

320120539P

Carr Hall,
Wiltshire

Ecological Appraisal & Bird Survey Report

June 2012

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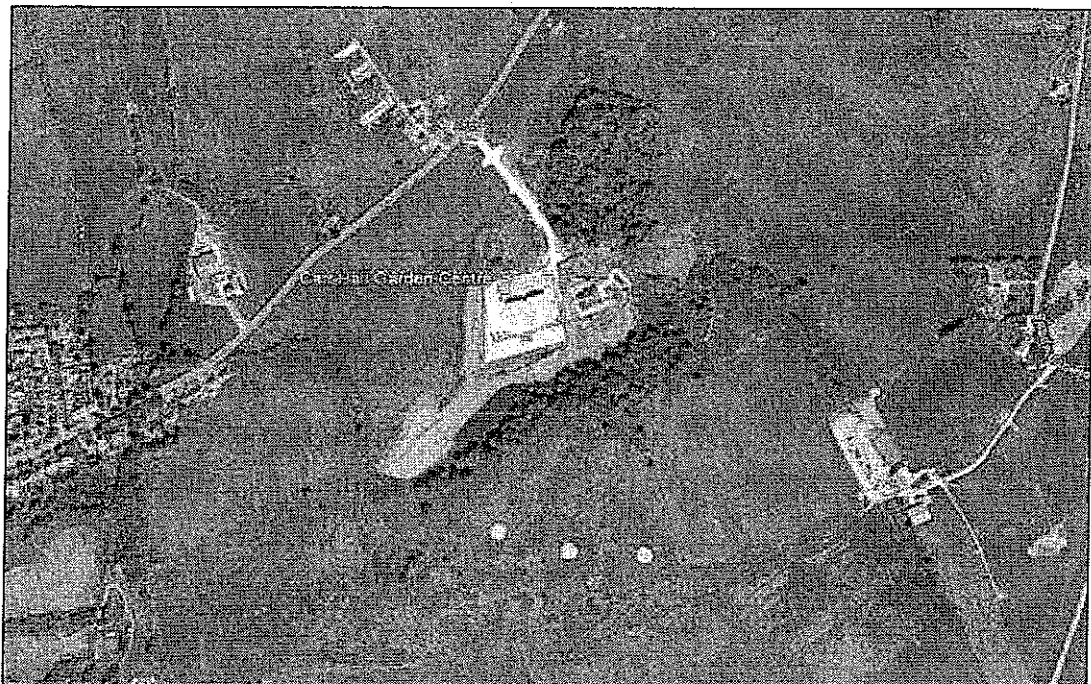
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1 Introduction

This report presents the results of an ecological appraisal and breeding bird surveys undertaken at Carr Hall, Wilpshire, Lancashire, BB1 9LJ. The appraisal and bird surveys were commissioned as part of the submission of a planning application to install and operate 3 no 50kW wind turbines at the site.

The turbines are proposed to be centred on grid reference SD 700 329 (approx.) in the pasture field to the south of Carr Hall. The proposed locations for each turbine are presented in Figure 1 below. This report was completed to support planning decisions in relation to the application.

Figure 1: Proposed turbine locations (yellow markers)



2 Survey Methodology

2.0 Desk Study

Lancashire Environment Record Network (LERN) was contacted for records of statutory / non-statutory designated areas and protected / notable species within a 2km radius of the site. In addition, the following web sources were searched for additional ecological data of most relevance to the site.

- Multi-Agency Geographic Information for the Countryside (MAGIC).
- Ordnance Survey 1:25,000 mapping.
- Aerial imagery.
- Natural England – Nature on the map.

2.1 Field Survey

Ecological appraisal

An ecological appraisal of the site was undertaken on 11th May 2012 and conducted by Ryan Knight AIEEM of Quants Environmental in accordance with the standard JNCC habitat classification methodology¹. The weather conditions at the time of the survey were dry, light breeze (Beaufort scale – 3) and 15°C with excellent visibility. The site was also searched for evidence of protected/notable species and the habitats present were assessed in terms of their potential to support protected/notable species.

Breeding bird surveys

Two breeding bird surveys were undertaken on 29th May 2012 by Toby Fisher CEnv MIEEM and on 14th June 2012 by Ryan Knight AIEEM in order to determine the species, numbers and distribution of birds breeding within and adjacent to the site. The survey was based on the Brown and Shepherd methodology² and the Common Birds Census (CBC) method (Gilbert et al 1998)³.

All bird observations were recorded on maps using standard British Trust for Ornithology (BTO) notation. The surveys involved walking along the field boundaries within 200-400m of the proposed turbines. The weather conditions for the survey are presented in Table 1 below.

Table 1: Bird Survey Conditions

Date	29 th May 2012	14 th June 2012
Start / End Time	05:45 / 06:50	05:50 / 06:50
Weather	Dry, 12°C cloud cover 6/8, wind 2 (Beaufort Scale).	Dry, 11°C cloud cover 7/8, wind 1 (Beaufort Scale).
Visibility	Very Good	Excellent

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

² Brown, A F & Shepherd, K B (1993) A method for censusing upland breeding waders. Bird Study, 40, 189-195

³ Gilbert, G. Gibbons, D W & Evans, J (1998) Bird Monitoring Methods. RSPB, Sandy

3 Survey Results

3.0 Desk Study

Protected sites

A search on MAGIC revealed that there are no statutorily / non-statutorily protected nature conservation sites within 2km of the turbine location. The following statutorily protected sites are located approximately 2.1 to 2.3 km south-east of Carr Hall:

'Harper Clough And Smalley Delph Quarries' Site of Special Scientific Interest (SSSI). The two separate quarry sites are designated under the same citation (Harper Clough has recently received its designation). The quarries are of special geological interest as reference sections for study of rocks of Namurian age.

