brow (A59), on the eastern edge of Preston. Most of the site is included in the *Lancashire Inventory of Ancient Woodland (Provisional)*, (English Nature, 1994).

On the steep upper slopes and gullies the canopy is dominated by ash and wych elm, accompanied by species such as lime, alder and horse-chestnut. The understorey includes hazel, elder and hawthorn. A diverse ground flora includes dog's mercury, wood anemone, wood-sorrel, wood speedwell and bluebell. Flushed ground supports plants such as opposite-leaved golden-saxifrage and rough horsetail, a species included in the *Provisional Lancashire Red Data List of Vascular Plants*.

Oak and birch woodland with sycamore occupies a mid-slope position on more acidic, leached soils. Under-storey species are sparse here and include hazel, hawthorn and holly. The ground flora is fairly species-poor and includes Yorkshire-fog, wood-sorrel and bracken.

At the base of the slope and along stream and gully sides, alder woodland dominates. Other canopy species include ash, sycamore and wych elm. Ground flora plants include woodruff, alternate-leaved golden-saxifrage, yellow pimpernel, wood horsetail and pale sedge.

The site also includes areas of semi-improved grassland, marshy grassland and tall-herb vegetation. Grassland in the north-east of the site supports common knapweed, greater bird's-foot-trefoil, field wood-rush, cat's-ear, salad burnet, soft-rush, tufted hair-grass, reed canary-grass, Yorkshire-fog and common bent. A pond is on the eastern edge of the site supports reedmace and water horsetail.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd1)

Habitat Mosaics (Hm3)

Flowering Plants and Ferns (Ff4a)

Other Information/Comments:

The site adjoins Brockholes Meadow (BHS 53SE06)

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Site Name: Pope Lane Ponds

Site Ref: 53SE07

Approved: 08 September 1993

Area (ha): 16.35

Date written/last updated: 01 November 2002

Grid Ref: SD578316

Owner/Occupier: Private

Districts: Preston
Parishes: Preston

Description:

The site comprises a series of ponds and wet swamp located in a large field on the eastern side of Preston.

There is considerable variation in the physical shape of the ponds and in the vegetation structure and composition between the ponds. Frogbit, a species included in the *Provisional Lancashire Red Data List of Vascular Plants*, is present in four of the ponds.

Aquatic species present include broad-leaved pondweed, Canadian waterweed, unbranched bur-reed, frogbit, common water-starwort, rigid hornwort and spiked water-milfoil. Marginal and swamp vegetation includes bogbean, marsh marigold, marsh cinquefoil, ivy-leaved crowfoot, marsh speedwell, common spotted-orchid, ragged robin, lesser spearwort, greater bird's-foot-trefoil, water-mint, remote sedge and glaucous sedge.

Great crested newts, smooth newts and common toad breed at the site. The ponds support a good assemblage of aquatic invertebrates, including horse leech, operculate snail (*Bithynia tentaculata*), bladder snail (*Physa fontinalis*) and metallic reed beetles (*Donacia simplex* and *D. vulgaris*). The following dragonflies and damselflies breed at the site: southern hawker dragonfly, brown hawker dragonfly, azure damselfly, common blue damselfly, blue-tailed dragonfly and large red damselfly.

Guideline(s) for Site Selection:

Ponds	(Po1)
Flowering Plants and Ferns	(F3)
Amphibians	(Am1a)?

Other Information/Comments:

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Site Name: Brockholes Quarry

Site Ref: 53SE15

Approved: 01 January 2006

Area (ha): 99.22

Date written/last updated: 01 June 2006

Grid Ref: SD585308

Owner/Occupier:

Districts: Preston
Parishes: Preston

Description:

The site comprises of a former sand and gravel extraction site with habitats including freshwater lagoons, reed-beds and swamp, grassland and developing woodland to the east of Preston.

The site is particularly important for birds. Significant numbers of the British population of Whimbrel assemble on the lagoons during spring passage and Little Ring Plovers are regular breeders in areas of open habitat.

The site is also important for regular breed birds including Mute Swan, Shelduck, Tufted Duck, Great Crested Grebe, Moorhen, Coot, Redshank, Kingfisher, Sand Martin, Pied Wagtail, Grey Wagtail, Sedge Warbler, Reed Warbler and Reed Bunting.

Breeding Dragonflies and Damselflies include Large Red Damselfly, Blue-tailed Damselfly, Common Blue Damselfly, Azure Damselfly, Brown Hawker, Emperor Dragonfly, Black-tailed Skimmer and Common Darter, whilst Southern Hawker and Migrant Hawker have also been recorded.

The marginal vegetation around the lakes is a product of planting and naturally colonisation; species includes Reed, Bulrush, Lesser Pond-sedge, Cyprus Sedge, Soft Rush, Water-plantain, Meadowsweet, Creeping Buttercup, and Marsh Marigold. Aquatic species include Small Pondweed and Nuttall's Pondweed. Open habitat seasonally exposed due to a fall in water level supports Northern Yellow-cress.

Flower-rich grassland has been sown locally and includes Common Bird's-foot-trefoil, Ribwort Plantain, Yarrow, Knapweed and Red Clover.

Areas of trees have been planted and serve to extend woodland habitat out from the ancient semi-natural woodland of Red Scar and Tunbridge Woods SSSI on the steep slopes above quarry site.

Guideline(s) for Site Selection:

Dragonflies and Damselflies (Od5)

Birds (Av10) (Av3) (Av6) (Av8d)

Other Information/Comments:

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Site Name: Salmesbury Wood

Site Ref: 53SE09

Approved: 01 September 1993

Area (ha): 1.57

Date written/last updated: 01 February 2002

Grid Ref: SD594304

Owner/Occupier: Private

Districts: South Ribble
Parishes: Salmesbury

Description:

The site comprises ancient, semi-natural woodland listed in the *Lancashire Inventory of Ancient Woodland (Provisional)*, (English Nature, 1994). The wood is situated on the south terrace of the River Ribble and follows the course of a brook.

The canopy comprises mainly sycamore with ash, oak and elm, with an understorey of hazel, hawthorn and rhododendron. The ground flora is dominated in places by creeping soft-grass. Other species include foxglove, common chickweed, enchanter's-nightshade, red campion, common nettle, yellow pimpernel, giant fescue, bramble, wood speedwell, wood avens and herb-Robert. The area around the brook holds false brome, broad buckler-fern, wood sorrel, tufted hair-grass and opposite-leaved golden-saxifrage.

Rhododendron is an invasive exotic.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd1)

Other Information/Comments:

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Site Name: Wood by St. Mary's Church

Site Ref: 53SE10

Approved: 01 December 1995

Area (ha): 1.74

Date written/last updated: 01 February 2002

Grid Ref: SD595302

Owner/Occupier:

Districts: South Ribble
Parishes: Salmesbury

Description:

The site comprises semi-natural woodland situated along the north side of the A59(T), Preston New Road, on the southern terrace of the River Ribble.

The canopy comprises a mixture of sycamore, ash, beech, oak and elm with some birch to the western end. The understorey is made up of hazel, hawthorn and wild rose. A diverse ground flora includes: ivy, giant fescue, broad buckler-fern, herb-Robert, red campion, bluebell, creeping soft-grass, hedge woundwort, ground elder, common figwort, false brome, wood-sedge, dog's mercury, enchanter's-nightshade, wood anemone, wood sorrel, yellow pimpernel, Lords-and-Ladies and germander speedwell. A wet area in the wood comprises alder with great horsetail, opposite-leaved golden-saxifrage, bugle, common marsh-bedstraw and meadowsweet.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd2)

Other Information/Comments:

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Site Name: Mason's Wood

Site Ref: 62NW04

Approved: 08 September 1993

Area (ha): 4.36

Date written/last updated: 01 March 2002

Grid Ref: SD806296

Owner/Occupier: Utility
Private

Districts: South Ribble
Parishes: Samlesbury

Description:

The site comprises a wood of ancient, semi-natural character adjacent to the sewage works at Samlesbury. The site also contains an area of species rich, neutral grassland.

The canopy comprises frequent ash, elm, sycamore, oak and alder. The understorey holds bluebell, ramsons, wood anemone, lesser celandine, broad buckler-fern, herb-Robert, wood sorrel, dog's mercury and creeping soft-grass. Wet flushed areas contain opposite-leaved golden-saxifrage, large bitter-cress and brooklime. The wood also contains a population of wild daffodils.

The grassland area comprises abundant velvet bent and sweet vernal-grass with frequent crested dog's-tail, great burnet, Yorkshire-fog and locally frequent burnet-saxifrage. Sneezewort, meadow foxtail, hairy sedge, common bird's-foot-trefoil, greater bird's-foot-trefoil, Timothy, ribwort plantain, tormentil and selfheal all occur occasionally.

The invasive exotics Indian balsam and pick-a-back-plant both occur in the wood.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd2)

Other Information/Comments:

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Site Name: Darwen River Section Woods (Including Sharples Wood and Kiln Wood)

Site Ref: 62NW07

Approved: 01 December 1995

Area (ha): 17.82

Date written/last updated: 01 March 2002

Grid Ref: SD617294

Owner/Occupier: Private

Districts: South Ribble
Parishes: Salmesbury

Description:

The site comprises a series of woodlands, fields and riverbanks along a section of the River Darwen at Salmesbury Bottoms. Kiln Wood and Sharples Wood are listed in the *Lancashire Inventory of Ancient Woodlands (Provisional)*, (English Nature, 1994).

Kiln Wood comprises a canopy of ash, sycamore, alder and elm with rowan and wild cherry. Holly, hazel, hawthorn and ivy make up the understorey. The herb layer is diverse and holds typical woodland species such as: wood anemone, wood sage, wood sorrel, dog's mercury, lesser celandine, red campion, ramsons, bluebell, Lord's-and-Ladies, great woodrush, moschatel, wood avens and the ferns hard shield-fern, broad buckler-fern and hart's-tongue.

Tree and shrub species in Sharples Wood are similar to those in Kiln Wood. The field layer also shares similar species. The ground flora includes male fern, herb-Robert, Lord's-and-Lady's, ramsons, three-nerved sandwort, wood dock, wavy bitter-cress, meadow saxifrage, wood anemone, opposite-leaved golden-saxifrage, foxglove and giant bellflower.

The woodland between Knight Bottoms and Green Lane Farm comprises a canopy of frequent sycamore, bird cherry and rowan with occasional hybrid oak, ash, downy birch, alder and elm. The understorey holds abundant holly with frequent hawthorn, hazel and elder. The field layer holds many of the species typical of ancient woodlands found in Sharples Wood and Kiln Wood. Species include: pignut, sanicle, moschatel, primrose, enchanter's nightshade, yellow archangel, wood sedge, wood fescue and creeping soft-grass.

The riverbanks, field margins and banks, especially the southern bank opposite Sharples Wood, hold good populations of wild daffodil, a plant listed in the *Provisional Lancashire Red Data List of Vascular Plants*.

Exotic, invasive species found in the woodlands and on the riverbank include giant hogweed and Japanese knotweed.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd1) (Wd2)

Flowering Plants and Ferns (F4b)

Other Information/Comments:

Site of Special Scientific Interest (SSSI) Geological.

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Site Name: Spring Wood

Site Ref: 63SW03

Approved: 08 September 1993

Area (ha): 5.99

Date written/last updated: 01 March 2002

Grid Ref: SD808317

Owner/Occupier: Private

Districts:

South Ribble

Parishes:

Salmesbury

Description:

The site comprises ancient, semi-natural woodland listed in the *Lancashire Inventory of Ancient Woodland (Provisional)*, (English Nature, 1994). The wood is situated on steep ground above a bend in the River Ribble at Salmesbury.

The wood comprises mature trees of sycamore, rowan, wild cherry and ash with alder near the river edge. The understorey is poorly developed though contains some regenerating sycamore and rowan with some cherry. The ground flora is dominated by creeping soft-grass, tufted hair-grass, lesser celandine, wood anemone and bluebell with broad buckler-fem, wood sorrel, foxglove, red campion, hairy woodrush, greater stitchwort and bramble occurring to a lesser extent. The riverside woodland holds a particularly diverse ground flora with locally abundant ramsons and meadow saxifrage and frequent moschatel, hemlock water-dropwort, ground ivy and wood anemone. Other species include: herb-Robert, woodruff, opposite-leaved golden-saxifrage, alternate-leaved golden-saxifrage, large bitter-cress, water figwort, marsh hawk's-beard, pignut, wall lettuce, pendulous sedge and yellow archangel. Field maple and elm occur together with dog's mercury associated with an area of local flushing. The flushed area is fed by a spring, below which is an area of calcareous tufa deposits, dominated by mosses.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd1)

Other Information/Comments:

The site adjoins BHS 63SW04, Marsden Wood and BHS LSRRI, River Ribble from London Road Bridge, in West, to County Boundary, in East.
Lowland mixed deciduous woodland is a UKBAP priority habitat.

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Site Name: Seed Park

Site Ref: 63SW01

Approved: 08 September 1993

Area (ha): 14.96

Date written/last updated: 01 November 2000

Grid Ref: SD800308

Owner/Occupier: Private

Districts:

South Ribble

Parishes:

Salmesbury

Description:

The site comprises ancient, semi-natural woodland on the north-facing slopes of the valley of the River Ribble. The woodland is listed in the *Lancashire Inventory of Ancient Woodland (Provisional)*, (English Nature, 1994).

The Thirlmere Aqueduct bisects the woodland. To the west of the aqueduct the woodland canopy is dominated by sycamore, which is mainly multi-stemmed. Oak, ash, rowan and gear are also present. There is a sparse understorey of hazel, holly, hawthorn and some rhododendron. Bluebell is abundant in the herb-layer as are tufted hair-grass, male and broad-buckler ferns. Bracken is locally abundant. Throughout the wood, but particularly at the foot of the slope, there are stands of flushed alder wood with ash and blackthorn. Pendulous sedge dominates the herb layer with dog's-mercury, opposite-leaved golden-saxifrage, yellow pimpernel, remote sedge and common valerian.

East of the aqueduct sycamore does not dominate the woodland canopy to the same extent and there are fewer multi-stemmed trees. Alder and birch are locally dominant. A stand of mature larch is present. Rhododendron locally dominates the shrub layer and there are areas of dense hazel. Several steep sided stream gullies are present and these have a more diverse herb layer with dog's-mercury, enchanter's-nightshade, herb-robert, wood false-brome, wood avens and wood sedge.

Above the line of the Thirlmere Aqueduct lies a glade of damp grassland with wild angelica, marsh bedstraw, soft and hard rushes, nettles, cleavers, common knapweed, self-heal, meadowsweet and hemp agrimony.

The site supports a population of thin-spiked wood sedge (*Carex strigosa*), a species included in the *Provisional Lancashire Red Data List of Vascular Plants*. This is only the second known site for thin-spiked wood sedge in Lancashire.

The larch plantation contains a heronry of about eight nesting pairs.

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Site Name: Bezza Lane

Site Ref: 63SW02

Approved: 08 September 1993

Area (ha): 0.09

Date written/last updated: 03 December 2010

Grid Ref: SD800309

Owner/Occupier:

Districts: South Ribble
Parishes: Salmesbury

Description:

The site comprises steep banks that form the verges of Bezza Lane. The banks hold a species-rich flora supporting a mixture of both grassland and woodland species.

The southeast facing bank is most species-rich and comprises mainly grassland flora dominated by a mixture of sweet vernal-grass and red fescue. Meadow vetchling is abundant here, with pignut, sneezewort, meadowsweet, common knapweed, cat's-ear and lady's-mantle all occurring frequently. Common bird's-foot-trefoil, devil's-bit-scabious, carnation sedge and quaking grass are all occasional with adder's-tongue fern locally abundant.

Tall herbs and grasses dominate the opposite bank over a predominantly woodland flora. The dominant grass is false oat-grass. Woodland species including abundant ramsons, wood anemone, bluebell and dog's mercury. Wood sedge, red campion and hairy woodrush are all occasional.

Both banks are backed by hawthorn hedges that also contain oak, holly hazel and sycamore.

Guideline(s) for Site Selection:

Artificial Habitats (Ar2)

Other Information/Comments:

This section of Bezza lane is a public footpath.
The site support Lowland Meadow UKBAP priority habitat.