Information provided by LERN is included at Appendix 2. LERN confirmed the presence of two locally designated sites (Biological Heritage Sites – BHS) within 2km radius of the site:

Parsonage Reservoir BHS is located approximately 620 metres south of the proposed turbines. The site description states that the reservoir attracts a range of passage and wintering birds, including mallard, pochard, tufted duck, lapwing, cormorant and several species of gull.

Dean Clough Reservoir BHS is located approximately 670 metres east of the proposed turbines. The site description states that the site is important for the presence of breeding little grebe, a scarce breeding species in Lancashire. Little grebe, great crested grebe and coot breed on the smaller, upper reservoir. The larger, lower reservoir is attractive to range of wintering waterfowl, including tufted duck, mallard and black-headed gull.

LERN – Protected / notable species records

Information provided by LERN is included in Appendix 2. LERN provided over 1,300 species records from within 2km radius of the site. These records are too numerous to include in this report (the data will be made available on request). The records include several records of protected/notable species and many records of common and widespread species. The key records are summarised as follows:

- Birds: Numerous records of declining farmland and woodland birds within 1.5 km including several UK Biodiversity Action Plan (UK BAP) priority species such as skylark, linnet, twite, herring gull, spotted flycatcher, house sparrow, grey partridge, song thrush, starling, and lapwing.
- Badger: One record approximately 1km from the proposed turbine locations.

3.1 Habitats

Also refer to photos in Section 3.5. All three turbines are proposed to be positioned in a west to east alignment within a semi-improved acid grassland rough pasture field which was lightly grazed by cattle at the time of the survey. Dominant species noted within the field include sweet vernal-grass *Anthoxanthum odoratum*, meadow foxtail *Alopecurus pratensis*, cocks-foot *Dactylis glomerata*, Yorkshire fog *Holcus lanatus* and tufted hair grass *Deschampsia cespitosa* with occasional stands of soft rush *Juncus effusus*. Additional herbs include meadow buttercup *Ranunculus acris*, common sorrel *Rumex acetosa*, cuckoo flower *Cardamine pratensis*, creeping thistle *Cirsium arvense* and spear thistle *Cirsium vulgare* with occasional pignut *Conopodium majus*, tormentil *Potentilla erecta* and gorse *Ulex europaeus*.

The adjacent fields to the south and east comprise grazed, improved / semi-improved pasture with occasional stands of soft rush. Of note is Carr Hall Wood to the north of the turbines which comprises mature ash *Fraxinus excelsior*, silver birch *Betula pendula* and pedunculate oak *Quercus robur* with occasional holly *Ilex aquifolium*.

The wider area comprises urban areas, pastoral and arable land with occasional stands of broad-leaved woodland. Typically, the field boundaries within 500 metres of the site consist of wire fences and dry stone walls.

3.2 *Breeding bird survey*

A list of all bird observations made during the breeding bird surveys is included in Appendix 2. Birds observed within the immediate area of the proposed turbines include the following UK BAP (Biodiversity Action Plan) Priority bird species⁴: skylark, lapwing, curlew, reed bunting, grasshopper warbler and starling.

Additional species observed include meadow pipit, oystercatcher, great black-backed gull, swift, mallard, magpie, black-headed gull, grey-wagtail, wren, chaffinch, nuthatch, blackbird, wren, long-tailed tit and goldfinch. Lapwing, meadow pipit, skylark, grasshopper warbler, reed bunting and curlew are all open-ground nesting species.

Notable breeding bird survey observations with particular relevance to the turbine installation and operation include the following:

- Lapwings were noted (display flights, calling and grounded birds) in the ploughed arable field situated approximately 250 metres to the north of the proposed turbines and in the grassland approximately 100 metres to the south of the proposed turbines. It is likely that lapwing (2 to 3 pairs) have nested in the arable field with a possible further pair in the pasture land to the south. Carr Hall Garden Centre and Carr Hall Wood are situated in-between the proposed turbine locations and the arable field in which lapwing were observed.
- Territorial display flights, juveniles / juvenile feeding and general activity of both meadow pipit and skylark were observed over the field of the proposed turbines. Two to three pairs of meadow pipit and four pairs of skylark appear to be breeding in the rough grassland field in which the turbines will be positioned.
- Adult reed bunting with juveniles were observed in the turbine field site. A pair appeared to be breeding within the scrub / rush habitats within 80 metres of the westernmost proposed turbine location.
- Curlew was heard calling in the distance during the ecological appraisal assessment. A pair of curlews was also observed flying north-south approximately 300 metres west of the proposed turbines during the first breeding bird survey. One pair of curlew appears to be breeding approximately 500 metres south of the proposed turbines.
- A male grasshopper warbler was heard singing in the rush pasture approximately 100 metres west of the westernmost turbine in suitable nesting habitat, i.e. rush-dominated pasture.
- Up to four starlings were observed flying over the site and landing in the woodland <100 metres to the north of the proposed turbines.
- A pair of oystercatcher was observed along with lapwings in the ploughed arable field to the north of Carr Hall. The behaviour of the birds does not indicate that oystercatcher breeds in this arable field, although the arable does present potentially suitable nesting habitat for oystercatcher.

The rough grassland in which the turbines will be positioned comprises 'tuft forming' grass species and areas of rush which indicates biodiversity-friendly management (light grazing, no artificial nutrient improvement or cutting) compared to the intensively managed pasture in the wider area. The rough grassland habitat provides suitable nesting opportunities for skylark, reed bunting and meadow pipit; all were observed during the field surveys. In addition, the area could provide nesting opportunities in the future for lapwing, curlew and grasshopper warbler although none were noted in the field of the proposed turbines.