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	<h3>Biological Heritage Site</h3>	

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Site Name: River Ribble from London Road Bridge Preston, in West, to County Boundary, in East

Site Ref: LSRR1 **Approved:** 01 September 1993

Area (ha): 297.97 **Date written/last updated:** 05 September 2011

Grid Ref: SD553287 to SD856836 **Owner/Occupier:** Private

Districts:	Parishes:
Preston	Grimsargh, Preston
Ribble Valley	Aughton, Bailey and Chaigley, Balderstone, Billington and Langho, Bolton-by-Bowland, Chatburn, Clayton-le-Dale, Clitheroe, Dinckley, Dutton, Gisburn, Great Mitton, Grindleton, Horton, Hothersall, Little Mitton, Longridge, Newsholme, Osbaldeston, Paythorne, Ribchester, Salesbury, Sawley, Waddington, West Bradford
South Ribble	Cuerdale, Salmesbury

Description:

The site comprises the River Ribble and associated semi-natural habitats from the county boundary at Paythorne (SD856836) downstream to London Road Bridge, Walton-le-Dale, Preston (SD553287). The Ribble rises high in the Pennines at Newby Head Moss at an altitude of 422m and is one of the largest rivers in North West England. Collectively, the river and its associated habitats support a rich assemblage of plants and animals. Throughout the length of the River Ribble the General Quality Assessment is Very Good and Good (A and B) with a localised section with the Fairly Good (C) classification.

The river is important for salmon, sea trout, otter and water vole.

Along the riverbanks sandy cliffs provide nesting habitat for sand martin and kingfisher, the locations of suitable cliffs being dependant upon localised erosion. Where shingle banks develop, nesting waders include oystercatcher, common sandpiper, little ringed-plover and ringed plover, whilst suitable adjacent fields support breeding waders including lapwing and curlew. Mature trees and woodlands adjacent to the river provide for nesting goosander.

Plant species of interest along the river include the northern spike-rush (a nationally rare species at its southern limit of distribution in the UK), slender tufted-sedge and green figwort. The moss *Cinclidotus mucronatus* (rare in Lancashire) occurs on limestone river boulders in the Clitheroe area. Aquatic species found in the river include stream water-crowfoot and perfoliate pondweed with reed canary-grass, lesser pond-sedge, butterbur and creeping yellow-cress associated with river margins.

Much of the land associated with the river comprises woodland, grassland and, locally, swamp and tall-herb communities. Riverside woodlands are predominantly, lowland mixed deciduous woodland and wet woodland, and comprise ash, oak, wych elm, sycamore and alder, with shrubs including grey and goat willow, hazel and holly. The ground flora is variable but typically species-rich with bluebell, wood anemone, wood stitchwort, primrose, wood avens, sanicle, early and common dog-violets, alternate-leaved golden-saxifrage and great horsetail. Species-rich grassland occurs locally on field banks above the river and includes species such as common bird's-foot-trefoil, knapweed, tormentil, common cat's-ear, meadow crane's-bill, spring-sedge and quaking-grass. Locally, swamps dominated by yellow iris, lesser pond-sedge and rushes occur in springs and flushes in adjacent fields.

Guideline(s) for Site Selection:

Rivers and Streams	(Ri1)
Flowering Plants and Ferns	(Ff1) (Ff4)?
Bryophytes	(Br3)
Mammals	(Ma1a)
Birds	(Bi2)
Molluscs	(Mo1)?
Other Invertebrates	(In1)

Other Information/Comments:

UK BAP Priority Habitats & Species include Lowland Mixed Woodland, Wet Woodland, Lowland Meadow, Fen, Water Vole, Otter and Reed Bunting. A single record of freshwater pearl-mussel dated 1974 came to light in 2003 for a section of the river upstream of Clitheroe.

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Site Name: Goose House Wood

Site Ref: 63SW10

Approved: 08 September 1993

Area (ha): 8.93

Date written/last updated: 01 February 2005

Grid Ref: SD610314

Owner/Occupier: Private

Districts:

South Ribble

Parishes:

Samlesbury

Description:

The site comprises ancient, semi-natural woodland listed in the *Lancashire Inventory of Ancient Woodland (Provisional)*, (English Nature, 1994). The wood lies along the steep valley-sides above the southern bank of Bezza Brook and along one of its tributaries and is situated in the parish of Samlesbury.

The canopy comprises Oak, Ash, Wild Cherry, Sycamore, Birch and regenerating Wych Elm. Less frequent canopy species include Field Maple, Crab Apple and Rowan. The understorey comprises abundant Hawthorn, coppiced Hazel and Bramble, with frequent Holly and Honeysuckle and occasional Elder and Wild Rose. The ground flora is dominated in places by Bluebells, with Ramsons, Wood Anemone, Opposite-leaved Golden-saxifrage, Enchanter's Nightshade, Pignut, Tufted Hair-grass, Creeping Soft-grass and Lesser Celandine all locally abundant. Other species present include: Wood Sorrel, Dog's Mercury, Lords-and-Ladies, Wood Avens, Greater Stitchwort, Woodruff, Soft-rush, Pendulous Sedge, Lady-fern and Broad Buckler-fern.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd1)

Other Information/Comments:

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Site Name: Bezza Brook Woods

Site Ref: 63SW11

Approved: 08 September 1993

Area (ha): 2.84

Date written/last updated: 01 March 2002

Grid Ref: SD812317

Owner/Occupier: Private

Districts:	Parishes:
Ribble Valley	Balderstone
South Ribble	Samlesbury

Description:

The site comprises woodland that is ancient, semi-natural in character is located along the southern bank of Bezza Brook and in a series of steep side gullies.

The wood comprises abundant holly, which becomes dominant locally. Oak and wild cherry are both frequent in the west of the wood, with wych elm occasional and field maple and grey willow rare. Holly dominates the well developed shrub layer although hawthorn is abundant in places. Also present in the shrub layer are elder, blackthorn, bramble and wild rose. The ground flora is poor in places due to shading by the dominant holly. Ground layer species include; bluebell, lesser celandine, pignut, opposite-leaved golden-saxifrage, wood anemone, Lord's-and-Lady's and primrose. Common dog-violet occurs occasionally.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd2)

Other Information/Comments:

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Site Name: Huntley Wood

Site Ref: 63SW09

Approved: 08 September 1993

Area (ha): 6.12

Date written/last updated: 01 February 2005

Grid Ref: SD815306

Owner/Occupier: Private

Districts: South Ribble
Parishes: Samlesbury

Description:

The site comprises ancient, semi-natural woodland listed in the *Lancashire Inventory of Ancient Woodland (Provisional)*, (English Nature, 1994). The woodland follows the course of Huntley Brook, south of the A59 (T) at Samlesbury.

The canopy is dominated by Oak and Sycamore, accompanied by Ash, Birch, Alder, Crack Willow, Elm and Wild Cherry. The understorey is fairly open and includes Holly, Hawthorn, Hazel and Elder. The ground flora comprises typical woodland species, including Bluebell, Red Campion, Sanicle, Ramsons, Wood Sorrel, Wood Avens, Wood Speedwell, Yellow Pimpernel, Honeysuckle, Broad Buckler-fern, Creeping Soft-grass and Tufted Hair-grass. Opposite-leaved Golden-saxifrage is locally abundant on areas of damp ground.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd1)

Other Information/Comments:

1. The site is adjacent to Knipe Wood Biological Heritage Site (BHS 63SW08).
2. Himalayan Balsam, an invasive alien species, is present.

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Site Name: Hermitage Meadows

Site Ref: 63SW07

Approved: 08 September 1993

Area (ha): 1.24

Date written/last updated: 01 March 2004

Grid Ref: SD610302

Owner/Occupier:

Districts: South Ribble
Parishes: Salmesbury

Description:

The site comprises two fields of semi-improved, neutral, lowland grassland.

Sweet vernal-grass, common sedge and rushes dominate the vegetation in the larger of the two fields. Species include meadow vetchling, common knapweed, carnation sedge, field woodrush and selfheal, all of which appear in abundance. Great burnet, ragged-robin and meadowsweet are all frequent. Common bird's-foot-trefoil, yellow rattle, bugle and sneezewort are all occasional with common yellow sedge of rare occurrence.

The vegetation in the smaller, damper field is dominated by reed canary-grass and rushes. Meadowsweet and great burnet are both abundant here, with frequent meadow vetchling, occasional ragged-robin and the rare occurrence of bluebells.

Guideline(s) for Site Selection:

Grassland (Gr3)

Other Information/Comments:

'Lowland meadow' (which includes species-rich pastures) is a UK BAP priority habitat. The site adjoins BHS 63SW08, Knipe Wood.

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Site Name: Knipe Wood

Site Ref: 63SW08

Approved: 08 September 1993

Area (ha): 4.33

Date written/last updated: 01 March 2002

Grid Ref: SD812303

Owner/Occupier: Private

Districts: South Ribble
Parishes: Salmesbury

Description:

The site comprises ancient, semi-natural woodland listed in the *Lancashire Inventory of Ancient Woodland (Provisional)*, (English Nature, 1994). The wood follows the course of Hole Brook.

The canopy is dominated by oak and sycamore with beech and ash near the brook. The understorey comprises cherry, hazel, elder, blackthorn and hawthorn. The ground flora includes bluebell, broad buckler-fern, male-fern, wood sorrel, red campion, ramsons, opposite-leaved golden-saxifrage, wood avens, wood speedwell, bramble and creeping soft-grass.

Pick-a-back plant, a garden escape, and the invasive exotic Indian balsam are also present.

Guideline(s) for Site Selection:

Woodland and Scrub (Wd1)

Other Information/Comments:

The site adjoins BHS 63SW07, Hermitage Meadows, Salmesbury.

APPENDIX 3.
Extended Phase 1 Habitat Survey 2013



PHASE 1 HABITAT SURVEY

General Details:

Site Name	Samlesbury Estate Quarry		
Job Number	2609	Doc. Ref	2609.005
Site Location	Samlesbury , Preston		
Date(s)	22/9/2010 updated 16/6/2013		
Surveyor(s)	Lee Greenhough		
Weather	Overcast with light showers.		
Seasonal Constraints	The survey was carried out in general accordance with the assessment methods set out in JNCC 2007 and gives an overview of key habitats and wildlife corridors.		
Methods	JNCC Phase 1 Habitat Survey		
Drawing Ref:	D2609.001A		

	Written	Checked	Authorised
Initial	LG	EJS	EJS

Survey Results:

Semi Natural Broad leaved woodland T5,T3,T8

An area of woodland is located in the north west of the survey site within a semi-improved field. The woodland is located within a depression within the field close to the river that appears to have been the result of historic quarrying activity. There is standing water within the depression. Ash (*Fraxinus excelsior*), oak (*Quercus robur*), crack willow (*Salix fragilis*), birch (*Betula pendula*), alder (*Alnus glutinosa*), grey willow scrub (*Salix cinerea*) and associated bramble (*Rubus fruticosus agg*) are present.

A linear strip of mature trees can be found along the corridor of Breeza Brook and the River Ribble, species include sycamore (*Acer pseudoplatanus*) and crack willow.

In the southern section of the survey site are a number of parcels of woodland dominated by oak with ash and sycamore. The majority of these wooded areas are designated Biological Heritage Sites (BHS) and two (Seed Park and Samlesbury Wood) are recorded as ancient semi-natural woodland.

Scattered trees

There are a number of scattered trees located throughout the site, some associated with hedgerows, including oak and ash.

Dense scrub

A small parcel of dense scrub located to the north along the southern edge of the River Ribble, which contains hawthorn (*Crataegus monogyna*) and bramble

Scattered scrub

In the north west corner of the survey site, located along the river bank are parcels of scattered scrub dominated by hawthorn, grey willow and bramble.

Improved grassland T1

There are a number of large open fields of improved grassland in the centre of the site. These agricultural fields are characterised by intensively managed lush grassland swards dominated by rye-grass (*Lolium perenne*). The fields are used for

sheep and cattle grazing for part of the year at least.

Semi-improved grassland

There are a number of semi- improved grassland fields in the northeast and southeast of the site. Some of these were being stock grazed at the time of the survey.

Amenity grassland

There is a small area of amenity grassland around the farm buildings in the north.

Tall ruderal herbs T2,T4,T5

A number of stands of tall ruderal herbs are found throughout the northern section of the survey site, mainly associated with the river bank and Breeza Brook.

This habitat is dominated by Himalayan balsam, but also contains broad-leaved dock and creeping thistle. A stand of goldenrod can also be found at T4.

Species list

Himalayan balsam	<i>Impatiens glandulifera</i>
Broad-leaved dock	<i>Rumex obtusifolius</i>
Perennial rye-grass	<i>Lolium perenne</i>
Cock'sfoot	<i>Dactylis glomerata</i>
Hogweed	<i>Heracleum sphondylium</i>
Ragwort	<i>Scenario jacobaea</i>
Nettle	<i>Urtica dioica</i>
Creeping thistle	<i>Cirsium arvense</i>
Broad-leaved willowherb	<i>Epilobium montanum</i>
Goldenrod	<i>Solidago viagaurea</i>

Hedgerow

A number of hedgerows of various types are found throughout the site. Some are intact others are defunct and some contain trees, all are species poor. Hedgerows enclose the fields and are dominated by hawthorn.

Standing water

A number of ponds are located in the north and south of the site. All the ponds are shaded by tree canopy. There are three water bodies located in the north of the site within the meander of the river. These water bodies are ephemeral, lying within a large depression they are filled with water when the river breaches its banks. Water levels appear to fluctuate from dry to low (creating several small water bodies) and high (creating a single large waterbody) in periods of extensive flood. At the time of the survey the water body had drawn down and split into three. In the south a number of ponds can be located scattered throughout the fields some of which are partially shaded other are heavily shaded.

Streams and ditches

A ditch which was dry at the time of the survey is located in a semi-improved field in the north east.

A fast flowing stream is located in the southern section shaded by woodland, with natural slopes forming cloughs.

Brezza Brook runs east/west between Potters Lane and the river. The northern bank is wooded with semi-improved fields to the north and improved fields south.

The River Ribble is a wide fast-flowing watercourse that surrounds the site in the north, west and southwest. It borders Brockholes Nature Reserve and Red Scar

and Tun Brook Woods SSSI.

Protected Species

The banks of the River Ribble could provide shelter for otter. The river is wide at this point and fast flowing. Breeza brook does provide suitable habitat for both otter and water vole with a mixture of wooded and open areas along its natural banks.

The trees and scrub on site and River Ribble offsite provide foraging potential and commuting for roosting bats and also links with the site to wider countryside. The mature trees and buildings within the site may provide the potential to support roosting bats.

A badger sett was recorded in an embankment of a hedgerow in the north section of the site.

There are a number of ponds on site with suitable vegetation and connectivity to terrestrial habitat so as to provide breeding and ranging habitat for amphibians in particular great crested newts.

The site provides various habitats for nesting and foraging for birds species, with its mature trees, scrub and grassland habitats. Skylark, grey heron, curlew, buzzard, kestrel, chaffinch, bullfinch, and chiffchaff were recorded during the survey visit. The importance of the site for birds could be enhanced by its association with the adjacent Brockholes Nature Reserve.

Generally speaking, the site seems to be too intensively managed to be suitable for reptiles. However, there is a small area which may offer potential.

Summary:

The habitats on site are typical, agricultural habitats. The BAP priority habitats ponds and hedgerows are located within the site.

The river, ditches and streams may provide suitable habitat for otter and water voles and the ponds could be suitable for great crested newts and surveys will be required to determine presence/absence of these species.

If tree or building loss is proposed then assessments for roosting potential will be required. Activity surveys would also help to determine the level and location of any bat activity across the site.

Himalayan balsam is classed as an invasive weed under the Wildlife and Countryside Act 1981 (as amended). Under provisions made within the Wildlife and Countryside Act 1981, it is an offence to spread Himalayan balsam.

The range of habitats across the site may be important for wintering and/or foraging birds, surveys across these seasons would provide an evidence base for any impact assessment of site proposals.

Trees, scrub and building within the site provide nesting bird habitat. Nesting birds are protected under the *Wildlife and Countryside Act 1981 (as amended)*. There is no provision under the licensing system for disturbance/destruction of nests to facilitate development.

Any removal of habitats should be undertaken outside of the nesting bird season (March – August inclusive). If habitat removal is required during the nesting season an inspection by an ecologist will be required immediately prior to the

removal work to ensure that no active bird nests are affected.