⁴ UK Biodiversity Action Plan (UKBAP) priority bird species status based on: <http://jncc.defra.gov.uk/page-5163>

3.3 *Bats*

In accordance with Natural England guidance⁵ buffer zones of at least 50 metres should be maintained between the turbine blade tips and any habitats likely to be used by bats. In this instance, Carr Hall Wood located >60 metres to the north of the turbines is likely to provide foraging / commuting opportunities for bats and possible tree roost sites. The rough pasture within which the turbines are to be positioned could also be of some value to foraging bats due to the likely presence of invertebrate prey from the rough grassland.

3.4 *Other protected / notable species*

The proposed cable route for the turbines runs from Carr Hall along a cattle/vehicle access track through Carr Hall Wood to the turbine field site. No badger setts or signs of badger were observed within a 30 metre buffer zone of the access track within the woodland. It is envisaged that the excavation machinery used for the turbine installation and cabling will be able to use the existing access track. Given the absence of signs of badger and the proposed short duration of the installation process, no further survey actions with regards to badgers are considered necessary.

No waterbodies with the potential to support great crested newts have been identified within 250 metres of the proposed turbines and cabling route. LERN did not provide any local records of great crested newts or reptiles; the site is on a north-facing slope and, whilst the rough grassland is potentially suitable habitat for reptiles, given the lack of local records and the north-facing aspect, it is not considered likely that reptiles will occur at the site.

The area of the proposed turbines could potentially support brown hare and hedgehog, both of which are UK Biodiversity Action Plan (UK BAP) priority species. No further protected / notable species are considered likely to be affected by the proposed turbine.

⁵ Natural England Technical Information Note TIN051. Bats and onshore wind turbines Interim guidance. First edition 11 February 2009

3.5 *Photos*

Photo 1: Looking south from the proposed turbine locations



Photo 2: View west from the turbine locations

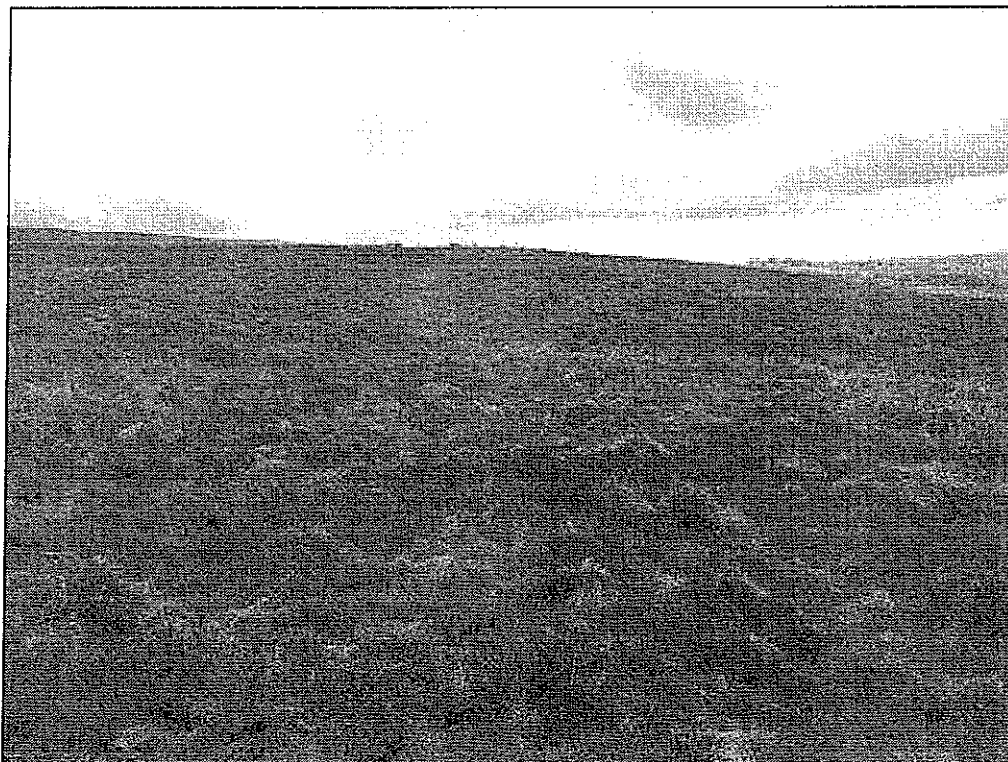


Photo 3: View south from the turbine locations

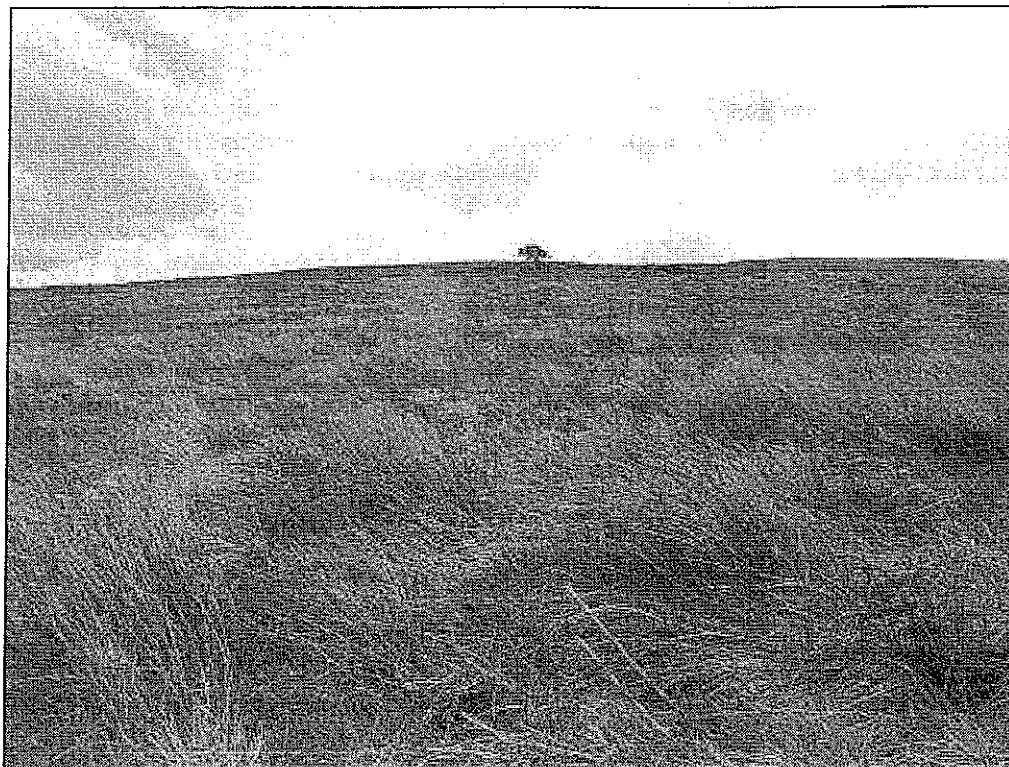
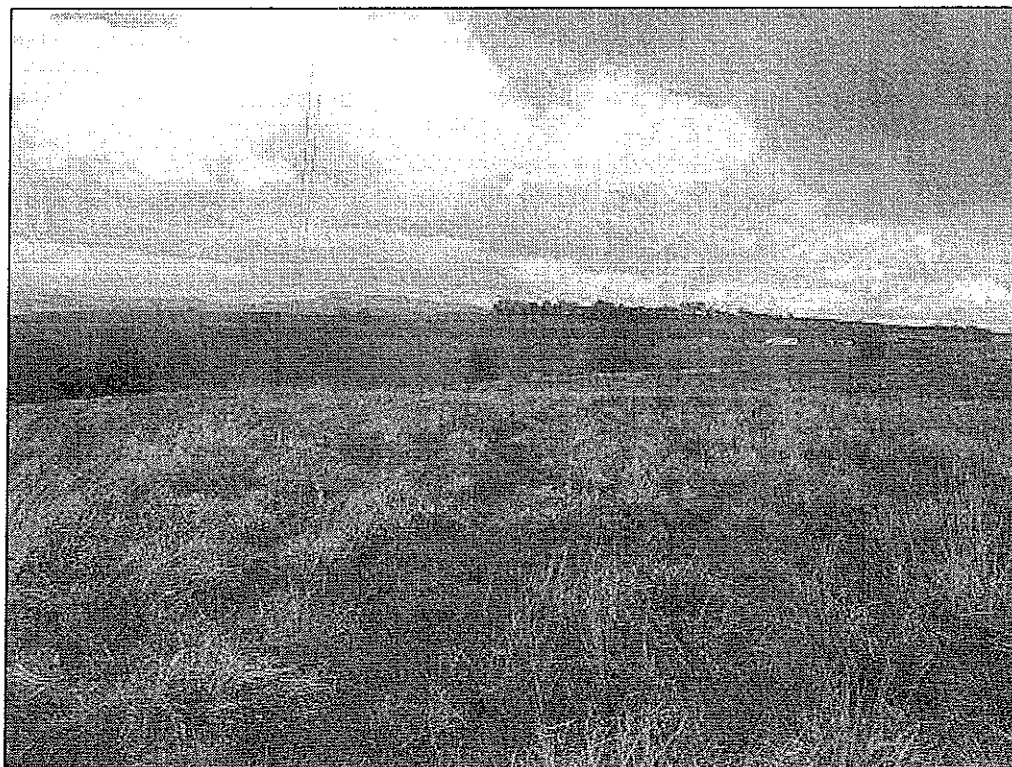


Photo 4: View east from the proposed turbine locations



4 Evaluation and Recommendations

4.0 Habitats

All three turbines are proposed to be positioned within rough, semi-improved acid pasture which contains several species indicative of acid conditions. Whilst not of high intrinsic value, this habitat is of greater biodiversity value than much of the surrounding agriculturally improved grassland. The grassland habitat on the site does not appear to qualify as a UK Biodiversity Action Plan (BAP) Priority Habitat.

4.1 Breeding birds

Skylark, reed bunting and meadow pipit have been confirmed to be breeding within the rough pasture field in which the turbines are proposed to be positioned. The field is also potentially suitable for a variety of additional open-ground nesting birds such as curlew, lapwing and grasshopper warbler. All of these species have been observed during the field surveys. Grasshopper warbler appears to breed approximately 100 metres west of the nearest proposed turbine location. The survey results indicate that one pair of curlew breeds approximately 500 metres to the south; 2-3 pairs of lapwing breed in arable habitats approximately 250-300 metres to the north and a further pair of lapwing appears to breed approximately 100 metres to the south of the nearest proposed turbine.

A pair of oystercatchers was also observed within the arable field 250-300 metres to the north. Although no indicative signs of oystercatcher breeding were observed, the field presents a potentially suitable nesting site for oystercatcher. Breeding activity within this field may in some part be subject to seasonal land management practices.

Evaluation

Research suggests that the construction and operation of wind turbines on a site can directly cause displacement of birds through visual and acoustic disturbance⁶. Turbines can also have detrimental effects on breeding birds that are using a site for feeding. In addition, there is also a risk of bird collision with the moving turbine blades. Turbines can potentially cause displacement of breeding waders, particularly curlew, from up to 600m radius from the turbines. Recent research⁷ suggests that wind farm construction can have greater impacts upon birds than wind farm operation. It should be noted, however, that the reported negative effects during the construction period are based on studies in unenclosed upland habitats and that the findings may not be directly applicable to enclosed agricultural habitats where birds may be more habituated to disturbance. It should also be noted that the published research relates primarily to multiple wind turbines of greater dimensions and power output (>50kW) than the three turbine development for which this report was commissioned. The research suggests that some passerine bird species such as skylark appear not to suffer significant negative effects from wind turbine construction and operation.