APPENDIX 4. Amphibian Survey



AMPHIBIAN MONITORING RECORD: 2015

1.0 PROJECT INFORMATION

Site Name	Samlesbury		
Job Number	5181	Doc. Ref	5181.004
Site Location	Samlesbury		
Survey Location	Samlesbury, Lancashire		
Survey Dates 2015	12 th May, 18 th May, 26 th May, 5 th June, 10 th June & 15 th June		
Survey Dates 2013	15 th May, 21 st May, 23 rd May, 3 rd June, 6 th June & 13 th June		
2015 Seasonal Constraints	All of the surveys were completed within the recommended season with suitable weather. The surveys were started later than was ideal due to access difficulties and the late start to the GCN survey season. However, six surveys were undertaken between mid-May and mid-June.		
2013 Seasonal Constraints	All surveys were completed within the recommended season with suitable weather. The minimum four surveys did not all fall within the required time frame, with four visits undertaken between mid-May and early-June. The timeframe was not achieved due to access difficulties and the late start to the GCN survey season. A further 2 surveys were undertaken on ponds 1 and 2 for GCN activity.		
Methods	Torch lit survey, bottle trap survey, egg searching and terrestrial survey.		
2015 Survey Constraints	<p>On the first visit four of the ponds were found to be dry (Ponds 1, 5, 6 and 9).</p> <p>Surveyors were unable to monitor Pond 4 on 10th and 15th June 2015 due to the presence of suckling cows and a bull in the surrounding field.</p> <p>Surveys undertaken in June found the water levels dropped in some of the ponds.</p>		
2013 Survey Constraints	<p>A number of ponds were found to be drying out over the period the surveys were undertaken. A number of the ponds were found to be particularly turbid therefore making the torch survey difficult.</p> <p>The ponds located within the woodland area were heavily cattle poached, shaded and fish were seen.</p>		
2015 Surveyors	Dave Monk Tim Rogers Tosha Allen assistant Clare Gower assistant		



2013 Surveyors	Lee Greenhough (CLS00357Licence Number) Kim Gallaher (CLS02376 GCN Licence Number) Linda Swankie (CLS00158 GCN Licence Number) Saul Beckett assistant Kerry Stead assistant
Drawing Ref:	G5181.008




2.0 PRE-EXISTING DATA




- 2.1** No pre-existing records of great crested newts were revealed during the desk based searches prior to the 2013 amphibian monitoring.
- 2.2** During the 2013 amphibian monitoring TEP surveyed for and recorded great crested newt presence. The 2013 results are included in this Amphibian Monitoring Record.





3.0 SURVEY RESULTS



3.1 Aquatic Habitat Description

Pond	Survey Year	Description	Grid reference	Photograph
1	2015	Pond was dry and therefore not surveyed.	359760 430665	
	2013	This is a circular pond in a bowl with trees surrounding the banks including willow, hawthorn and alder. Approximately half the pond is vegetated. Floating grass, rush and water mint was noted. Rotten timber was seen within the pond and some cattle poaching was recorded.		
2	2015	No changes were observed.	359794 430564	
	2013	The pond is located in a cattle grazed field close to a hedgerow. The pond is surrounded by trees including alder, hawthorn, willow and oaks. The pond is open but vegetated around the perimeter with bittersweet, rush and water mint noted. Canada geese were present and the pond is used by cattle.		
3	2015	No changes were observed.	359788 430349	

Pond	Survey Year	Description	Grid reference	Photograph
	2013	This is a small pond at the edge of a field adjacent to a hedge and a stream. It is situated within a deep circular bowl containing leaf litter which is much larger than the water area. The pond is enclosed by trees including hazel, oak and hawthorn. Plants including water mint and marsh marigolds were noted.		
4	2015	No changes were observed. The waterbody was split into two at the time of survey.	360001 430538	
	2013	This is a waterbody which splits into two but will form a single waterbody at high water. It is located in the centre of a field. There is a bank along the eastern edge and the pond is shaded by alder, oak, ash and hawthorn. Timber was evident rotting within the waterbody. Rush vegetation and floating grass was recorded on the northern edge. The pond is used by cattle.		
5	2015	Pond was dry and therefore not surveyed.	359693 430541	
	2013	A heavily shaded pond enclosed by trees. It is set in a clough area. Trees including willows, oak, alder and hawthorn fence off the pond from cattle. The water drains away down the clough. The pond is surrounded by nettles and bramble but contains bittersweet and creeping bent.		

Pond	Survey Year	Description	Grid reference	Photograph
6	2015	Pond was dry and therefore not surveyed.	359687 430449	
	2013	This is a circular pond located in a bowl in the middle of a field. The pond was noted to be dry, it may hold water in winter but there was grass in the base.		
7	2015	Very shallow, sunken pond. Not deep enough to bottle trap but was torch lit and egg searched.	359630 430521	
	2013	A completely dry pond located within a bowl. Has now become vegetated with grasses and rush. Some signs of cattle use. Some trees around the edge.		
8	2015	No changes were observed.	359630 430341	
	2013	This is a pond which splits into two at low water. It is located within a cattle grazed field. The pond is shaded by oak, willow, alder and hawthorn. Rush vegetation was noted on the east with water mint and bittersweet also present.		
9	2015	Pond was dry and therefore not surveyed.	59625 30740	

Pond	Survey Year	Description	Grid reference	Photograph
W1	2015	Pond was eDNA sampled. No changes were observed.	358753 431652	
	2013	This is a heavily shaded and cattle poached pond. This pond forms part of multiple pools over a larger area. One pool was bottle trapped on the first visit but following this it became too shallow. Evidence suggests that the river over tops.		
W2	2015	Pond was eDNA sampled. No changes were observed.	358621 431704	
	2013	A heavily shaded and cattle poached pool that forms part of a much larger pool when water levels are high. Evidence suggests that the river over tops.		

Pond	Survey Year	Description	Grid reference	Photograph
W3	2015	Pond was eDNA sampled. No changes were observed.	358364 431903	
	2013	This is another heavily cattle poached pond. Trees surround the pond and some have fallen in to the pond on the east side. Evidence suggests that the river over tops.		

3.2 Great Crested Newt Habitat Suitability Assessment 2015

Key to Suitability Indices:

- SI1 Geographic location
- SI2 Pond area (to nearest 50m²)
- SI3 Pond permanence
- SI4 Water quality
- SI5 Shading %
- SI6 Presence of waterfowl
- SI7 Presence of fish
- SI8 Pond density in area
- SI9 Terrestrial habitat quality
- SI10 Macrophyte cover in pond

Site: Samlesbury, Lancashire
Amphibian Monitoring Record: 2015

Pond Ref	SI1		SI2		SI3		SI4		SI5		SI6		SI7		SI8		SI9		SI10		Overall HSI	
	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Suitability	HSI
1	Pond is dry																					
2	A	1	50	0.1	Never	0.9	Moderate	0.67	90	0.4	Absent	1	Absent	1	5	0.76	Good	1	15	0.45	Average	0.62
3	A	1	50	0.1	Sometimes	0.5	Poor	0.33	100	0.2	Absent	1	Absent	1	5	1.59		0.76	10	0.40	Poor	0.48
4	A	1	50	0.1	Rarely	1	Moderate	0.67	90	0.4	Absent	1	Absent	1	5	1.59	Good	0.76	10	0.40	Average	0.62
5	Pond is dry																					
6	Pond is dry																					
7	A	1	50	0.1	Sometimes	0.5	Moderate	0.67	80	0.6	Absent	1	Absent	1	5	0.76	Moderate	0.67	15	0.45	Below average	0.58
8	A	1	50	0.1	Never	0.9	Good	1	100	0.2	Absent	1	Possible	0.67	5	0.76	Good	1.0	10	0.40	Below average	0.57
9	Pond is dry																					
W1	A	1	200	0.4	Annual	0.1	Moderate	0.67	100	0.2	Minor	0.67	Minor	0.33	0.6366 2	0.55	Good	1	0	0.3	Poor	0.43
W2	A	1	200	0.4	Annual	0.1	Moderate	0.67	100	0.2	Minor	0.67	Minor	0.33	0.6366 2	0.55	Good	1	0	0.3	Poor	0.43
W3	A	1	600	1	Some times	0.5	Moderate	0.67	80	0.6	Minor	0.67	Minor	0.33	0.6366 2	0.55	Good	1	0	0.3	Average	0.61

3.3 Great Crested Newt Habitat Suitability Assessment 2013

Pond Ref	SI1		SI2		SI3		SI4		SI5		SI6		SI7		SI8		SI9		SI10		Overall HSI	
	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Suitability	HSI
1	A	1	600	1	Some times	0.5	Good	1	70	0.8	Absent	1	Absent	1	5.729578	1.0	Good	1	70	1	Excellent	0.91
2	A	1	800	0.984615	Never	0.9	Good	1	100	0.2	Minor	0.67	Absent	1	5.729578	1.0	Good	1	40	0.7	Good	0.78
3	A	1	250	0.5	Annual	0.1	Moderate	0.67	100	0.2	Absent	1	Absent	1	5.729578	1.0	Good	1	10	0.4	Below Average	0.55
4	A	1	500	1	Rarely	1	Good	1	90	0.4	Absent	1	Absent	1	6.047888	1.0	Good	1	30	0.6	Excellent	0.87
5	A	1	150	0.3	Some times	0.5	Moderate	0.67	100	0.2	Absent	1	Absent	1	5.729578	1.0	Good	1	10	0.4	Average	0.62
6	Pond is dry																					
7	Pond is dry																					
8	A	1	600	1.00	Never	0.9	Good	1	100	0.2	Absent	1	Absent	1	5.411268	1.0	Good	1	40	0.7	Excellent	0.81
W1	A	1	200	0.4	Annual	0.1	Moderate	0.67	100	0.2	Minor	0.67	Minor	0.33	0.63662	0.55	Good	1	0	0.3	Poor	0.43
W2	A	1	200	0.4	Annual	0.1	Moderate	0.67	100	0.2	Minor	0.67	Minor	0.33	0.63662	0.55	Good	1	0	0.3	Poor	0.43
W3	A	1	600	1	Some times	0.5	Moderate	0.67	80	0.6	Minor	0.67	Minor	0.33	0.63662	0.55	Good	1	0	0.3	Average	0.61

3.4 Torch Survey Results 2015:

Pond Ref	Date	Air Temperature	Water Temperature	Wind 1-12	Precipitation	Turbidity (0-5)	Vegetation Cover (0-5)	Shoreline covered	Great crested newt	Smooth/ Palmate adult	Toad	Frog	Fish?
1	12/05/2015	Pond is dry											
1	18/05/2015	Pond is dry											
1	26/05/2015	Pond is dry											
1	05/06/2015	Pond is dry											
1	10/06/2015	Pond is dry											
1	15/06/2015	Pond is dry											
2	12/05/2015	14		4	None	3	1	90	0	0	0	0	No
2	18/05/2015	9	10.5	3	None	3	1	100	0	0	0	0	No
2	26/05/2015	11		3	None	2	2	100	0	0	0	0	No
2	05/06/2015	12	12	1	None	2	2	80	0	0	0	0	No
2	10/06/2015	14	15	1	None	3	1	100	0	0	0	0	No
2	15/06/2015	13	14	0	None	3	1	100	0	0	0	0	No
3	12/05/2015	13		4	None	1	1	100	0	0	0	0	No
3	18/05/2015	10	11	2	None	2	1	80	0	0	0	0	No
3	26/05/2015	11		3	None	1	1	100	0	0	0	0	No
3	05/06/2015	12	12	1	None	1	1	100	0	0	0	0	No
3	10/06/2015	Pond is dry											
3	15/06/2015	Pond is dry											
4	12/05/2015	14		4	None	1	1	90	0	2	0	0	No
4	18/05/2015	10	11	1	None	1	1	100	1	0	0	0	No
4	26/05/2015	11		4	None	3	2	100	0	0	0	0	No
4	05/06/2015	12	12	1	None	3	1	70	0	0	0	0	No
4	10/06/2015	Unable to survey due to livestock issue.											
4	15/06/2015	Unable to survey due to livestock issue.											
5	12/05/2015	Pond is dry											
5	18/05/2015	Pond is dry											
5	26/05/2015	Pond is dry											
5	05/06/2015	Pond is dry											
5	10/06/2015	Pond is dry											

Site: Samlesbury, Lancashire
 Amphibian Monitoring Record: 2015

Pond Ref	Date	Air Temperature	Water Temperature	Wind 1-12	Precipitation	Turbidity (0-5)	Vegetation Cover (0-5)	Shoreline covered	Great crested newt	Smooth/ Palmate adult	Toad	Frog	Fish?
5	15/06/2015	Pond is dry											
6	12/05/2015	Pond is dry											
6	18/05/2015	Pond is dry											
6	26/05/2015	Pond is dry											
6	05/06/2015	Pond is dry											
6	10/06/2015	Pond is dry											
6	15/06/2015	Pond is dry											
7	12/05/2015	13		4	None	2	1	80	0	0	0	0	No
7	18/05/2015	10	11		None	3	1	100	0	0	0	0	No
7	26/05/2015	11		3	None	2	1	100	0	0	0	0	No
7	05/06/2015	12	12	1	None	1	1	80	0	0	0	0	No
7	10/06/2015	Pond is dry											
7	15/06/2015	Pond is dry											
8	12/05/2015	13		2	None	1	1	90	0	0	0	0	No
8	18/05/2015	10	11	2	None	1	1	80	0	0	0	0	No
8	26/05/2015	11		3	None	3	1	80	0	0	0	0	No
8	05/06/2015	12	11.5	2	None	1	1	80	0	0	0	0	No
8	10/06/2015	14	15	1	None	1	1	100	0	2	0	0	No
8	15/06/2015	13	14	0	None	2	1	100	0	7	0	1	No
9	12/05/2015	Pond is dry											
9	18/05/2015	Pond is dry											
9	26/05/2015	Pond is dry											
9	05/06/2015	Pond is dry											
9	10/06/2015	Pond is dry											
9	15/06/2015	Pond is dry											

3.5 Torch Survey Results 2013:

Pond Ref	Date	Air Temperature	Water Temperature	Turbidity (0-5)	Vegetation Cover (0-5)	Shoreline covered	Great crested newt	Smooth/Palmate adult	Toad	Frog	Fish?	Weather Conditions
1	15/05/2013	7	8	0	4	100	1	1	0	0	N	Dry
1	21/05/2013	10	11	1	3	100	0	0	0	0	N	Dry
1	23/05/2013	17	7.5	0	2	100	0	0	0	0	N	Dry
1	03/06/2013	19	20	0	2	100	0	0	0	1	N	Dry
1	06/06/2013	14.5	18	1	3	100	0	2	0	1	N	Dry, hot
1	13/06/2013	14	16	1	2	100	0	0	0	0	N	Dry, earlier showers
2	15/05/2013	7	8	0	2	100	0	7	0	0	N	Dry
2	21/05/2013	11	10	3	2	100	0	4	0	0	N	Dry
2	23/05/2013	7.5	19	1	3	100	1	1	0	0	N	Dry
2	03/06/2013	19	17	0	1	100	2	2	0	1	N	Dry
2	06/06/2013	14.5	16	0	3	100	0	2	0	0	N	Dry
2	13/06/2013	14	16.5	1	2	100	1	2	0	0	N	Dry, earlier showers
3	15/05/2013	7	8	2	3	100	0	0	0	0	N	Dry
3	21/05/2013	10	12	2	3	NS	0	0	0	0	N	Dry
3	23/05/2013	7.5	8.1	4	0	100	0	0	0	0	N	Dry
3	03/06/2013	19	18	4	0	100	0	0	0	0	N	Dry
4	15/05/2013	7	8	0	5	NS	0	0	0	0	N	Dry
4	21/05/2013	10	11	1	3	100	0	0	0	0	N	Dry
4	23/05/2013	7.5	15	2	3	100	0	0	0	0	N	Dry, cold wind
4	03/06/2013	18	17	1	2	100	0	0	0	0	N	Dry
5	15/05/2013	7.1	8	1	3	100	0	0	0	0	N	Dry
5	21/05/2013	10	10	3	3	100	0	0	0	0	N	Dry
5	23/05/2013	7	11	3	2	0	0	0	0	0	N	Dry
5	03/06/2013	19	15	4	3	100	0	0	0	0	N	Dry
6	15/05/2013	Pond is dry										Dry

Site: Samlesbury, Lancashire
 Amphibian Monitoring Record: 2015

Pond Ref	Date	Air Temperature	Water Temperature	Turbidity (0-5)	Vegetation Cover (0-5)	Shoreline covered	Great crested newt	Smooth/Palmate adult	Toad	Frog	Fish?	Weather Conditions
6	21/05/2013	Pond is dry										Dry
6	23/05/2013	Pond is dry										Dry
6	03/06/2013	Pond is dry										Dry, cloudy
7	15/05/2013	Pond is dry										Dry
7	21/05/2013	Pond is dry										Dry
7	23/05/2013	Pond is dry										Dry
7	03/06/2013	Pond is dry										Dry, cloudy
8	15/05/2013	7.1	8	1	3	100	0	0	0	0	N	Dry
8	21/05/2013	10	12	2	4	Unable to torch cattle issue						Dry
8	23/05/2013	7	8.2	1	2	100	0	0	0	1	N	Dry
8	03/06/2013	19	18	0	2	100	0	0	0	2	N	Dry
W1	15/05/2013	7.1	8	3	0	100	0	0	0	0	N	Dry, cloudy
W1	21/05/2013	10	10	2	0	60	0	0	0	0	N	Clear, still
W1	23/05/2013	7	11	3	0	100	0	0	0	0	N	Dry, clear, windy
W1	03/06/2013	19	15	3	0	100	0	0	0	0	N	Dry, clear
W2	15/05/2013	7.1	8	3	0	100	0	0	0	1	N	Dry, clear
W2	21/05/2013	10	10	3	0	100	0	0	0	0	Y	Clear, still
W2	23/05/2013	7	11	3	0	100	0	0	0	0	Y	Dry, clear
W2	03/06/2013	19	15	3	0	100	0	0	0	0	N	Dry, clear
W3	23/05/2013	7	11	3	0	100	0	0	0	0	N	Dry, clear
W3	03/06/2013	19	15	4	0	100	0	0	0	0	N	Dry, clear
W3	06/06/2013	14.5	18	5	0	100	0	0	0	0	Y	Dry
W3	13/06/2013	14	16	5	0	100	0	0	0	0	Y	Dry, clear

3.6 Bottle Trap Survey Results 2015:

Pond Ref	Date	Air Temperature	Water Temperature	Wind 1-12	Precipitation	Turbidity (0-5)	Vegetation Cover (0-5)	Shoreline covered	Great crested newt	Smooth/ Palmate adult	Toad	Frog	Fish?
1	12/05/2015	Pond is dry											
1	18/05/2015	Pond is dry											
1	26/05/2015	Pond is dry											
1	05/06/2015	Pond is dry											
1	10/06/2015	Pond is dry											
1	15/06/2015	Pond is dry											
2	12/05/2015	14		4	None	3	1	80	0	0	0	0	No
2	18/05/2015	9	10.5	3	None	3	1	90	1	0	0	0	No
2	26/05/2015	11		3	None	2	2	100	0	0	0	0	No
2	05/06/2015	12	12	1	None	2	2	80	0	0	0	0	No
2	10/06/2015	14	15	1	None	3	1	80	0	0	0	0	No
2	15/06/2015	13	14	0	None	3	1	80	0	0	0	0	No
3	12/05/2015	13		4	None	1	1	Unable to bottle trap					No
3	18/05/2015	10	11	2	None	2	1	Unable to bottle trap					No
3	26/05/2015	11		3	None	1	1	Unable to bottle trap					No
3	05/06/2015	12	12	1	None	1	1	Unable to bottle trap					No
3	10/06/2015	Pond is dry											
3	15/06/2015	Pond is dry											
4	12/05/2015	14		4	None	1	1	Unable to bottle trap					No
4	18/05/2015	10	11	1	None	1	1	Unable to bottle trap					No
4	26/05/2015	11		4	None	3	2	Unable to bottle trap					No
4	05/06/2015	12	12	1	None	3	1	Unable to bottle trap					No
4	10/06/2015	Unable to survey due to livestock issue.											
4	15/06/2015	Unable to survey due to livestock issue.											
5	12/05/2015	Pond is dry											
5	18/05/2015	Pond is dry											
5	26/05/2015	Pond is dry											
5	05/06/2015	Pond is dry											
5	10/06/2015	Pond is dry											

Site: Samlesbury, Lancashire
 Amphibian Monitoring Record: 2015

Pond Ref	Date	Air Temperature	Water Temperature	Wind 1-12	Precipitation	Turbidity (0-5)	Vegetation Cover (0-5)	Shoreline covered	Great crested newt	Smooth/ Palmate adult	Toad	Frog	Fish?
5	15/06/2015	Pond is dry											
6	12/05/2015	Pond is dry											
6	18/05/2015	Pond is dry											
6	26/05/2015	Pond is dry											
6	05/06/2015	Pond is dry											
6	10/06/2015	Pond is dry											
6	15/06/2015	Pond is dry											
7	12/05/2015	13		4	None	2	1	Unable to bottle trap				No	
7	18/05/2015	10	11		None	3	1	Unable to bottle trap				No	
7	26/05/2015	11		3	None	2	1	Unable to bottle trap				No	
7	05/06/2015	12	12	1	None	1	1	Unable to bottle trap				No	
7	10/06/2015	Pond is dry											
7	15/06/2015	Pond is dry											
8	12/05/2015	13		2	None	1	1	70	0	0	0	0	No
8	18/05/2015	10	11	2	None	1	1	80	0	0	0	0	No
8	26/05/2015	11		3	None	3	1	80	0	0	0	0	No
8	05/06/2015	12	11.5	2	None	1	1	60	1	0	0	0	No
8	10/06/2015	14	15	1	None	1	1	80	0	0	0	0	No
8	15/06/2015	13	14	0	None	2	1	80	0	0	0	0	No
9	12/05/2015	Pond is dry											
9	18/05/2015	Pond is dry											
9	26/05/2015	Pond is dry											
9	05/06/2015	Pond is dry											
9	10/06/2015	Pond is dry											
9	15/06/2015	Pond is dry											

3.7 Bottle Trap Survey Results 2013:

Pond Ref	Date	Air Temperature	Water Temperature	Turbidity (0-5)	Vegetation Cover (0-5)	Shoreline covered	Great crested newt	Smooth/Palmate adult	Toad	Frog	Fish?	Weather Conditions
1	15/05/2013	7	8	0	4	100	2	1	0	0		Dry
1	21/05/2013	10	11	1	3	100	0	0	0	0		Dry
1	23/05/2013	17	7.5	0	2	100	0	0	0	0		Dry
1	03/06/2013	19	20	0	2	100	0	0	0	0		Dry
1	06/06/2013	14.5	18	1	3	100	0	3	0	0		Dry, hot
1	13/06/2013	14	16	1	2	70	0	0	0	0		Dry, earlier showers
2	15/05/2013	7	8	0	2	100	0	0	0	0		Dry
2	21/05/2013	11	10	3	2	100	0	2	0	0		Dry
2	23/05/2013	7.5	19	1	3	100	0	2	0	0		Dry
2	03/06/2013	19	17	0	1	100	0	1	0	0		Dry
2	06/06/2013	14.5	16	0	3	100	2	4	0	0		Dry, hot
2	13/06/2013	14	16.2	1	2	100	0	1	0	0		Dry, earlier showers
3	15/05/2013	7	8	2	3	10	0	0	0	0		Dry
3	21/05/2013	10	12	2	3	100	0	0	0	0		Dry
3	23/05/2013	7.5	8.1	4	0	100	0	0	0	0		Dry
3	03/06/2013	18	17	4	0	100	0	0	0	0		Dry
4	15/05/2013	7	8	0	5		Unable to bottle water too shallow					Dry
4	21/05/2013	10	11	1	3	80	0	0	0	0		Dry
4	23/05/2013	7.5	15	2	3	80	0	0	0	0		Dry, cold wind
4	03/06/2013	18	17	1	2	100	0	0	0	0		Dry
5	15/05/2013	7.1	8	1	3	70	0	0	0	0		Dry
5	21/05/2013	10	10	3	3	70	0	2	0	0		Dry
5	23/05/2013	7	11	3	2	10	0	0	0	0		Dry
5	03/06/2013	19	15	4	3		Unable to bottle water too shallow					Dry
6	15/05/2013	Pond is Dry										Dry
6	21/05/2013	Pond is Dry										Dry
6	23/05/2013	Pond is Dry										Dry

Site: Samlesbury, Lancashire
Amphibian Monitoring Record: 2015

Pond Ref	Date	Air Temperature	Water Temperature	Turbidity (0-5)	Vegetation Cover (0-5)	Shoreline covered	Great crested newt	Smooth/Palmate adult	Toad	Frog	Fish?	Weather Conditions
6	03/06/2013	Pond is Dry										Dry
7	15/05/2013	Pond is Dry										Dry
7	21/05/2013	Pond is Dry										Dry
7	23/05/2013	Pond is Dry										Dry
7	03/06/2013	Pond is Dry										Dry
8	15/05/2013	7.1	8	1	3	100	0	0	0	0		Dry
8	21/05/2013	10	12	2	4	100	0	0	0	0		Dry
8	23/05/2013	7	8.2	1	2	100	0	0	0	1		Dry
8	03/06/2013	19	18	0	2	100	0	4	0	1		Dry
W1	15/05/2013	7.1	8	3	0	50	0	0	0	0		Dry, cloudy
W1	21/05/2013	10	10	2	0	Unable to bottle water too shallow						Clear, still
W1	23/05/2013	7	11	3	0	Unable to bottle water too shallow						Dry, clear, windy
W1	03/06/2013	19	15	3	0	Unable to bottle water too shallow						Dry, clear
W2	15/05/2013	7.1	8	3	0	50	0	0	0	0	N	Dry, clear
W2	21/05/2013	10	10	3	0	50	0	0	0	0	Y	Clear, still
W2	23/05/2013	7	11	3	0	60	0	0	0	0	Y	Dry, clear
W2	03/06/2013	19	15	3	0		0	0	0	0		Dry, clear
W3	23/05/2013	7	11	3	2	Unable to bottle water too shallow						Dry, clear
W3	03/06/2013	19	15	4	0	100	0	0	0	0	Y	Dry, clear
W3	06/06/2013	14.5	18	5	0	100	0	0	0	0	Y	Dry
W3	13/06/2013	14	16	5	0	100	0	0	0	0	Y	Dry, clear

3.8 Egg Search Results 2015:

Pond	Great crested newt	Small newt	Toad	Frog
1	Pond is dry			
2	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found
3	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found
4	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found
5	Pond is dry			
6	Pond is dry			
7	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found
8	No eggs or larvae found	No eggs or larvae found	Tadpoles	Tadpoles
9	Pond is dry			

3.9 Egg Search Results 2013:

Pond	Great crested newt	Small newt	Toad	Frog
1	Eggs found	No eggs or larvae found	No eggs or larvae found	Tadpoles
2	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found	Tadpoles
3	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found
4	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found
5	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found
6	Pond is dry			
7	Pond is dry			
8	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found	Tadpoles
W1	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found	Tadpoles
W2	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found	No eggs or larvae found
W3	No eggs or larvae found	No eggs or larvae found	Tadpoles	No eggs or larvae found

4. Survey Summary:

Peak adult counts of newts or peak spawn counts or adult counts for anurans are assessed on a pond by pond basis to each individual pond population size, classes and assemblages. The following table summarises the assemblage present and the population sizes of amphibian species within each pond.

Pond	HSI	Great crested newt	Smooth newt	Toad	Frog	Fish
Pond 1	Pond is dry					
Pond 2	Average	Low population	Absent	Absent	Absent	Absent
Pond 3	Poor	Absent	Absent	Absent	Absent	Absent
Pond 4	Average	Low population	Low population	Absent	Absent	Absent
Pond 5	Pond is dry					
Pond 6	Pond is dry					
Pond 7	Below average	Absent	Absent	Absent	Absent	Absent
Pond 8	Below average	Low population	Low population	Low population	Low population	Absent
Pond 9	Pond is dry					
Pond W1	Poor	Absent	Absent	Absent	Low <i>Breeding confirmed</i>	Minor
Pond W2	Poor	Absent	Absent	Absent	Low	Minor
Pond W3	Average	Absent	Absent	Low <i>Breeding confirmed</i>	Absent	Minor

5. Evaluation:

Limitations

A number of the ponds were dry at the start of the survey season and some became dry towards the end of monitoring. The use of ponds by cattle, particularly around ponds W1, W2, W3 and 4 imposed constraints on survey methods, either restricting access around ponds or preventing a certain method from being used. However eDNA surveys were able to confirm that no great crested newts were present in ponds W1, W2 and W3 during 2015. The late start to the surveys due to access difficulties is unlikely to pose constraints to the survey given that the first three surveys were completed by the end of May (26th).

Results

Small populations of great crested newts occur within ponds 2, 4 and 8 and have previously been recorded in pond 1. This can be considered a small metapopulation given the proximity of the ponds to each other. Great crested newt breeding was not confirmed.

Fewer great crested newts were found during monitoring in 2015 compared to that undertaken in 2013. However, the HSI surveys for ponds suggest that the suitability of the ponds to support great crested newt populations has also declined between the two survey years.

Small populations of smooth newts were also recorded in ponds 4 and 8. Common frog and common toad are present in low populations in pond 8 but were not found in any other ponds during surveying.

Due to the 2013 survey results for ponds W1, W2 and W3 and the proximity of these ponds to the others, traditional survey techniques were not used as eDNA sampling was thought to be more suitable. The eDNA results proved negative for great crested newts for all three ponds allowing them to be ruled out of traditional survey requirements. These ponds were seen to be low quality, were drying out and were extensively cattle poached. Fish were also recorded and the close proximity to the river would contribute to this.

Evaluation

The amphibian assemblage, assuming four species are present (great crested newt, smooth newt, common frog and common toad) scores 5 against the JNCC SSSI selection criteria which is below the threshold for national importance.

APPENDIX 5. eDNA Survey

ENVIRONMENTAL DNA ANALYSIS

A METHOD TO DETERMINE GREAT CRESTED NEWT PRESENCE OR ABSENCE IN PONDS

Background

On 28th March 2014, DEFRA published a report¹ into the effectiveness of Environmental DNA testing to detect great crested newt (GCN) presence from samples of pond water. Natural England European protected species (EPS) licensing department have since confirmed that they now accept quantitative Polymerase Chain Reaction (qPCR) analysis of eDNA from water samples as proof of presence or absence of GCN in a pond. Natural England also stated that for the 2014 survey season, sampling must take place between the 15th April and the 30th June and be undertaken by a licensed GCN surveyor.

This eDNA technique does not provide a population estimate and if GCN are present in a waterbody and site proposals necessitate that a population estimate is required for Natural England licensing purposes², then six visits using traditional survey methods are required.

Sources of environmental DNA (eDNA) include shed skin cells, mucous, faeces and gametes and in the case of amphibians in ponds, these sources are diluted and distributed within the aquatic environments. The persistence of eDNA can be influenced by a number of factors including temperature, sunlight and bacteria. A number of studies have been undertaken in this field and findings, summarised in the DEFRA report, indicate that eDNA is still detectable in water samples between one week and one month following removal of the source (the amphibian/s) from the water.

The DEFRA funded study was a collaborative effort led by the Freshwater Habitats Trust (formerly known as Pond Conservation) and included an in-house study of 35 ponds to test the efficiency of the eDNA method against traditional survey methods. The ponds were sampled four times between mid-April and late June 2013 at roughly three week intervals. The study was then expanded to be conducted by volunteers. The expanded study provided a wider sample set (n=239) of known GCN ponds, tested the practicality of the technique for use by volunteers and determined whether the reliability of the test results was affected by pond characteristics. These ponds were sampled between mid-May and late June 2013.

To determine the risk of obtaining a false negative result, the study included the sampling of known GCN breeding ponds. To determine the risk of obtaining a false positive result, the study also included the sampling of ponds (n=30) outside the known range of GCN and of ponds (n=30) within the known range of GCN but where confidence of GCN absence was high. A subsection of the samples from the volunteer survey was resurveyed by professionals to assess whether surveyor experience influenced the reliability of the test results.

No false positive results were obtained from the eDNA technique. A small number of false negative results were obtained from the eDNA technique and these were associated with the following sampling constraints:

¹ Biggs et al 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust: Oxford.

² Calculations of the type and extent of temporary and permanent habitat impacts of proposals are required to determine if presence/absence or population estimates are required for licensing purposes. Up to date guidance can be found on Natural England's GCN licence method statement template.

- water samples could not be taken from areas of the pond likely to be used by GCN; i.e. samples could only be taken from wide shallow margins that GCN might avoid (the study found that in some instances, for ponds with known GCN presence, using a pole to sample the deeper water resulted in a positive result, whereas a negative result was obtained by sampling only the shallow margins)
- sampling in areas of dense vegetation in combination with shallow water; such conditions might prevent mixing of water and therefore prevent dispersal of eDNA throughout the pond)
- restricted access to the pond margins (false negatives were associated with several sites where only circa 10% of the pond perimeter was surveyed)
- sampling ponds with very small GCN populations.

The study concludes that false positives were most likely when more than one of these constraints occurred. A table of risk factors is included in the Technical Advice Note (Appendix 5 of the main report) and an extract of this is provided at the end of the document.