The research suggests that the populations of passerine species e.g., meadow pipit, reed bunting and skylark may not be negatively affected by wind turbines and that impacts on some species may be greatest during wind farm construction rather than during the operational period. Based on the survey findings and the available research, no significant negative impacts (visual, acoustic, disturbance of feeding activity, collision risks etc) are predicted on passerines. In accordance with best-practice, any ground works should be undertaken outside the main bird nesting season of March-August inclusive if possible. If this is not possible, the extent of the proposed ground works should be checked by a suitably qualified ecologist immediately before

⁶ Pearce-Higgins, J W, Stephen, L, Langston, R H W, Bainbridge, I P. & Bullman, R (2009) The distribution of breeding birds around upland wind farms. *Journal of Applied Ecology*, 46, 1323-1331.

⁷ Pearce-Higgins, J W, Stephen, L, Douse, A, Langston, R H W (2012) Greater impacts of wind farms on bird populations during construction than subsequent operation: results of a multi-site and multi-species analysis. *Journal of Applied Ecology*, 49, 386-394, April 2012.

the start of works. If active nests are found to be present, these should be left in situ undisturbed until the nests are no longer active.

Lapwing is considered to be less sensitive to the negative effects of wind turbines compared to some other wading bird species. Given the distance and screening features located between the turbine and the arable field nesting site to the north i.e., Carr Hall Garden Centre and Carr Wood, along with their reported tolerance of wind turbines, it is concluded that lapwings breeding here are not likely to be significantly affected by the proposals. The pair of lapwing nesting approximately 100 metres to the south could potentially be disturbed by the proposed turbine installation and operation and there is also a risk of collision, however any potential impacts on lapwing are not likely to be significant at the local, regional or national level.

No curlews were observed to be nesting within the field in which the turbines will be positioned. However, curlew activity was observed and a pair appears likely to be nesting approximately 500 metres south of the site. Curlew are likely to use the site for passage and/or feeding, and the site presents a potentially suitable habitat for future breeding pairs. Given the low number and observed activity of curlew within proximity to the proposed turbines, it is concluded that the potential effects on this species are not likely to be significant at the local, regional or national level.

The land management practices (light grazing, no artificial nutrient improvement or cutting) employed for the field in which the turbine are proposed to be positioned provides suitable nesting habitats for declining passerine bird species such as skylark, reed bunting and meadow pipit. It is recommended that the agricultural regime of this field continues, to further encourage ground nesting passerine bird species to breed at the site.

4.2 Bats

Standard guidance in relation to wind turbines in England is to provide a buffer zone of at least 50 metres between turbine blade-tip and the nearest feature likely to be used by bats e.g. a hedgerow, treeline or a built structure. A minimum distance of at least 60 metres has been provided between the turbine blade tip and Carr Hall Wood.

4.3 Other fauna

No significant impacts on other protected/notable species such as badger, reptiles, great crested newts, hedgehog or brown hare are predicted.

Appendix 1: Legislation and Conservation Context

Nesting birds

All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy the nest (whilst being built or in use) or its eggs. Bird species listed in Schedule 1 of the 1981 Act, e.g. barn owl, receive further protection which makes it an offence to intentionally or recklessly disturb these species while building a nest or in, on or near a nest containing eggs or young; or to disturb dependent young of such a bird.

Bats

All British bat species are fully protected through The Conservation of Habitats and Species Regulations 2010 as a European Protected Species (EPS). They also receive some protection through inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

Under the legislation, it is an offence to deliberately capture, injure or kill a bat. It is an offence to damage or destroy a breeding site or resting place of a bat. It is also an offence to intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection; or obstruct access to any structure or place which it uses for that purpose.

It is also an offence to deliberately disturb a bat; 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.

The 'appropriate authority' (Natural England in England) has powers to issue licences for various purposes including - (a) scientific or educational purposes ... and (e) preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment. The appropriate authority shall not grant a licence under this regulation unless they are satisfied - (a) that there is no satisfactory alternative, and (b) that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range. It is an offence for any person authorised by virtue of a licence to which this paragraph applies to contravene or fail to comply with any condition which the licence requires him to comply with.

Several species of bat including brown long-eared and soprano pipistrelle *Pipistrellus pygmaeus* are identified as UK Biodiversity Action Plan (BAP) priority species and are also listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 as a Species of Principal Importance for the purpose of conserving biodiversity.

Appendix 2: Breeding Bird Observations

Table 2: Bird observations –29th May & 14th June 2012. Red / Amber indicates Birds of Conservation Concern (BoCC)⁸ status)

Species	BTO code	29 th May 2012	14 th June 2012
Blackbird	B	Call/song in wood	Calling in woods
Blackcap	BC	Singing in wood	-
Black-headed gull	BH	-	Single bird in flight over turbine field site
Blue tit	BT	-	Calls / alarms call in in scrub to north-west
Carrion crow	C	1 to 2 birds in-flight throughout surrounding area	8 birds in field to south
Chaffinch	CH	Song along northern periphery of wood	Calling in wood
Dunnock	D	-	Call on northern periphery of woodland
Curlew (UK BAP priority species)	CU	2 birds in straight, south to north flight to the west. Single bird in pasture field to south	-
Grasshopper warbler (UK BAP priority species)	GH	Singing in east of turbine field site.	-
Great black-backed gull		-	1 to 3 birds in intermittent flights around site
Grey wagtail	GL	-	Alarm calls around Carr Hall Farm
Goldfinch	GO	Singing on southern periphery of Carr Wood	-
Jackdaw	JD	-	3 birds in ploughed field to north
Lapwing	L	Display flights and activity in	Display flight of single bird to

⁸ Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 102, pp296–341.