The study concluded that in ponds where GCN were present, the eDNA technique was accurate 99.3% of the time (139 out of 140 samples from the professional study) (91.2% in the wider volunteer survey) compared with 76% for bottle trapping, 75% for torching and 44% for egg searching across the full survey period (April to June); however, when the results of bottle trapping and torching were combined, traditional methods were nearly as efficient as the eDNA technique (95%). Professional surveyors obtained the same result as volunteers on 92% of occasions (at a subsample of 26 ponds).

Statistical analysis of the various pond characteristics (data obtained largely from the HSI assessment) found no significant correlation between GCN detection (with the eDNA technique) and individual pond characteristics. The only significant correlation with detectability was the overall HSI score. The study concludes that GCN presence is the major factor determining ability to detect GCN eDNA. There was no significant variance in detectability across the main breeding season.

The study found that all the GCN detections were below the Level of Quantification (i.e. the amount of eDNA in the sample could not be quantified accurately). Instead, the eDNA analysis result is presented as a score of between zero (0/12) and twelve (12/12), based on the number of qPCR replicates in which great crested newt DNA is detected (successfully amplified). 0/12 is a negative result, anything from 1/12 to 12/12 is a positive result. The study found that newt abundance was weakly correlated with the eDNA score, so far as a low score was generally associated with low counts using bottle or torch survey methods; however, the same correlation was not true of high scores (i.e. no reliable correlation was identified between high eDNA scores and high counts using bottle or torch survey methods). The study also used the following categories in their analysis of relationships between score and newt count: 0/12 to 4/12 = low; 5/12 to 8/12 = medium; 9/12 to 12/12 = high. This resulted in some strong relationships for subsets of data but no significant correlations were identified when looking at the entire data set.

A small study (provided at Appendix 4 of the main Defra report) has also been undertaken to determine the effectiveness of the eDNA technique when sampling of ponds outside of the newt breeding season. This study (although of a very limited sample size) concluded that eDNA sampling outside of the newt breeding season could not be relied upon to determine presence / absence of GCN.

Method

An extract of the field sampling protocol, as outlined in the published Defra funded study (Appendix 5 of the study), is provided at the end of this document. TEP followed this protocol in undertaking their sampling.

Training & Qualifications

TEP Principal Ecologist Elizabeth Seal underwent training on the eDNA sampling method with Dr Jeremy Biggs of the Freshwater Habitats Trust (FHT) on 11th April 2014. A copy of the certificate of this training can be provided on request. Elizabeth has worked with GCN as a consultant ecologist since 2004 and has held a Natural England GCN survey licence since late 2005.

Before commencing eDNA sampling, TEP ecologists with GCN survey licences were given training by Elizabeth Seal on the eDNA sampling method and on additional biosecurity measures and record keeping procedures. A record of the training undertaken by named surveyors can be provided on request.

Equipment

All equipment for the collection of water samples was as detailed in the published protocol. The equipment was purchased from SpyGen, the laboratory in France that developed the test, supplied the equipment and undertook all the analysis for the Defra funded study.

Chain of Custody and Storage

All sterilised sampling equipment was received in sealed bags. A check to confirm all seals were intact was undertaken prior to the issuing of equipment to surveyors. All sample preserving tubes were received in sealed boxes with a unique bar code. On receipt from France, all seals were checked and the kits were registered on a central database using the unique bar code.

Sample preserving tubes were issued to surveyors with unique individual Sample Forms. The unique bar code was used on each Sample Form to identify each sample. The following information was recorded on the Sample Form (and the central database) at the point of issuing to the surveyor:

- Unique bar code
- Site name
- Date of issue

Once in the field and at the ponds, the surveyor confirmed that the appropriate field survey sheet was being completed by checking the bar code on the box and double checking the corresponding bar codes on the sample tubes. The surveyor then filled in the date of survey and the pond ID number (as well as other information relating to survey conditions) on the Sample Form.

On returning to the office the Sample Forms were signed to confirm for each sample:

- The member of staff who received the samples back into the office and stored them in the fridge
- The date the fridge temperature was last checked and the temperature at that time of checking

The pond IDs were checked against a site map confirming which ponds had been sampled and this map was stored with the Sample Forms. All this information was also recorded on the central database.

A blank Sample Form is provided at the end of this document.

The sample preserving tubes were stored in a fridge until the morning of collection by the courier. The Sample Forms and the central database were updated to confirm the date of collection by the courier.

The unique bar codes were used by SpyGen to report results. All results were recorded in the central database by one member of staff and cross checked by a second member of staff. The results were then immediately issued to the lead surveyor for each site who then checked if the results were as expected (based on historic knowledge, on traditional survey methods if these were being utilised in parallel and based on HSI results). This process was to allow any unexpected results to be investigated further if necessary and to ensure full amphibian surveys were undertaken where necessary.

Sampling Method

The sampling protocol issued with the published Defra study was adhered to. In summary:

- 20 samples were taken from around the entire perimeter of the waterbody.
- The surveyor stayed out of the water while taking the samples (extension poles were used in situations where open/sufficiently deep water was at a distance from the dry banks.
- Survey locations were distributed around the pond perimeter but micro-siting was used to select locations most likely to be used by GCN.
- At each sample location the water column was stirred prior to taking the sample but care was taken to avoid disturbing the sediment on the base of the pond.
- Once all 20 samples were taken, 15ml of the total sample were pipetted into each of the 6 sampling tubes, whilst ensuring that the water in the sample bag was mixed before taking each 15ml sample and that only one sample tube was opened at any one time.
- At all times the surveyor ensured that the risk of contaminating the sampling equipment was minimised by avoiding the placement of the ladle or pipet on the ground or on any otherwise potentially contaminated surfaces and by changing gloves between the initial sampling stage and the pipetting stages of the method.

Lab Analysis

All samples were sent to the Spygen laboratory in France. SpyGen developed the qPCR GCN eDNA test and the associated laboratory protocol and undertook all of the analysis for the Defra funded study.

Results

Site Details

Site Name	Samlesbury
Location	North west of Potter Lane, Samlesbury
Supporting Plans?	G5181.008
Supporting Reports?	5181.004 GCN Survey Report & 5181.003 Ecology Report

eDNA Results Summary

Pond ID	Pond Grid Ref	GCN Present / Absent
W1	SD587316	Negative
W2	SD586317	Negative
W3	SD583319	Negative

DNA Detailed results

Pond ID	Sample Kit ID	Surveyor Initials	Survey Date	Survey Restrictions	eDNA Result	Other GCN Survey Results & Method?
W1	SI5 – 050582	DM	04/05/15	None	Negative	N/A
W2	SI5 – 050581	DM	04/05/15	None	Negative	N/A
W3	SI5 – 050583	DM	04/05/15	None	Negative	N/A

Key to surveyor initials: DM = Dave Monk

SUPPORTING DOCUMENTS

- **Extract from Appendix 5; Technical Advice Note – Risk of false positives or false negatives**
- **Extract from Appendix 5; Technical Advice Note – Field survey protocol**
- **TEP Sample Form**
- **TEP Biosecurity Protocol Form**

Extract from Appendix 5 – Technical Advice Note

3 Field survey protocol

Field sampling should be undertaken by a suitably trained and experienced great crested newt surveyor (trained volunteer or professional). At present it is believed that eDNA water sampling does not disturb newts enough to justify the procedure being licensed by the national regulatory authority.

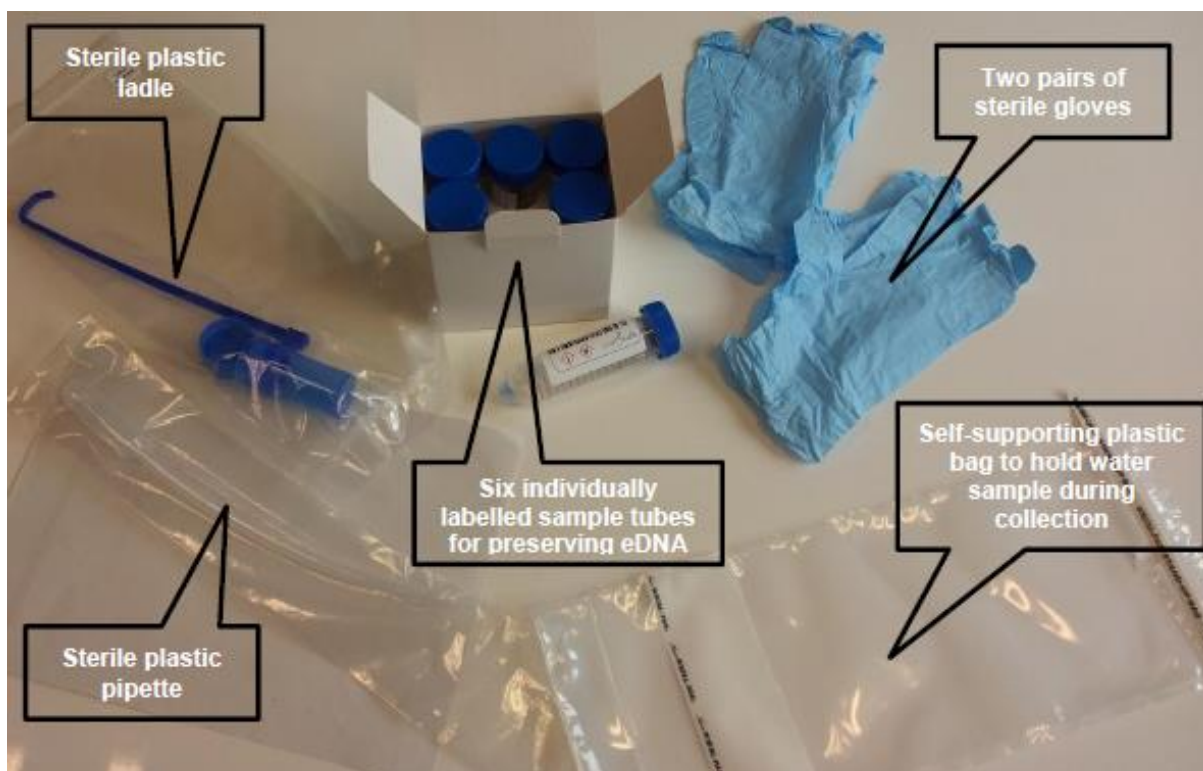
A single visit to the target pond should be made between mid-April and June, during the newt breeding season. eDNA samples can be collected at any time of day and in any reasonable weather conditions, including light rain. It may be best to avoid heavy rain as this makes sampling more difficult and might increase the risk of cross contamination (e.g. splashing of mud which could contain great crested newt DNA from wet ground). There is evidence that unpreserved amphibian eDNA decays slightly more quickly in full sun than shaded conditions, becoming undetectable after 8 and 11 days respectively (Pilliod et al., 2014), but as long as samples are preserved the impact on detection should be slight.

3.1 Sampling equipment

The field sampling equipment used by Biggs et al. (2014) has five components (Figure 2):

- A sterile 30 mL ladle
- A sterile self-supporting Whirl-Pak plastic bag with 1 L capacity
- A sterile 10 mL pipette to resample the pond water
- Six sterile 50 mL centrifuge tubes containing preservative (Absolute Ethanol (200 Proof), Molecular Biology Grade, Fisher BioReagents (Product Code: 10644795), sodium acetate and other markers)
- Two pairs of sterile gloves.

Figure 2 Sampling equipment used for eDNA water samples by Biggs et al. (2014)



Kits can be stored at room temperature before use in an appropriate solvent store, consistent with Home Office regulations, and should be used within about two weeks of receipt. The time between kit receipt and use should be noted (see Section 5.1). Use one kit per pond up to an area of 1 ha. Beyond this, use an additional kit per hectare. However, note that as yet there is no practical experience of the effectiveness of kits used on ponds greater than 1 ha in area. Note that sampling techniques are still developing rapidly in this field and alternative preservatives to ethanol are currently being sought.

3.2 Field water sample collection protocol

The field sampling protocol should follow the steps outlined below. Gloves should be worn at all times during the sampling process, replacing the gloves between sample collection from the pond and pipetting into the sterile sub-sample tubes. Samples should be collected without entering the water, i.e. the surveyor stands only on the pond bank or muddy pond edges. This prevents disturbance of the substrate and may limit cross-contamination.

Stages of field sampling protocol

- Step 1 Identify where 20 samples will be taken from the pond. The location of sub-samples should be spaced as evenly as possible around the pond margin, and if possible targeted to areas where there is vegetation which may be being used as egg laying substrate and open water areas which newts may be using for displaying.
- Step 2 Open the sterile Whirl-Pak bag by tearing off the clear plastic strip c 1cm from the top (along the perforated line), then pulling the tabs. The bag will stand-up by itself.
- Step 3 Collect 20 samples of 30 mL of pond water from around the pond (see 1 above) using the ladle (fill the ladle), and empty each sample into the Whirl-Pak bag. At the end the Whirl-Pak bag should be just under half full (600 mL).

NOTE: Before each ladle sample is taken, the pond water column should be mixed by gently using the ladle to stir the water from the surface to close to the pond bottom without disturbing the sediment on the bed of the pond. It is advisable not to sample very shallow water (less than 5-10 cm deep).
- Step 4 Once 20 samples have been taken, close the bag securely using the top tabs and shake the Whirl-Pak bag for 10 seconds. This mixes any DNA across the whole water sample.
- Step 5 Put on a new pair of gloves to keep the next stage as uncontaminated as possible.
- Step 6 Using the clear plastic pipette provided take c15 mL of water from the Whirl-Pak bag and pipette into a sterile tube containing 35 mL of ethanol to preserve the eDNA sample (i.e. fill tube to the 50 mL mark). Close the tube ensuring the cap is tight.
- Step 7 Shake the tube vigorously for 10 seconds to mix the sample and preservative. This is essential to prevent DNA degradation. Repeat for each of the 6 conical tubes in the kit. Before taking each sample, stir the water in the bag to homogenize the sample - this is because the DNA will constantly sink to the bottom.
- Step 8 Empty the remaining water from the Whirl-Pak bag back into the pond.
- Step 9 The box of preserved sub-samples is then returned at ambient temperature immediately for analysis. If batches of samples are collected and stored prior to analysis they should be refrigerated at 2-4° C. Kits can be stored for up to one month in a refrigerator before analysis. It is not necessary to freeze samples. Freezing may damage storage bottles, which can lead to leaking during transit, and also unnecessarily increases costs by requiring refrigerated transport. The length of time eDNA samples are stored in a refrigerator prior to analysis should

be recorded and passed on to the analysing laboratory. Use an appropriate labelling system to ensure that the kits are supplied with a unique reference number.