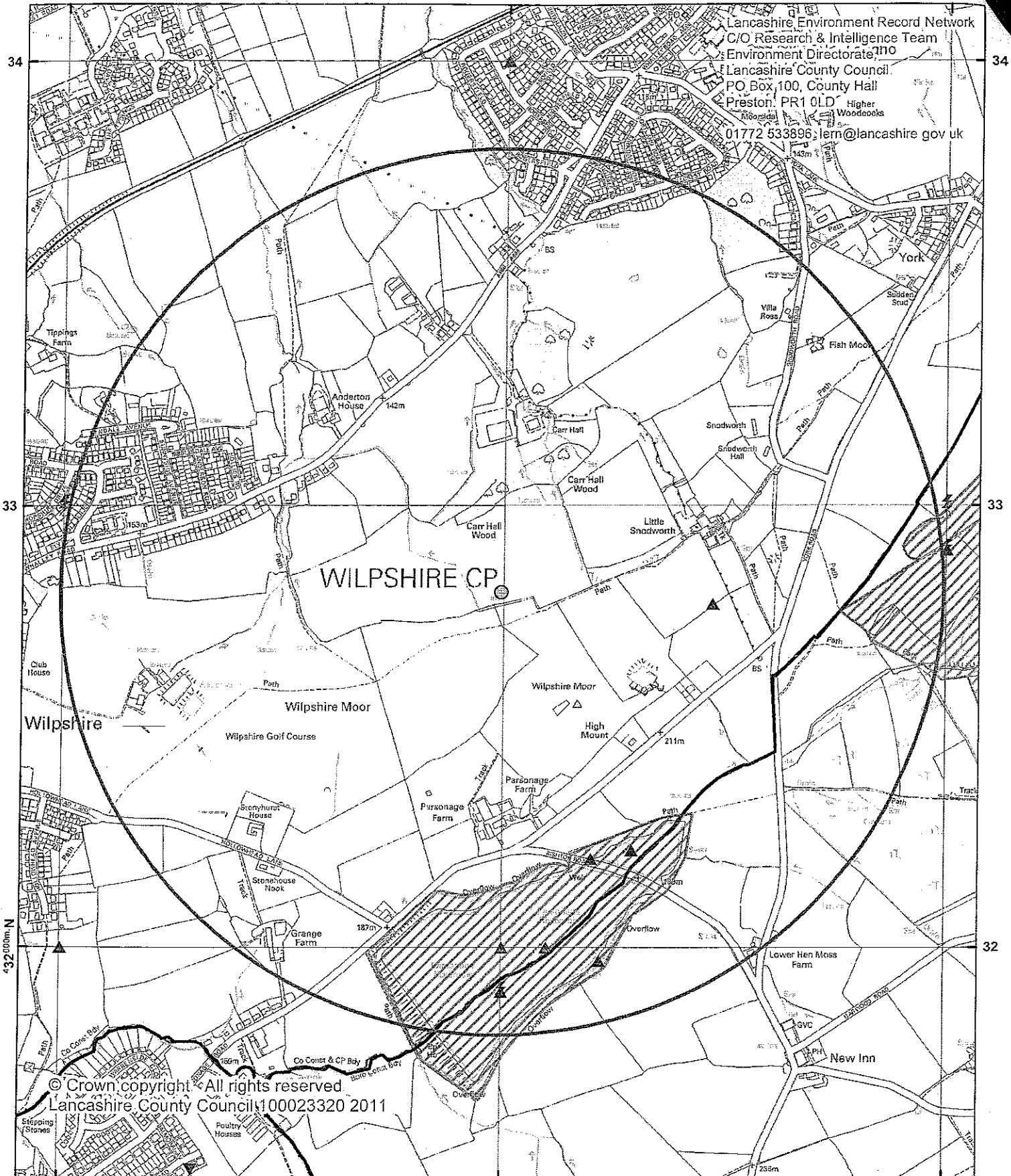
Species	BTO code	29 th May 2012	14 th June 2012
(UK BAP priority species)		plough arable field to south of Carr Hall Display flight in pasture field to south	north-west of ploughed field. A total of 8 grounded birds in ploughed arable field.
Long tailed tit	LT	-	Call in woods
Magpie	MG	-	Single bird with carrion crows to south
Mallard	MA	A pair noted in west pasture field during eco-appraisal	
Meadow pipit	MP	Prevalent throughout the survey area if field and along stonewalls At least three pairs nesting in turbine field site	Prevalent throughout the survey area if field and along stonewalls Adults feeding fledged juveniles observed
Nuthatch	NH	Calls in wood	-
Oystercatcher	OY	-	2 grounded birds in ploughed arable field to south. No breeding activity observed.
Reed Bunting (UK BAP priority species)	RB	Song in turbine field site	Adults & juv in north-west corner of field
Robin	R	Calls/ song in wood to north	Call/song in wood to north
Skylark (UK BAP priority species)	S	Territorial display flights and calling of 3 to 4 birds throughout turbine field site	Display & activity throughout turbine field site
Starling	SG	Four birds in flight across field to woods	-
Swallow	SL	Foraging over fields to east & south	Foraging over fields to east & south
Swift		Single bird in-flight observed during eco-appraisal	
Woodpigeon	WP	-	Single flight noted. North to south
Wren	WR	-	Song in woods

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Carr Hall, Wilpshire, Lancashire
Ecological Appraisal & Bird Surveys

Appendix 3: Information provided by LERN



Carr Hall
Carr Hall 1km Buffer
Lancs BAP Species Records
Lancs BAP Moth Records
NERC Section 41 - R6 Dec 2011
Biological Heritage Sites



1:11,000 Date: 11/05/2012

LERN

Lancashire County Heritage Sites

Biological Heritage Site

Parsonage Reservoir

320120539P



Site Boundary

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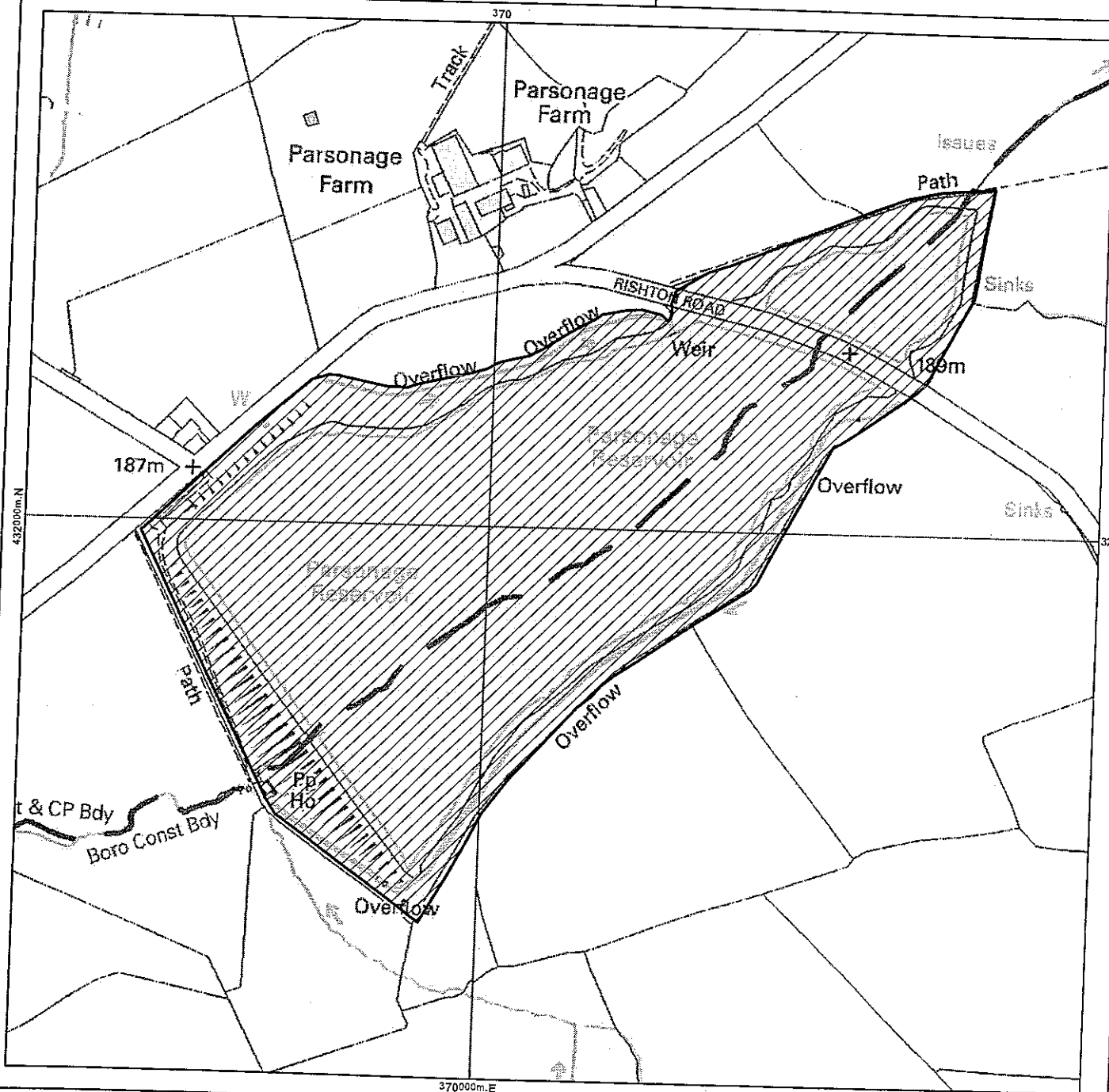
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Ref No. 73SW01

Biological Heritage Sites Partnership

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Natural England



Grid ref. SD700320

Scale 1:5,000

Site approved 01/12/1995

Map 1 of 1

Boundary revised 03/12/2010

Date of Map 11/05/12



Lancashire

County
Council





Lancashire County Heritage Sites

Biological Heritage Site

**Biological Heritage Sites
Partnership:**

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Natural England

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Site Name: Parsonage Reservoir

Site Ref: 73SW01

Approved: 01 December 1995

Area (ha): 22.09

Date written/last updated: 03 December 2010

Grid Ref: SD700320

Owner/Occupier: Private

Districts:

Hyndburn
Ribbles Valley

Parishes:

Rishton
Wilpshire

Description:

The site comprises a reservoir straddling the boundary between the districts of Hyndburn and Ribbles Valley. The site is important for the presence of water-purslane, a species that is included in the *Provisional Lancashire Red Data List of Vascular Plants*.

Rishton Road divides the reservoir in two. The larger, western section supports open water with a marginal zone supporting species such as shoreweed, water-pepper, lesser spearwort, marsh cudweed, soft-rush, marsh yellow-cress and marsh violet. Water-purslane is also found here. The eastern section supports trifid bur-marigold, tufted forget-me-not, common spike-rush, water horsetail and bog pondweed.

The reservoir attracts a range of passage and wintering birds, including mallard, pochard, tufted duck, lapwing, cormorant and several species of gull.