Extract from Appendix 5 – Technical Advice Note

Table 1. Risk, and mitigation, of false positives and false negatives

Risk factor	Mitigation
Field-based false positives	
Cross contamination between sites (due to equipment, clothing etc.).	Ensure that there is no contact between contaminated material and the water being preserved in the sampling process.
Inflows, bringing eDNA from sites with newts into unoccupied ponds. Note that there is so far little evidence that this is a significant problem but it is a theoretical possibility.	This risk cannot be eliminated at present and its extent is not understood. Where ponds have inflows, survey teams will have to make judgements about the likely impact of any inflow. However, the majority of great crested newt ponds lack substantial inflows. The presence/absence of inflows, and whether they are wet or dry at the time of survey should be recorded in field notes.
Aquatic animals (e.g. herons, water voles) transferring newt DNA between sites (e.g. in faeces, in water trapped in fur)	This risk cannot be eliminated and the extent to which it occurs is currently unknown. Further research will be required to assess whether this is a significant risk, although at present it seems likely to be small.
Field-based false negatives	
Low numbers of newts	This risk is minimised by following good field protocol. Note that at present the minimum number of newts that can be detected in different waterbodies is not known. However, ponds with torch counts of zero animals in the breeding season, where newts were known to be present, have provided positive eDNA results in the breeding season.
Very wide, shallow drawdown zones may increase the likelihood of collecting water samples in areas where there has been no newt activity even though the pond is currently occupied.	To access deeper water areas it is possible that the water sampler could be added to a long pole. It is important not to enter the water as sediments will be disturbed which may contain historical great crested newt DNA. Further research data on sediment DNA is likely to be available within 6-12 months to refine understanding of this issue. In all water depths it is necessary to gently stir the water throughout its depth, without disturbing sediments, as eDNA is believed to sink. It is advisable to avoid sampling very shallow water (less than 5-10 cm deep) as it may be difficult to avoid stirring up sediment in these areas.
There is evidence that DNA is less likely to be detected in water taken from densely packed mats of vegetation; either because of a lack of newt activity or because of the difficulty of sample collection in these areas.	Avoid sampling in these areas: sample from water in areas where vegetation is suitable for egg-laying and open water areas suitable for displaying.
There is evidence that eDNA is less likely to be detected if the whole pond perimeter is not sampled.	Every effort should be made to access 20 sites around the pond for sampling. Sites where 80-90% of pond margins were accessed achieved 99.3% detection rates. Attaching the sampling ladle to an extension pole may be an option for reaching a wider range of areas. Effective

	cleaning of the extension pole between sites is essential. The pole must be kept separate from any equipment that is in contact with newts.
--	---

TEP Sample Form

Sample Kit ID:			
Received @ TEP (date):		Signed into Store by:	
Signed out of Store by:		Date:	

Site Name:			
Job Number:			
Have previous pond surveys been undertaken this year?	Yes/No	If yes, has evidence of anti-contamination protocol been provided?	Yes/No
	Date:		

DOUBLE CHECK SAMPLING KIT ID

Pond Number:	
---------------------	--

Date of Survey:		Time of Survey:	
Lead Surveyor Name:			
Surveyor GCN Licensed: (surveyor must be licensed)	Yes/No	Surveyor eDNA trained: (surveyor must be trained)	Yes/No
Number of Samples Taken at Pond: (20 samples required)		% of Pond Sampled:	
Is the Pond <1ha?	Yes/No		
Notes of any Constraints to Sampling: (circle relevant item and add description)	<i>Access difficulties, surveyor entered water, potential contamination of sampling equipment, loss of ethanol, sediment disturbed, shallow water, cattle disturbance of sediment, noticeable disturbance of sediment by waterfowl, other.</i>		

Returned to Fridge (date & time):		Signed into Fridge by:	
--	--	-------------------------------	--



Fridge Temperature checked (date & temp):		Fridge Temperature checked (by TEP staff):	
Collected by Courier (date):		Collected by Courier (TEP staff responsible):	
eDNA sampling results:	Positive/negative		
Other amphibian survey results:	Visit #of#/Date/Method/Results		

TEP Biosecurity Protocol Form

Site Name:		Surveyor Name:	
Job Number:		Date of Survey:	
<p>The following form should be completed following survey at each and every pond in turn. This is to provide a record of biosecurity measures undertaken by TEP, specifically to ensure no transfer of eDNA is encountered between ponds or sites.</p>			
Pond Number:		Please circle one	
Bottle traps- disinfected/new traps used specific to the pond.		Yes / No / Other	
Canes- disinfected/new canes used specific to the pond.		Yes / No / Other	
Net- disinfected and thoroughly rinsed through with water.		Yes / No / Other	
Boots/waders- disinfected and thoroughly rinsed with water.		Yes / No / Other	
Thermometer- sealed bag around thermometer removed and replaced.		Yes / No / Other	
<p>Comments: <i>If 'other' has been selected in any of the options above please explain here.</i></p>			

**APPENDIX 6.
Bat Emergence Survey 2013**

**Oak Tree,
Potters Lane,
Salmsbury
Bat Survey**

August 2013

by

Hilton Ecology

Hilton Ecology

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Astley Green, Tyldesley,
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2. Methodology

3. Survey Results

4. Interpretation and recommendations.....

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5.1 Summary of the legal protection afforded to bats.

5.2 Survey data

6. References.....

1. Introduction

- 1.1 Three nocturnal surveys to assess the presence/absence of bat roosts were conducted on an oak tree on Potters Lane, Salmesbury, Preston. Grid Reference SD 59427 30848.
- 1.2 Two dawn and one dusk nocturnal surveys with two surveyors were conducted on the tree on 13th, 20th and 29th August 2013.

2.0 Bat survey methodology

- 2.1 Surveys were conducted following “The Bat Workers Manual “(JNCC 2004), “The Bat Mitigation Guidelines” (EN 2004) and the Bat Conservation Trust Bat Survey Guidelines (2007) recommendations.
- 2.2 All surveys were conducted by experienced surveyors during good weather conditions using Duet and Batbox detectors.

3. Survey results

- 3.1 No bats were seen entering or exiting the tree during the surveys.
- 3.2 During the surveys a maximum of 60 Pipistrelle, 11 Myotis and 1 non-echolocating bat which was possibly a Brown Long-Eared bat were heard but few bats were actually seen. The duration of the calls indicate that most bats were commuting with only short bursts of feeding recorded. Of the bats that were seen, Pipistrelle were commuting along the road and on both dawn surveys common pipistrelle bats were seen briefly feeding along the road tree line. In addition a Myotis bat was seen feeding under the adjacent Sycamore tree on 29th August.
- 3.3 The first Pipistrelle bat heard on the dusk survey was 33 minutes after sunset and the last Pipistrelle to be heard on the dawn surveys were between 29 and 41 minutes before dawn indicating a roost location away from the immediate area. The Myotis bats were last heard 45 – 53 minutes before dawn, however an individual Myotis was heard 40 minutes after sunset on 13th August indicating a possible roost in the near vicinity.

4. Interpretation and recommendations.

- 4.1 As no bats were seen entering or exiting the tree during good weather it appears that bats are not using the tree for roosting during the peak season of August.
- 4.2 Therefore an EPS licence is not required for the removal of the oak tree along Potters Lane although it is recommended that supervised felling by a licensed bat ecologist during September/October or March/April is implemented.
- 4.3 Bats are mobile creatures and can form new roosts at any time, so if works do not take place within a year of this survey then it may be necessary to repeat parts of the survey.
- 4.4 **If bats are found during building works then all work should stop immediately and a licensed bat consultant should be informed.**

5. Appendices

5.1 Summary of the Legal Protection afforded to bats.

All British bat species are protected under the 1981 Wildlife & Countryside Act (WCA) (as amended) in Schedule 5, the Countryside and Rights of Way Act 2000 and the Conservation of Habitats and Species Regulations 2010 (as amended).

The National Planning Policy Framework (NPPF) places a clear responsibility on Local Planning Authorities to conserve and enhance biodiversity and to encourage on the consideration that should be given to Protected Species where they may be affected by development. The Office of the Deputy Prime Minister (ODPM) Circular 06/2005 provides administrative guidance on the application of the law in relation to planning and nature conservation.

Together these laws and regulations make it illegal to:

- intentionally or deliberately kill, injure or take bats;
- deliberately disturb bats (whether in a roost or not) - disturbance of animals includes in particular any disturbance which is likely (a) to impair their ability—(i) to survive, to breed or reproduce, or to rear or nurture their young; or (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or (b) to affect significantly the local distribution or abundance of the species to which they belong;
- obstruct access to bat roosts;
- damage or destroy bat roosts whether deliberate or not;
- possess or transport a bat or any part of a bat, unless acquired legally;
- sell (or offer for sale) or exchange bats, or parts of bats.

Roosts are defined as “any structure or place which any wild animaluses for shelter or protection” (WCA) or “breeding site or resting place (Habitat Regulations). This provides protection for bat roosts whether occupied or not.

In addition action plans have been prepared for five bat species in the UK Biodiversity Action Plans.

5.2 Survey Data

Site address Potters Lane, Salmesbury, Preston	Survey Date 13.8.13
Building survey	
Description of structure Oak tree	Bat habitats near survey site Trees, hedgerows, woodland, river
Bats or signs found : position and indication of roost type N/A	
Estimated roost size N/A	
Bat detector survey	
Type of survey: dawn/dusk Dusk	Time of dawn/dusk 20.45
Timing of survey (start & finish) 20.20 – 22.05	Air temperature & weather conditions Dry, still, 15.7C – 14.1C
Time each species recorded 21.18 Pipistrellus pipistrellus 21.25 Myotis	Behaviour Commuting not seen Commuting not seen
Estimated number of passes for each species Pipistrellus pipistrellus - 29 Myotis - 7	

Site address Potters Lane, Salmesbury, Preston	Survey Date 20.8.13
Building survey	
Description of building/s Oak tree	Bat habitats near survey site Trees, woodland, hedgerows, river
Bats or signs found : position and indication of roost type N/A	
Estimated roost size N/A	
Bat detector survey	
Type of survey: dawn/dusk Dawn	Time of dawn/dusk 05.57
Timing of survey (start & finish) 04.25 – 06.15	Air temperature & weather conditions Dry, still, 15.1C – 14.6C
Time each species recorded 04.25 Pipistrellus pipistrellus 04.41 Myotis 04.55 Non echolocating bat ?Brown Long-eared	Behaviour Commuting not seen Commuting not seen Commuting
Estimated number of passes for each species Pipistrellus pipistrellus - 60 Myotis - 11 Non echolocating bat ?Brown Long-eared - 1	

Site address Potters Lane, Salmesbury, Preston	Survey Date 29.8.13
Building survey	
Description of building/s Oak tree	Bat habitats near survey site Trees, woodland, hedgerows, river
Bats or signs found : position and indication of roost type N/A	
Estimated roost size N/A	
Bat detector survey	
Type of survey: dawn/dusk Dawn	Time of dawn/dusk 06.13
Timing of survey (start & finish) 04.44 – 06.20	Air temperature & weather conditions Dry, still, 16.2C – 14.3C
Time each species recorded 04.47 Pipistrellus pygmaeus 04.50 Myotis 04.53 Pipistrellus pipistrellus	Behaviour Social calls - not seen Commuting - not seen Commuting and feeding
Estimated number of passes for each species Pipistrellus pygmaeus - 2 Pipistrellus pipistrellus - 22 Myotis - 13	

6. References

English Nature. 2004. Bat Mitigation Guidelines.

Bat Conservation Trust. 2012. Bat Survey Guidelines.

Joint Nature Conservation Committee. 2004. Bat Workers Manual.

MAGIC. Multi Agency Geographical Information for the Countryside. Microsoft Int
Google Maps

APPENDIX 7. Winter Bird Survey

WINTER BIRD SURVEY RECORD



General Details:

Site Name	Samlesbury		
Job Number	2609	Doc. Ref	2609.015
Central NGR	SD591313		
Site Location	Samlesbury , Preston		
Date(s)	25.01.11, 23.02.11 and 10.03.11		
Surveyor(s)	Dr Mike Walker MIEEM		
Weather	1 st visit – Mixture of dry, light drizzle and showers. Light breeze. 2 nd visit – Some showers during which survey was postponed. Light to moderate breeze. 3 rd visit – Dry and sunny, Light breeze		
Seasonal Constraints	Although surveys were only undertaken during the mid to late winter period, due to the low quality of habitat present within the site the survey was deemed sufficient to adequately represent the usage of the site by wintering birds.		
Methods	Three morning visits to site using transect method.		
Drawing Ref(s):	Drawing G2609.002 (Birds of Conservation Concern).		

Existing Data:

Desktop Records were last updated 2011			
Source			
BTO website (Birdtrack)	The following species were recorded within 2km of OS grid square SD5132 during the non-breeding season in 2007-2009: House sparrow, bullfinch, dunnock, lapwing, skylark, song thrush, starling, Yellowhammer (all UKBAP species) Barnacle goose, black-headed gull, firecrest, goldeneye, grey wagtail, kestrel, mallard, meadow pipit, mistle thrush, red-throated diver, shoveler, teal, tufted duck, water rail (all amber-listed Birds of Conservation Concern).		

Habitat Description:

The majority of the Samlesbury site consists of intensively grazed farmland. The fields are generally large and separated by wire fences and some hedgerows. The site is bounded to the north and west by a large meander of the River Ribble. The north of the site contains a number of ponds surrounded by hawthorn scrub and an area of broadleaved woodland. There are a number of scattered trees across the site located in the field boundaries.

Winter Bird Survey Form

Survey Results:

Visit 1	Date	25.01.11	Start time	0900hrs	End time	1330hrs
Visit 2	Date	23.02.11	Start time	0810hrs	End time	1300hrs
Visit 3	Date	10.03.11	Start time	0930hrs	End time	1230hrs
Species	Visit 1 -number recorded	Visit 2 -number recorded	Visit 3 -number recorded	Conservation status		
B - Blackbird	19	15	8			
BH - black headed gull	11		59	A		
BT - Blue tit	14	25	20			
BF - Bullfinch			1	UK A		
BZ - Buzzard	1	1	0			
CG - Canada goose	1		6			
C - Carrion Crow	27	53	9			
CH - Chaffinch	90	19	18			
CT - Coal tit		1				
CD - Collared dove	2	3	1			
CM - Common gull	121			A		
CA - Cormorant		1				
CU - Curlew		21	1	UK A		
D - Dunnock	2	4	1	UK A		
FP - Feral pigeon						
FF - Fieldfare	11	34	3	SCH 1 R		
GO - Goldfinch						
GS - Great spotted woodpecker	1					
G - Green woodpecker		1				
Greenfinch			1			
GJ - Greylag goose	3		4	A		
H - Grey heron	1		2			
GT - Great tit	12	21	15			
HS - House sparrow	6	7		UK R		
J - Jay		2	2			
JD - Jackdaw	152		21			
LB - Lesser black-backed gull	1	1		A		
LT - Long-tailed tit	3		12			
M - Mistle thrush			2	A		
MA - Mallard	15	22	11	A		
MG - Magpie	10	11	10			
MH - Moorhen		1				
NH - Nuthatch	2	4				
OC - Oystercatcher		32	44	A		
PH - Pheasant	3	5	5			
RE - Redwing	3		9	SCH 1 R		
RO - Rook	120		8			
R - Robin	10	8	3			
ST - Song thrush		6	1	UK R LBAP		
SG - Starling	270		50	UK R		
T - Teal	25	5		A		
Treecreeper			1			
WP - Woodpigeon	35	10	46			
WR - Wren	2	1				

Winter Bird Survey Form

Visit 1	Date	25.01.11	Start time	0900hrs	End time	1330hrs
Visit 2	Date	23.02.11	Start time	0810hrs	End time	1300hrs
Visit 3	Date	10.03.11	Start time	0930hrs	End time	1230hrs
Species	Visit 1 -number recorded	Visit 2 -number recorded	Visit 3 -number recorded	Conservation status		
TOTAL SPECIES	30 sp.	28 sp.	30 sp.			

Key: LBAP = Local BAP; UK = UK BAP; R = Red List; A = Amber List; Sch 1 = Schedule 1.

Additional Notes:

Drawings

- The locations of all Birds of conservation Concern recorded during the three survey visits are illustrated on Drawing G2609.002.

Summary:

The results of the desktop survey undertaken revealed that a range of BoCC have been recorded within the wider locality around the Samlesbury site since 2007. This is likely to be due to the close proximity of Brockholes, a Lancashire Wildlife Trust Nature Reserve.

Important birds of conservation concern recorded since 1997 included house sparrow, bullfinch, dunnock, lapwing, skylark, song thrush, starling and yellowhammer.

A total of 44 bird species were observed during the 2011 winter bird survey at Samlesbury; 30 species in the first visit, 28 species in the second visit and 30 species in the late visit.

Two Schedule 1 species were observed during the 2011 survey. These were fieldfare and redwing, and although they are Schedule 1 birds, this designation applies to the breeding season and not to the winter period.

Six UKBAP species (bullfinch, curlew, dunnock, house sparrow, song thrush, starling) were recorded on site during the survey.

Species covered by the Lancashire BAP recorded during the survey include song thrush only.

Seven amber list species which are not UKBAP species (black-headed gull, greylag goose, lesser black-backed gull, mallard, mistle thrush, oystercatcher, and teal), were also recorded during the survey. However, few large flocks of birds were recorded during the survey.

During the survey a moderate sized group of curlew (19 birds) was recorded feeding within one of the fields in the centre of the north western half of the site. Curlew is a UK BAP species. However, since this species was only recorded using the site on one of the three survey visits (2nd visit), it is thought likely that this site is only occasionally used for feeding by this species. It is not known whether construction works may have been taking place in the nearby Brockholes Nature Reserve on this day, potentially disturbing the birds and causing them to feed within the Samlesbury site instead.

Moderate sized groups of oystercatcher were recorded using the thin grazed field in the northern edge of the north western half of the site. These birds were recorded feeding and loafing within this field and flying between this area and the shingle river banks. Thirty birds were recorded in this field during the second site visit, and forty four birds during the third visit. Oystercatchers are amber listed Birds of Conservation Concern.

Winter Bird Survey Form

Oystercatchers therefore seem to have some preference for this field during the late winter period before they disperse to their breeding habitat. It is likely that they use the fields on the south side of the River Ribble within the site, rather than the fields to the north, as the north bank is used frequently by fishermen.

A few groups of teal were observed using the ponds within the north of the site during two of the survey visits. Twenty five birds were recorded during the first visit, and five birds during the second. Teal are amber listed Birds of Conservation Concern.

The dense and scattered scrub habitat in the north west of the site provide habitat for bullfinch, although this species was only recorded on one occasion. Bullfinch is a UKBAP species.

A high count of six song thrush was recorded using the woody areas within the site during the second visit. However, it is thought that this species only occasionally uses the site during the winter period, as no birds of this species were recorded during the first visit, and only one during the third visit.

A few moderate sized groups of starling were observed totalling 270 birds during the first visit. No starling were observed during the second visit, and a single moderate sized group of 50 birds were observed flying over the site during the third visit, however they were only observed to land on the far side of the River Ribble. It is thought that the fields within this site are occasionally used by moderate numbers of starling during the winter period. Starling are UKBAP species, and red listed Birds of Conservation Concern.

Overall, considering the size of the area involved, the overall value of this site for wintering birds is considered to be low, probably due to the intensive agricultural management of much of this land. The areas of the site with most value for wintering birds include the area of woodland, scrub and ponds in the north west of the site, as well as the thin field to the north of this area which has some value for wintering oystercatcher.

**APPENDIX 8.
Breeding Bird Survey 2013**

BREEDING BIRD SURVEY RECORD



General Details:

Site Name	Samlesbury		
Job Number	2609	Doc. Ref	2609.020
Central NGR	SD591313		
Site Location	Samlesbury , Preston		
Date(s)	09.05.11 and 23.06.11		
Surveyor(s)	Dr Mike Walker MIEEM		
Weather	1 st visit – Cool, dry, light breeze. 2 nd visit – Warm, dry, light breeze.		
Seasonal Constraints	Surveys were undertaken during the optimum time period for carrying out breeding bird surveys. The weather at the time of the visits was also conducive to breeding bird surveys. There were no significant constraints to this work.		
Methods	Two morning visits to site using transect method.		
Drawing Ref(s):	G2609.003 (Breeding Birds of Conservation Concern).		

Existing Data:

Desktop Records were last updated 2009			
Source			
BTO website (Birdtrack)	The following species were recorded within 1km of km square SD5132 during the breeding season in 2007-2011: Curlew, Dunnock, Song thrush, Starling, House sparrow, bullfinch (all UKBAP species) Mallard, kestrel, black-headed gull, sand martin, swallow, house martin, grey wagtail, mistle thrush (all amber-listed Birds of Conservation Concern).		

Habitat Description:

The majority of the Samlesbury site consists of intensively grazed farmland. The fields are generally large and separated by wire fences and some hedgerows. The site is bounded to the north and west by a large meander of the River Ribble. The north of the site contains a number of ponds surrounded by hawthorn scrub and an area of broadleaved woodland. There are a number of scattered trees across the site located in the field boundaries.



Breeding Bird Survey Form

Survey Results:

Visit 1	Date	09.05.11	Start time	0730hrs	End time	1030hrs
Visit 2	Date	23.06.11	Start time	0730hrs	End time	1030hrs

Species	Visit 1 -number recorded	Visit 2 -number recorded	Breeding within site?	Conservation status
B - Blackbird	15	10	Pr – 8 pairs	
BC - Blackcap	4	1	Pr -2 pairs	
BH – black headed gull	7	0	-	A
BT - Blue tit	15	13	Pr – 9 pairs	
CG - Canada goose	2	5	-	
C - Carrion Crow	9	23	Pr – 3 pairs	
CC - Chiffchaff	1	1	Po	
CH - Chaffinch	27	3	Pr – 12 pairs	
CA - Cormorant	1	3	-	
CU - Curlew	1	0	-	UK A
D - Dunnock	1	3	Pr – 2 pairs	UK A
GO - Goldfinch	4	3	Pr – 1 pair	
Greenfinch	1	1	Po	
GL – Grey wagtail	0	1	Po	A
H – Grey heron	0	3	-	
GT - Great tit	10	4	Pr – 5 pairs	
HM – House martin	0	43	Po	A
HS – House sparrow	1	7	Pr – 4 pairs	UK R
J – Jay	1	1	Po	
LB - Lesser black-backed gull	0	3	-	A
Li - Linnet	1	0	Po	UK R
LT – Long-tailed tit	3	0	Pr – 1 pair	
K - Kestrel	0	2	Po	A
MA - Mallard	4	8	Pr – 2 pairs	A
MG - Magpie	4	3	Pr – 2 pairs	
MS – Mute Swan	0	2	-	
NH - Nuthatch	1	1	Pr – 1 pair	
OC - Oystercatcher	7	4	Pr – 2 pairs	A
PH - Pheasant	1	1	Pr – 1 pair	
PW- Pied wagtail	0	1	Pr – 1 pair	
RO - Rook	0	2	-	
R – Robin	2	7	Pr – 3 pairs	
SH - Sparrowhawk	0	1	Po	
SM – Sand martin	17	12	C – 2 pairs	A
ST – Song thrush	1	1	C – 1 pair	UK R LBAP
SG - Starling	4	1	Po	UK R
SL - Swallow	8	30	Po - 2 pairs	A
TC - Treecreeper	1	0	Po	
WH - Whitethroat	3	1	Pr – 1 pair	A
WP - Woodpigeon	17	8	Pr – 6 pairs	
WR - Wren	10	12	Pr – 8 pairs	
WW – Willow warbler	0	1	Po	A
TOTAL SPECIES	32 sp.	37 sp.		

Key: C = confirmed breeding, Pr – probably breeding on site, Po – possible breeding on site
LBAP = Local BAP; UK = UK BAP; R = Red List; A = Amber List; Sch 1 = Schedule 1.

Additional Notes:

Drawings

- The locations of all Birds of conservation Concern recorded during the three survey visits are illustrated on Drawing G2609.003.

Summary:

The results of the desktop survey undertaken revealed that a few BoCC have been recorded within the wider locality around the Samlesbury site since 2007.

Important birds of conservation concern recorded since 1997 included curlew, dunnock, song thrush, starling, house sparrow and bullfinch. The adjacent River Ribble is also designated as a Biological Heritage Site for supporting sand martin. Records suggest that these have been recorded within 1km of the site.

A total of 42 bird species were observed during the 2011 breeding bird survey at Samlesbury; 32 species in the first visit and 37 during the second visit.

No Schedule 1 species were observed during the 2011 survey.

Six UKBAP species (curlew, dunnock, house sparrow, linnet, song thrush, starling) were recorded on site during the survey. Of these, it is likely that dunnock, house sparrow and starling breed within the site.

Species covered by the Lancashire BAP recorded during the survey include song thrush only.

Eleven amber list species which are not UKBAP species (black-headed gull, grey wagtail, house martin, lesser black-backed gull, kestrel, mallard, oystercatcher, sand martin, swallow, whitethroat and willow warbler), were also recorded during the survey.

Many sand martin were recorded flying over the River Ribble adjacent to the site, and occasionally flying over the western area of the site. The River Ribble BHS is partly designated for supporting breeding sand martin. Sand martin nest holes were recorded within the river bank on the northern side of the western part of the site and it is likely that a couple of pairs of sand martin breed in this location. The majority of sand martin nest holes were recorded on the far bank of the river although a few were also recorded on the south bank.

It is likely that two pairs of dunnock breed within hedges within the site. A single juvenile dunnock was recorded on Dean Lane adjacent to the Bezza Brook confirming that dunnock breed in this location. It is likely that another pair breed in the far eastern corner of the eastern site area.

It is likely that a pair of song thrush breed within or directly adjacent to the site. A juvenile song thrush was recorded on Dean Lane during the second visit confirming that song thrush breed in this location. It is likely that they nest just outside of the site boundary within the wooded area south of Dean Lane.

It is likely that two pairs of oystercatcher breed within the site. Curlew were recorded feeding within a field in the east of the site, however it is unlikely that this species breeds within the site. No other wading birds were recorded within the site during the breeding bird survey.

Breeding Bird Survey Form

Swallow were recorded breeding within Seed House Farm just outside the south west corner of the site. It is likely that approximately 6 pairs breed in this location. Swallows were also recorded flying around Lower Hall where it is likely that approximately 2 pairs breed.

Overall, considering the size of the area involved, the overall value of this site for breeding birds is considered to be low, probably due to the intensive agricultural management of much of this land. The areas of the site with most value for breeding birds include the area of woodland, scrub and ponds in the north west of the site, the strip of woodland in the eastern site area, the farm buildings, and the bank of the River Ribble in the north of the site.

**APPENDIX 9.
Breeding Bird Survey 2015**

BREEDING BIRD SURVEY RECORD



1.0 GENERAL DETAILS:

Site Name	Samlesbury		
Job Number	5181	Doc. Ref	5181.005
Central NGR	SJ 595 311		
Site Location	Samlesbury, Preston, Lancashire		
Date(s)	Visit 1 = 27/05/15 Visit 2 = 24/06/15 Visit 3 = 10/07/15		
Surveyor(s)	Tim Ross, Chris Swindells, Mike Walker, Chris Harrison		
Weather	1 st visit – Dry, moderate cloud, light breeze. 2 nd visit – Dry, moderate cloud, still. 3 rd visit – Dry, light cloud, light breeze.		
Methods	Three morning visits to site using transect method including 100m buffer around site.		
Seasonal Constraints	The survey was undertaken during the optimum breeding bird survey period. There are therefore no constraints associated with the survey.		
Drawing References	Visit 1 – G5181.002 & G5181.003 Visit 2 – G5181.004 & G5181.005 Visit 3 – G5181.006 & G5181.007		

	Written	Checked	Authorised
Initial	MW	SB	TR

2.0 PRE-EXISTING DATA FOR SITE

Desktop records were gathered from the BTO BirdTrack website for all birds recorded within the tetrads containing the site (SD5930 and SD5931) and the surrounding 1km buffer squares in breeding bird seasons during 2013-2015.

The following **Schedule 1** species have been recorded within the search area during the breeding season: Avocet, Cetti's warbler, common crossbill, kingfisher, little ringed plover and whimbrel.

The following **red listed and/or S41 species** have been recorded within the search area during the breeding season: bullfinch, dunlin, dunnock, curlew, grasshopper warbler, grey partridge, golden plover, herring gull, house sparrow, lapwing, lesser redpoll, linnets, marsh tit, reed bunting, skylark, starling, song thrush, tree pipit, tree sparrow, twite, whimbrel, wood warbler, yellow wagtail.

3.0 HABITAT DESCRIPTION

The site is comprised of arable and pasture, split into two parcels of land. The larger parcel is located within a tight meander of the River Ribble. The smaller parcel is located south east of the river, immediately north of the A59 Preston New Road. The majority of the site is relatively flat, although the route of the access road follows the pasture fields as it rises from Potter Lane up to the A59. The north western corner of the site, bordered on three sides by the meander of the River Ribble, consists of broadleaved woodland dominated by ash and sycamore, dense and scattered scrub and standing water, surrounded by semi-improved pasture. The central areas of the site consist of grassland swards which are seasonally grazed for part of the year. Species-poor hedgerows border the majority of fields.



Breeding Bird Survey Form

4.0 SURVEY RESULTS

Visit 1	Date	27/05/15	Start time	06:30	End time	11:00
Visit 2	Date	24/06/15	Start time	06:30	End time	11:40
Visit 3	Date	10/07/15	Start time	06:30	End time	11:00

Species	Visit 1 -number recorded	Visit 2 -number recorded	Visit 3 -number recorded	Conservation status	Likely breeding status within site
Blackbird	21	20	8		Pr (10)
Black cap	11	6	8		Pr (4)
Bullfinch	1	0	0	S41, A	Po
Black-headed gull	19	3	5	A	N
Blue tit	13	26	10		C (3) Pr (8)
Buzzard	1	2	2		Po
Canada goose	21	13	18		C*
Carrion crow	12	19	23		Pr (5)
Chaffinch	28	5	3		Pr (4)
Chiffchaff	8	3	4		Pr (3)
Coal tit	2	3	2		Pr (2)
Collared dove	1	2	3		Po
Common gull	4	1	0	A	N
Common sandpiper	1	0	0	A	N
Common tern	0	0	1	A	N
Cormorant	0	2	2		N
Curlew	1	2	0	S41, A	Po
Dunnock	8	1	2	S41, A	Pr (2)
Great crested grebe	2	0	0		C (1)*
Green woodpecker	1	0	0		Po
Greylag goose	3	1	1	A	Po
Goldcrest	3	4	1		Pr (2)
Goldfinch	6	11	10		Pr (4)
Goosander	8	0	9		C (2)*
Greenfinch	0	0	1		N
Great spotted woodpecker	5	4	3		Pr (1)
Grey wagtail	1	1	0	A	C*
Garden warbler	2	0	0		Po
Great tit	6	3	4		C (1) Pr (3)
Grey heron	8	18	17		C (1 col)
Herring gull	0	0	1	S41, R	N
House martin	0	2	0	A	N
House sparrow	4	0	1	S41, R	Po
Jay	1	1	2		Po
Kestrel	0	2	1	A	C*
Kingfisher	0	1	3	Sch1 A	Pr (1)
Lapwing	0	1	260	S41, R	Po
Lesser black- backed gull	2	20	2	A	N
Little owl	0	0	1		N
Long-tailed tit	4	20	2		Pr (4)
Mistle thrush	0	0	1	A	Po

Breeding Bird Survey Form

Species	Visit 1 -number recorded	Visit 2 -number recorded	Visit 3 -number recorded	Conservation status	Likely breeding status within site
Magpie	6	5	8		Pr (3)
Mallard	26	14	34	A	C (1)* Pr (1)*
Moorhen	0	3	0		Po
Mute swan	0	0	1		Po
Nuthatch	0	7	1		Pr (2)
Oystercatcher	6	6	5	A	Pr (2)
Pheasant	1	1	0		Po
Robin	22	6	3		C (1) Pr (4)
Redshank	3	0	0	A	Po
Reed bunting	1	0	0	S41, A	Po
Sand martin	56	3	52	A	C (1 col)
Shelduck	2	0	0	A	Po
Skylark	0	0	1	S41, R	Po
Starling	0	10	16	S41, R	Po
Swallow	6	5	23	A	N
Swift	0	9	0	A	N
Song thrush	5	1	0	S41, R	Pr (2)
Treecreeper	2	0	0		Po
Whitethroat	5	7	2	A	Pr (3)
Willow warbler	1	0	0	A	Po
Wood pigeon	17	13	6		Pr (6)
Wren	33	27	27		Pr (16)
TOTAL	47	44	45		

Key: S1 = Schedule 1 Species, S41 = Section 41; A = Amber List; C = Confirmed, Pr = Probably breeding within site, Po = possibly breeding within site, N = not breeding within site, col = colony, * = species recorded nesting in 100m survey buffer but not site boundary.

Summary:

Pre-existing bird records for the area were obtained from BTO Bird Track website. Records show that 6 Schedule 1 (WCA, 1981) species have been recorded during the breeding season within the tetrads containing the site and surrounding 1km buffer in the past three years.

Records also show that 23 red listed Birds of Conservation Concern (BoCC) or S41 species of principle importance have been recorded within the tetrads containing the site and surrounding 1km buffer in the past three years.

It is worth noting that the search area contained the very well recorded adjacent Brockholes Wildlife Trust nature reserve which is likely to have significantly increased numbers of bird records within the search area.

A total of 63 bird species were observed during the 2015 breeding bird survey at Samlesbury; 47 species in the first visit, 44 species in the second visit and 45 during the third visit.

One Schedule 1 bird species (kingfisher) was recorded during the 2015 breeding bird survey. On the second survey visit a kingfisher alarm called from the pond at the north end of the site. During the third visit kingfisher were observed on three occasions flying down the Ribble and on one occasion flying into vegetation on the far bank. It is probable that a pair of kingfisher nests in this location on the far bank of the river to the north of the site.

Ten S41 species (bullfinch, curlew, dunnock, herring gull, house sparrow, lapwing, reed bunting, skylark, song thrush, starling) were recorded on site during the 2015 survey. Of these, it is likely two pairs of dunnock and a pair of song thrush nested within hedgerows, trees and scrub within the site during 2015. Species covered by the Lancashire BAP recorded during the

survey include song thrush only. All other S41 species were either possible breeders or non-breeders. A curlew was recorded feeding on the grassland within the east of the site, however it is also unlikely that this species nested within the site; curlew was classified as a possible breeder.

Nineteen amber list species which are not S41 species (black-headed gull, common gull, common sandpiper, common tern, greylag goose, grey wagtail, house martin, lesser black-backed gull, kestrel, mistle thrush, mallard, oystercatcher, redshank, sand martin, shelduck, swallow, swift, whitethroat and willow warbler), were also recorded during the survey.

Two pairs of mallard were confirmed to nest either within the site or within the survey buffer on the banks of the River Ribble. It is also likely that two pairs of oystercatcher nested within grasslands in the northern part of the site. Both common sandpiper and redshank were recorded feeding on shingle within the River Ribble adjacent to the site, although it is unlikely that these species nested within the site itself.

A pair of kestrel were confirmed to nest approximately 200m from the proposed road, just to the south of Seed House Farm. A pair of grey wagtail were confirmed to breed just outside the site boundary at the shingle banks within the River Ribble to the north of the site.

Many sand martins were recorded flying over the River Ribble adjacent to the site, and occasionally flying over the western area of the site. A total of 19 sand martin nest holes were recorded within the river bank on the western boundary of the site, opposite Brockholes Quarry. A colony of sand martins was observed to be nesting in this location during the breeding bird survey.

It is likely that three pairs of whitethroat breed within scrub and hedgerows within the north of the site.

A range of non-Bocc species were likely to nest or were confirmed as nesting within the site. These included blackbird, blackcap, bluetit, carrion crow, chaffinch, chiffchaff, coal tit, goldcrest, goldfinch, great spotted woodpecker, great tit, grey heron, long-tailed tit, magpie, nuthatch, robin, woodpigeon and wren.

On two occasions groups of heron were observed emerging from the woodland and scrub areas within the north of the site. These groups of birds including juvenile heron. It was confirmed that a small heronry was present in this wooded area in the north of the site, containing two to three pairs of birds during 2015.

Evaluation

Although 63 species were recorded within the site, only 24 species were confirmed to, or were likely to have bred within the site. Many of the remaining species recorded were likely to have either been nesting on the River Ribble or on the Brockholes nature reserve, or at nearby farms.

This site is still considered of local Importance for its assemblage of breeding birds due to the broad species diversity recorded, and in particular for supporting a colony of sand martin, two pairs of oystercatcher and a small heronry. The local importance relates primarily to the northern half of the site, and in particular the banks of the River Ribble, the strip of grassland along side this, and the areas of wet woodland in the north of the site.

Although it will not be possible to retain the grassland, scrub and woodland habitat in the north of the site, it is recommended that a 20m wide strip of grassland is retained adjacent to the banks of the River Ribble. This will reduce disturbance impacts to bird species using the River Ribble, and enable the sand martin to continue nesting in their current location. To further

Breeding Bird Survey Form

encourage sand martins, it is recommended that an artificial sand martin nest site is also created on the site side bank of the River Ribble. Future remediation work following quarrying should include open water and wet areas to provide feeding, nesting and roosting habitat for waterbirds and wet woodland habitat that will provide nesting habitat for grey heron as well as a range of other woodland species.

All wild birds and their nests and eggs are protected under the Wildlife and Countryside Act 1981, as amended. It is recommended that all tree and vegetation clearance across both sites avoids the core breeding bird season, March to August inclusive; although bird nesting can take place outside this period. If vegetation clearance works are necessary during the core breeding bird season, or at any time when bird nesting is suspected, a nesting bird check of the affected area by an ecologist is required. Extensive clearance of potential bird nesting habitat is not always practical and development programmes should take this constraint into account.

**APPENDIX 10.
Water vole & Otter Survey 2013**

1.0 PROJECT DETAILS

Project Name:	Salmesbury Quarry		
TEP Job Ref:	2609	TEP Doc. Ref:	2609.026
Site Location:	Off Potter Lane, Salmesbury	National Grid Ref:	SD 589 315
Date(s)	18 th October 2013		
Surveyors:	Sarah Sadler and Kerry Stead		
Survey Purpose	Survey was undertaken to inform a planning application for quarrying at the site.		
Weather	Mild and dry .		
Methods:	Surveys were undertaken of Bezza Brook, between Potter Road and the River Ribble in the south of the site, and of the bank of the River Ribble around the edge of the site. The survey entailed examining the banks of the watercourse for evidence of use by water voles and was undertaken following guidance provided by the <i>Water Vole Conservation Handbook (3rd Edition)</i> . During the survey the banks were also inspected for evidence of use by otter.		
Constraints	The survey was undertaken at the end of the water vole survey season (mid-March to Mid-October), however temperatures remained mild until the end of October 2013 and therefore it is considered that water voles activity would not yet have reduced by the time of survey.		
Drawing Ref:	D2609.007		

	Written	Checked	Authorised
Initial	SS	CDB	LG

2.0 PRE-EXISTING DATA FOR SITE

2.1 Summary of Desktop Data

Source:	Site / Habitat / Species Data:	km from site:	Direction from site:
Lancashire Environment Record Network (LERN)	Otter	Approx. 0.7km	N
Lancashire Environment Record Network (LERN)	Water vole	Approx. 0.7km	N
Lancashire Environment Record Network (LERN)	Mink	Approx. 0.1 – 1.1km	SSW

3.0 SURVEY RESULTS

Aquatic Habitat Descriptions

- 3.1 The locations of the aquatic habitats subjected to survey in 2013 are identified on Drawing D2609.007. The table below describes the watercourses.

Waterbody Type	Description
Bezza Brook	The section of Bezza Brook surveyed was from Potter Lane to where it reaches the River Ribble. The banks are generally steep and sandy and dominated by broadleaved trees with very little bank vegetation beneath, where there are gaps in the trees Himalayan balsam dominates.
River Ribble	The River Ribble meanders around the site boundary. The banks of the River Ribble on the site side are of varying heights and support a mix of grassland and stands of dense Himalayan balsam. On the opposite side of the river to the site the banks consist of broadleaved woodland and grassland.

Field Evidence 2013

- 3.2 The table below details the positive field evidence found during the 2013 surveys.

Waterbody Type	Evidence
Otter (<i>Lutra lutra</i>)	
Bezza Brook	Fresh otter spraints were found in five locations along the brook, with a greater density towards the river. Slides were also present in areas along the banks and many areas that were possible couches (daytime resting areas) under tree roots and hollows along the bank. One footprint was also found on a sandy area of the bank.
River Ribble	No evidence of the presence of otter was found along the bank of the River Ribble.
Water Vole (<i>Arvicola amphibious</i>)	
No evidence of water vole was found on either Bezza Brook or the River Ribble.	
American mink (<i>Mustela vison</i>)	
Bezza Brook	A young American mink was sighted on the bank of Bezza Brook with an eel in its mouth approximately 50 metres from where the brook meets the river. No other evidence of mink was found along the brook.
River Ribble	No evidence of mink was found along the bank of the River Ribble.

3.3 Survey Limitations

Bezza Brook	Most of the brook was surveyed, however a small section of approx. 20 metres from the river was not surveyed as it was too deep to allow safe access.
River Ribble	There were sections of the bank on the river that were not accessible due to very deep water and steep banks, at those points the survey was carried out from the top of the bank.

4.0 ADDITIONAL NOTES

Kingfisher was observed along Bezza Brook and heard along the Ribble. There are suitable nesting areas along the brook where the banks are high and consist of sandy soil.

The sighting of an American mink with its prey confirms that eel is also present within the brook and river.

5.0 SUMMARY

The sections of Bezza Brook and the River Ribble within the site were surveyed for evidence of water vole and otter. Most of the brook had high banks consisting of sandy soil which are heavily shaded by trees or areas densely covered with Himalayan balsam. The section of river had a variation of high and low banks, there was evidence that the river level fluctuates as debris could be seen in overhanging branches higher up on the bank.

Water voles

No records of water vole were obtained from LERN within the survey area, the nearest record is approximately 0.7km to the north of the site on the opposite side of the river.

No evidence of water voles were found in the survey area. Bezza brook had mainly bare soil banks due to the overshadowing of trees and where there was vegetation it was densely covered in Himalayan balsam. The river had more favourable vegetation for water vole and in areas the banks were suitable. However, there was evidence that the water levels fluctuate along this stretch of river and the flow was fast in places. Due to these conditions, it is unlikely that water voles are present within the watercourses on this site.

Works can therefore proceed without the need for a water vole mitigation strategy, however if water voles, or evidence of water voles, are observed at any stage of the works, work should cease immediately and an ecologist contacted.

Otter

Evidence of otter was identified along the section of Bezza Brook in the form of fresh spraints, slides and a footprint. The banks of the brook offer many places for couches (resting places), such as areas beneath tree roots and hollows within the banking. There was no evidence found along the river section but the more suitable habitat for otter on that section would be within the woodland on the far bank from the site. Records of otter have been recorded in that woodland and were obtained from LERN. As male otters can range over 40km, and females half that distance (Environment Agency 2013), the possibility of otter presence in any suitable watercourse in the survey area cannot be discounted.

Otters are protected under the *Wildlife and Countryside Act 1981 (as amended)* and *The Conservation of Habitats and Species Regulations 2010*. Otters and their resting places are fully protected, making it an offence to deliberately capture, injure or kill them or to damage, destroy or obstruct their breeding or resting places. It is also an offence to disturb otters in their breeding or resting places.

Measures to protect otters should be implemented during the construction phase and within new site proposals to ensure that the current conservation status of the local otter population is not negatively affected. An Otter Mitigation Method Statement should be produced prior to the commencement of works within the site.

American mink

Mink was observed during the survey, and this species is a non-native species covered under Section 14(1) of the *Wildlife & Countryside Act 1981 (as amended)* which makes it an offence for any person to release or allow to escape into the wild. Mink are known to be a threat to water vole populations, although recent evidence has shown that otters are likely to outcompete mink.

It is likely, given the presence of otters, that mink will be controlled by the otter population.

The findings of this survey are valid until October 2014.

APPENDIX 11. Bat Activity Survey Results

BAT ACTIVITY SURVEY 2013

Two bat activity transects were undertaken in accordance with the BCT: Bat survey – Good Practice Guidelines (2012) on 01/08/13 and 13/08/13. A set route was walked at a slow pace by two bat surveyors with 17 designated stops. At each stop, the number of bat passes was recorded for three minutes. Bat contacts during the walks inbetween the point counts were also noted. The results of each transect visit is below and drawing G2609.006 shows the mapped route with both observation points and transit contacts.

Transect 1:

Project Name & Location	Salmesbury		Start Time	20:50		Finish Time	00:00		Date	01/08/2013	
Visit #	1		No. Point Counts (Stops)	17		Point Count Duration (mins)	3		Surveyors	MP/AC	Heterodyne Model: Magenta
BROADBAND DETECTOR TYPE	BATON	BROADBAND REF (e.g. anabat number)	TEP6	CF CARD # IN ANABAT (if used)	-	IPAQ # (if used)	-	CF CARD # IN IPAQ (if used)			
Time of sunset	21:10	Weather @ Start	Air Temp	Rain	Cloud	Weather @ Finish	Air Temp	Rain	Cloud		
Time of sunrise			24 °c	No	No			No	15%		
			Wind	Other comment		Wind	Other comment				
			Light			No					
POINT COUNTS:			NO. PASSES RECORDED BY SPECIES DURING POINT COUNTS								
Point Count (Stop) Ref	Start Time of Point Count	End Time of Point Count	Common Pipistrelle	Soprano Pipistrelle	Myotis or long-eared bats	Large bats (noctule, serotine, Leisler's)	Other (write spp code) / Unknown	Total no. bat contacts during stop	Comments		
A	20:54	20:57									
B	21:03	21:06									
C	21:12	21:15									
D	21:20	21:23									
E	21:34	21:37									
F	21:39	21:42	1					1			
G	21:45	21:48									
H	21:54	21:57	5					5			
I	22:03	22:07	5					5			
J	22:21	22:24	8					8			
K	22:44	22:47	3				1	4			
L	22:54	22:57	2					2			
M	23:00	23:03	2					2			
N	23:06	23:09	12					12			
O	23:22	23:25	1					1			
P	23:36	23:39	1					1			
Q	23:42	23:45	4					4			

BAT ACTIVITY SURVEY 2013

<u>Walk #</u>	<u>Walk Start Time</u>	<u>Walk Stop Time</u>	<u>Bat Contact Ref</u>	<u>Time of Bat Contact</u>	<u>Species and observations</u>	<u>Species and observations</u>			
8	21:54	21:57	1	21:48	p45	Constant foraging along wooded path next to road			
9	22:03	22:07	2	<u>21:59</u>	p45	Constant foraging along wooded path next to road			
10	22:21	22:24	3	22:09	p45	Constant foraging along wooded path next to road			
			4	22:18	p45				
			5	22:20	p45	constant foraging along potters lane			
11	22:44	22:47	6	22:25	p45	constant foraging along potters lane			
			7	22:30	Noctule				
			8	22:34	p45	near plant nursery			
12	22:54	22:57	9	22:48	p45	near plant nursery			
			10	22:49	Noctule	near plant nursery			
15	23:22	23:25	11	23:11	p45				
18	23:45	00:00	12	23:53	p45				
			13	23:48	p45				

BAT ACTIVITY SURVEY 2013

Transect 2:

Project Name & Location	Salmesbury			Start Time	20:15	Finish Time	23:05	Date	13/08/2013
Visit #	2	No. Point Counts (Stops)	17	Point Count Duration (mins)	3	Surveyors	MP/AC	Heterodyne Model:	Magenta
BROADBAND DETECTOR TYPE	Anabat	BROADBAND REF (e.g. anabat number)	SD2#3	CF CARD # IN ANABAT (if used)	CF#002	IPAQ # (if used)		CF CARD # IN IPAQ (if used)	
Time of sunset	20:40	Weather @ Start	Air Temp 17°C	Rain No	Cloud 8/8	Weather @ Finish	Air Temp 15°C	Rain No	Cloud 7/8
Time of sunrise			Wind Light	Other comment			Wind Light	Other comment	
POINT COUNTS:			NO. PASSES RECORDED BY SPECIES DURING POINT COUNTS						
Point Count (Stop) Ref	Start Time of Point Count	End Time of Point Count	Common Pipistrelle	Soprano Pipistrelle	Myotis or long-eared bats	Large bats (noctule, serotine, Leisler's)	Other (write spp code) / Unknown	Total no. bat contacts during stop	Comments
A	20:14	20:17							
B	20:23	20:23							
C	20:27	20:30							
D	20:33	20:36							
E	20:41	20:44							
F	20:53	20:56							
G	21:00	21:03							
H	21:06	21:09	1					1	
I	21:12	21:15	7		2	1		10	
J	21:22	21:25	11	2	3	1		17	
K	21:43	21:46	6					6	
L	21:49	21:52	2					2	
M	21:57	22:00	3		1			4	
N	22:06	22:09	6			2		8	
O	22:13	22:16	7			2		8	Constant activity
P	22:23	22:26	1					1	
Q	22:31	22:34	9	1	1			11	

BAT ACTIVITY SURVEY 2013

Project Name & Location	Salmesbury			Start Time	20:15	Finish Time	23:05	Date	13/08/2013
Transect Ref/ Visit #	2	Transect Description (e.g. anti/clock-wise)		#Walks	18	Surveyors	MP/AC	Heterodyne Model:	Magenta
BROADBAND DETECTOR TYPE	Anabat	BROADBAND REF (e.g. anabat number)	SD2#3	CF CARD # IN ANABAT (if used)	CF#002	IPAQ # (if used)		CF CARD # IN IPAQ (if used)	
Time of sunset	20:40	Weather @ Start	Air Temp 17 °C	Rain No	Cloud 8/8	Weather @ Finish	Air Temp 15 °c	Rain No	Cloud 7/8
Time of sunrise			Wind Light	Other comment			Wind Light	Other comment	
DATA OBSERVATIONS (MARK LOCATIONS OF OBSERVATIONS ON ACCOMPANYING MAP)									
Walk #	Walk Start Time	Walk Stop Time	Bat Contact Ref	Time of Bat Contact	Species and observations		Species and observations		
9	21:09	21:12	1	21:10	p45 Foraging				
10	21:15	21:22	2	<u>21:17</u>	P45 Foraging				
11	21:25	21:43	3	21:29	myotis sp. Foraging				
12	21:46	21:49	4	21:47	p45 Foraging				
13	21:52	21:57	5	21:55	p45 Foraging				
18	22:34	23:05	6	22:37	p45 Foraging				
			7	22:39	p45 Foraging				
			8	22:40	p45 Foraging				

SUMMARY

The activity surveys show that a number of bat species use the site for foraging and commuting. The species identified were Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrellus pygmaeus*), Noctule (*Nyctalus noctula*) and an unidentified bat(s) of myotis genus.

The highest concentration of passes on both visits was between observation points I and J in the southern section of the site. The road between observation points J and K was used as a foraging corridor by common pipistrelles and as a commuting route for a noctule bat.

Although foraging and commuting areas are not protected by law it is recommended that impacts to foraging and commuting area is kept to a minimum where possible and this feature is retained.

DRAWINGS