Guideline(s) for Site Selection:

Artificial Habitats (Ar1)

Flowering Plants and Ferns (F14)

Other Information/Comments:

Lancashire County Heritage Sites

Biological Heritage Site

Dean Clough Reservoir

320120539P



Site Boundary

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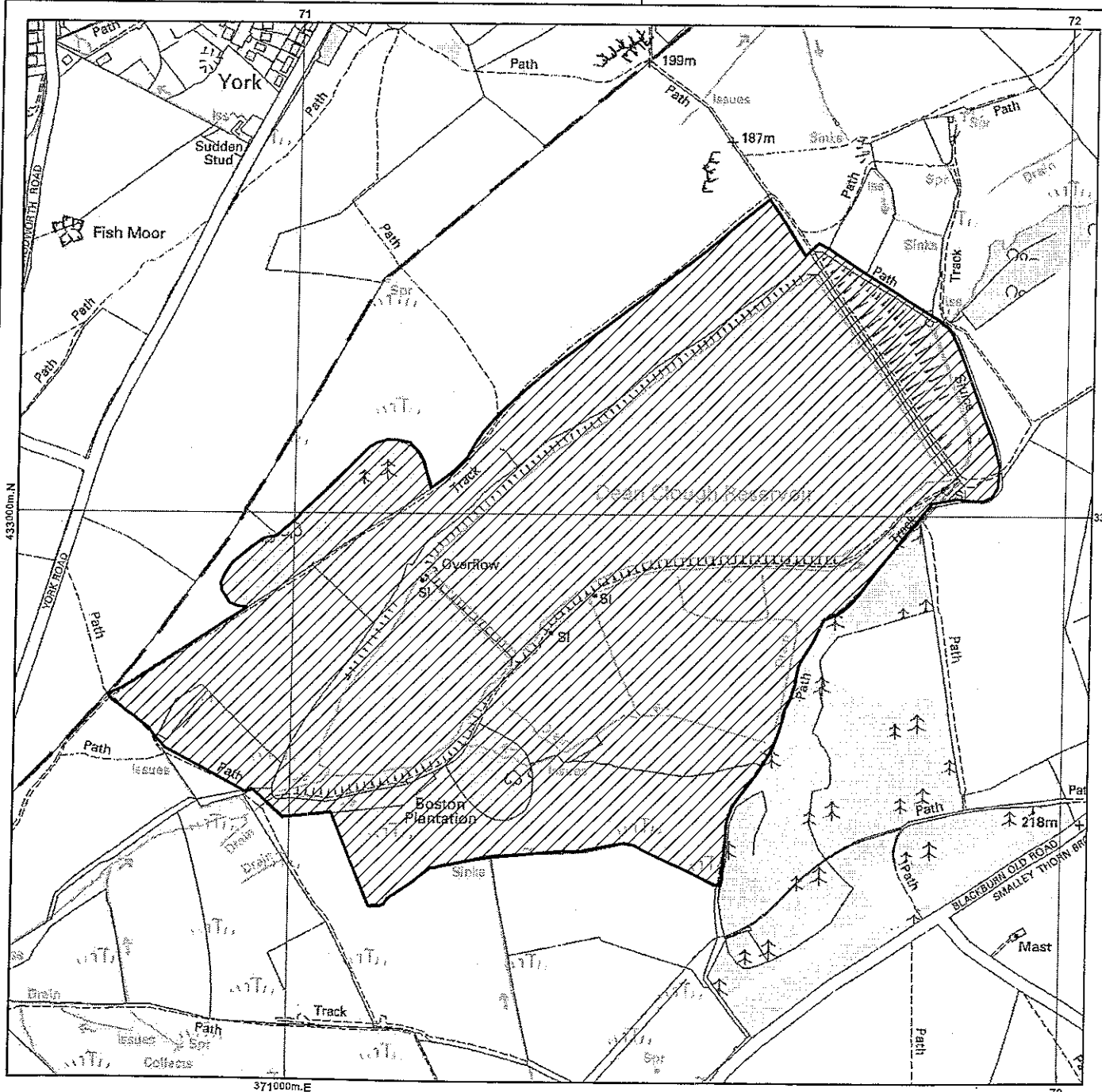
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Ref No. 73SW02

Biological Heritage Sites Partnership

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Natural England



Grid ref. SD715330

Site approved 01/09/1993

Boundary revised 01/09/1993

Scale 1:7,500

Map 1 of 1

Date of Map 11/05/12



Lancashire
County Council





Lancashire County Heritage Sites

Biological Heritage Site

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Site Name: Dean Clough Reservoir

Site Ref: 73SW02

Approved: 01 September 1993

Area (ha): 53.65

Date written/last updated: 01 June 2001

Grid Ref: SD715330

Owner/Occupier: Private

Districts:

Hyndburn

Parishes:

Great Harwood

Description:

The site comprises two adjacent reservoirs and surrounding habitat, occupying a valley lying between Great Harwood (to the south-east) and Langho (to the north-west). The two reservoirs are separated by a small dam. The site is important for the presence of breeding little grebe, a scarce breeding species in Lancashire.

Little grebe, great crested grebe and coot breed on the smaller, upper reservoir. The larger, lower reservoir is attractive to range of wintering waterfowl, including tufted duck, mallard and black-headed gull

The upper reservoir has a broad stand of emergent water horsetail around its margin, accompanied by species such as bog pondweed, lesser spearwort and jointed rush. Water-cress dominates an area in the south of the reservoir. A marshy area of soft-rush is present along the main inflow channel. The reservoirs are surrounded by acid grassland and marshy grasslands and plantation (beech and conifers) woodland. Rustyback fern is found in the mortar joints of a wall

Guideline(s) for Site Selection:

Birds

(Bi2)

Other Information/Comments: