



APPENDIX 8.3:  
Hemsby Wind Farm  
Phase 1 Habitat Survey



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## Survey Details

- Date of Survey: June 2006.
- Survey Area: Defined in **Figure 1** it extends to 500 metres around turbine locations.
- Surveyor: Robert Yaxley.

## Objectives

The main objective of the Phase 1 habitat survey was to provide an overview of habitats present at the Hemsby study site. This overview provides information for further survey work that is required, such as protected species and National Vegetative Classification (NVC) surveys where the need was identified.

## Methods

The Phase 1 habitat survey followed the standard Joint Nature Conservation Committee guidelines (1993), which involve the following procedure:

Every parcel of land was visited by a trained surveyor and the vegetation was mapped on a base map. The habitat type was specified according to the Phase 1 classification. Where the land parcel could not be walked over because of access issues or livestock, binoculars or other optical aids were used to identify vegetation. Aerial photographs were also used to validate specific areas of vegetation. Further information was gathered in the form of descriptive target notes, which give a brief account of particular areas of interest. Once mapped, the results are presented in this report supported by plant species lists and photographs.

Estimates of vegetation cover were made using the DAFOR scale of abundance. (**D** = dominant, **A** = abundant, **F** = frequent, **O** = occasional and **R** = rare. *Dominant* A species that prevails over other species in terms of the ground cover. *Abundant*. Found regularly throughout a stand and contributing significantly to the ground cover (>5% cover). *Frequent*. Scattered plants or small clumps of plants found throughout a stand (found on at least one in every three footfalls when walking through vegetation) and making a modest contribution to the ground cover (<5% cover) *Occasional*: Scattered plants (found on less than one in three footfalls) and not making a contribution to the ground cover. *Rare*: No more than a few individual plants or clumps of a species recorded. The letter **L** is used to denote "locally", see **Table 1**.

## Results

### General Description of Site

The study site consists of lowland habitats and includes (see **Figure 1**):

- Arable land,
- Marshy grassland/ fen meadow
- Neutral grassland(Improved),
- Ditches (wet),
- Intact hedgerows (with and without trees),
- Defunct hedgerows (without trees),
- Ponds,
- Broad-leaved woodland (semi-natural and plantation),
- Scrub (scattered and continuous),
- Buildings.

The site proposed for the turbines lies 4-11m above sea level. There is a very slight rise in the centre of the site, sloping down to the west and south. The majority of the site lies on heavy clay soils.

The site is primarily intensively farmed arable land, which is also managed as a pheasant shoot. Drainage ditches or hedges border the majority of fields, though fencing or plantation also forms some boundaries. The hedges are in variable condition, with some intensively cut and gappy, some with standard trees (mainly oak) and some intact. The drainage ditches are largely restricted to the west of the study area, with a variable north to south flow on the main ditch separating Hall Farm Fen and the rest of the area.

Broad-leaved plantation has been planted in blocks around the west of the site, with a variety of tree species. To the east of the site there are some species poor paddocks grazed largely by ponies, and a disused railway line.

## Target Notes

Below are the notes for each target note the location of the target note is on **Figure 1**. The species associated with the corresponding note are in **Table 1**. Table 1 shows the plants with red data list status and vegetation cover for the area of the target note.

**T1:** Wet ditch 1-2m wide with some flow from north to south. Well vegetated with aquatic plant species including frogbit, water plantain, bur-reed, water starwort and curled pondweed. Overshadowed in places by small trees and bushes, particularly on east bank. Cattle have access to the west bank where there are some muddy access points. South of the bridge, the ditch is much more overgrown with reed.

**T2:** Farm pit with scrubby sides and some open muddy puddles in the bottom. The sides are dominated by bramble, whereas the bottom is largely dominated by rye grass. The pit is regularly used for bonfires.

**T3:** Field containing derelict meteorological station, now used as a store for farm waste. A central circular tarmac track is surrounded by rank semi-improved grassland, dominated by Yorkshire fog and false oat, with few herb species. There are derelict buildings, all of which have had their corrugated roofs stripped recently. There is also a metal observation tower in the south-west corner.

**T4:** Disused railway line, mostly dominated by young trees, shrubs and bramble, but with one or two more very small open areas of semi-improved grassland including common sorrel and sweet vernal grass kept short by rabbits.

**T5:** Large mature elm tree.

**T6:** Planted woodland around 10 years old with mixed broad-leaved species including oak, wild cherry, holm oak, silver birch and ash.

**T7:** Planted woodland with a similar mixture to T6 but also including crab apple and guilder rose.

**T8:** Pond surrounded by planted woodland, mainly ash and hawthorn. Pond inhabited by tufted duck and mallard, with cloudy water, most banks covered in bramble.

**T9:** Stony farm track with hedge on south side, and 1m wide strip of nutrient enriched grassland to the north. Most frequent species are false oat, common couch, rye grass, knotgrass, greater plantain, knapweed.

The red data list (Cheffings and Farrell 2005) assesses the conservation status of species of native species.

This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those species that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered

and Vulnerable). Here we have used the Species Status No. 7 The Vascular Plant Red Data List for Great Britain (JNCC, 2005) that give the following definitions

**“EXTINCT (EX).** A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon’s life cycle and life form.

**EXTINCT IN THE WILD (EW).** A taxon is Extinct in the Wild when it is known to survive only in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon’s life cycle and life form.

**CRITICALLY ENDANGERED (CR).** A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.

**ENDANGERED (EN).** A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.

**VULNERABLE (VU).** A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.

**NEAR THREATENED (NT).** A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

**LEAST CONCERN (LC).** A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

**DATA DEFICIENT (DD).** A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that a threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

**NOT EVALUATED (NE).** A taxon is Not Evaluated when it has not been assessed against the criteria. There are no NE taxa in this Red List. However, those taxa listed in the Waiting and Parking Lists (section 8) are, in effect, 'not evaluated' taxa, in that they were considered for evaluation, but then excluded for the reasons stated." (JNCC 2005)

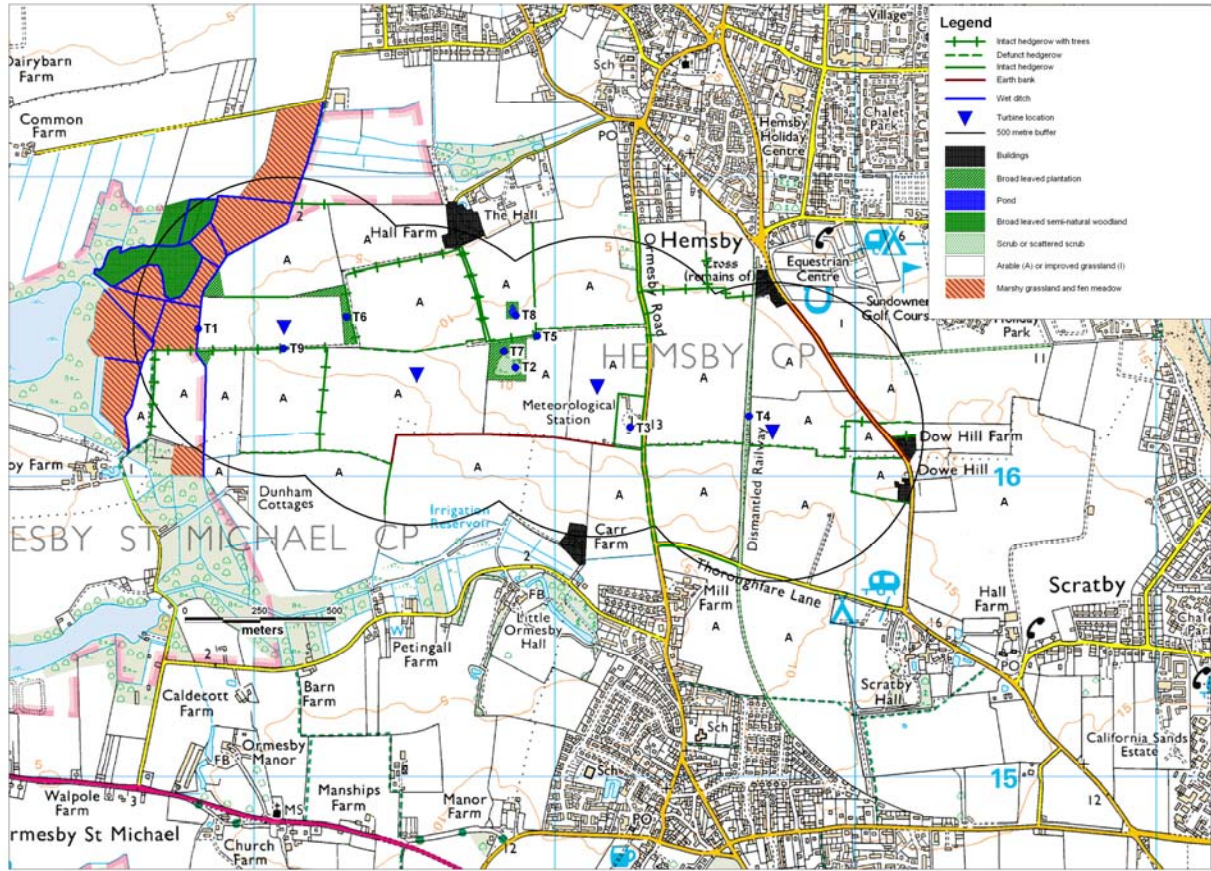
**NON-NATIVE (NN).** A taxon that is not native to Great Britain. Table 1: Plants List

<b>Species Latin Name</b>	<b>English Name</b>	<b>Red Data Book Status</b>	<b>Status on site</b>
<i>Acer campestre</i>	Field Maple	LC	† - O
<i>Acer pseudoplatanus</i>	Sycamore	NN	† - O
<i>Achillea millefolium</i>	Yarrow	LC	† - O
<i>Agrostis stolonifera</i>	Creeping Bent	LC	† - F
<i>Alisma plantago-aquatica</i>	Water Plantain	LC	D - R
<i>Anthriscus sylvestris</i>	Cow Parsley	LC	† - A
<i>Arrhenatherum elatius</i>	False Oat	LC	† - A
<i>Artemisia vulgaris</i>	Mugwort	LC	† - O
<i>Atriplex littoralis</i>	Grass-leaved Orache	LC	† - LA
<i>Avena fatua</i>	Wild Oat	LC	† - O
<i>Ballota nigra</i>	Black Horehound	LC	† - LF
<i>Betula pubescens</i>	Downy Birch	LC	P
<i>Brassica rapa</i>	Wild Turnip	LC	† - R
<i>Bromus hordeaceus</i>	Soft Brome	LC	† - LF
<i>Callitriche sp.</i>	Water Starwort	LC	D - F
<i>Capsella bursa-pastoris</i>	Shepherd's Purse	LC	† - F
<i>Centaurea nigra</i>	Knapweed	LC	† - R
<i>Chamaerion angustifolium</i>	Rosebay Willowherb	LC	† - LF
<i>Chenopodium album</i>	Fat Hen	LC	† - F
<i>Cirsium arvense</i>	Creeping Thistle	LC	† - A
<i>Cirsium vulgare</i>	Spear Thistle	LC	† - A
<i>Conium maculatum</i>	Hemlock	LC	† - O
<i>Convolvulus arvensis</i>	Field Bindweed	LC	† - A
<i>Conyza canadensis</i>	Canadian Fleabane	LC	† - R
<i>Cornus sanguinea</i>	Dogwood	LC	P
<i>Coronopus squamatus</i>	Swine-cress	LC	† - R
<i>Corylus avellana</i>	Hazel	LC	P
<i>Crataegus monogyna</i>	Hawthorn	LC	† - A
<i>Cynosurus cristatus</i>	Crested Dog's-tail	LC	† - O
<i>Dactylis glomerata</i>	Cocksfoot	LC	† - A
<i>Elytrigia repens</i>	Common Couch	LC	† - A
<i>Epilobium hirsutum</i>	Great Willowherb	LC	† - LA
<i>Equisetum arvense</i>	Field Horsetail	LC	† - F
<i>Equisetum palustre</i>	Marsh Horsetail	LC	D - R
<i>Euphorbia helioscopia</i>	Sun Spurge	LC	† - R

<b>Species Latin Name</b>	<b>English Name</b>	<b>Red Data Book Status</b>	<b>Status on site</b>
<i>Fallopia convolvulus</i>	Black Bindweed	LC	† - R
<i>Festuca arundinacea</i>	Tall Fescue	LC	† - R
<i>Festuca rubra</i>	Red fescue	LC	† - O
<i>Fraxinus excelsior</i>	Ash	LC	†P - F
<i>Galium aparine</i>	Cleavers	LC	† - A
<i>Geranium dissectum</i>	Cut-leaved Cranesbill	LC	† - F
<i>Geranium molle</i>	Dove's-foot Cranesbill	LC	† - R
<i>Hedera helix</i>	Ivy	LC	† - F
<i>Heracleum sphondylium</i>	Hogweed	LC	† - F
<i>Holcus lanatus</i>	Yorkshire Fog	LC	† - F
<i>Hydrocharis morsus-ranae</i>	Frogbit	LC	D - LF
<i>Hypericum perforatum</i>	Perforate St Johnswort	LC	† - R
<i>Hypericum tetrapterum</i>	Square-stalked St Johnswort	LC	D - R
<i>Hypochoeris radicata</i>	Catsear	LC	† - O
<i>Juncus bufonius</i>	Toad Rush	LC	† - R
<i>Knautia arvensis</i>	Field Scabious	LC	† - R
<i>Leontodon autumnalis</i>	Autumn Hawkbit	LC	† - R
<i>Lolium perenne</i>	Rye grass	LC	† - A
<i>Malus sylvestris</i>	Crab Apple	LC	† - R
<i>Malva sylvestris</i>	Common Mallow	LC	† - O - F
<i>Matricaria discoidea</i>	Pineappleweed	LC	† - F
<i>Medicago lupulina</i>	Black Medick	LC	† - F
<i>Mentha arvensis</i>	Corn Mint	LC	† - R
<i>Papaver rhoeas</i>	Poppy	LC	† - F
<i>Persicaria lapathifolia</i>	Pale Persicaria	LC	† - O
<i>Persicaria maculosa</i>	Redshank	LC	† - F
<i>Phleum bertolonii</i>	Small Timothy	LC	† - R
<i>Phragmites australis</i>	Reed	LC	† - LA
<i>Plantago lanceolata</i>	Ribwort Plantain	LC	† - F
<i>Plantago major</i>	Greater Plantain	LC	† - F
<i>Poa annua</i>	Annual Meadow-grass	LC	† - A
<i>Polygonum aviculare</i>	Knotgrass	LC	† - F
<i>Potamogeton crispus</i>	Curled Pondweed	LC	D - LF
<i>Prunus avium</i>	Wild Cherry	LC	P
<i>Prunus spinosa</i>	Blackthorn	LC	† - F
<i>Quercus ilex</i>	Holm Oak	LC	P
<i>Quercus robur</i>	Oak	LC	†P
<i>Ranunculus repens</i>	Creeping	LC	† - A

<b>Species Latin Name</b>	<b>English Name</b>	<b>Red Data Book Status</b>	<b>Status on site</b>
	Buttercup		
<i>Raphanus raphanistrum</i>	Wild Radish	LC	† - R
<i>Reseda luteola</i>	Weld	LC	† - O
<i>Rosa canina</i> agg.	Dog rose	LC	† - O
<i>Rubus</i> agg.	Bramble	LC	† - F
<i>Rumex crispus</i>	Curled dock	LC	† - F
<i>Rumex obtusifolius</i>	Broad-leaved Dock	LC	† - F
<i>Sambucus nigra</i>	Elder	LC	† - O
<i>Senecio jacobaea</i>	Ragwort	LC	† - R
<i>Senecio vulgaris</i>	Groundsel	LC	† - F
<i>Silene alba</i>	White Campion	LC	† - O
<i>Solanum dulcamara</i>	Bittersweet	LC	D - O
<i>Sonchus arvensis</i>	Perennial Sowthistle	LC	† - O
<i>Sonchus asper</i>	Prickly Sowthistle	LC	† - F
<i>Sonchus oleraceus</i>	Smooth Sowthistle	LC	† - O
<i>Sorbus aucuparia</i>	Rowan	LC	P
<i>Sparganium erectum</i>	Bur-reed	LC	D - R
<i>Stachys sylvatica</i>	Hedge Woundwort	LC	† - O
<i>Taraxacum</i> agg.	Dandelion	LC	† - F
<i>Torilis japonica</i>	Upright Hedge Parsley	LC	† - R
<i>Trifolium dubium</i>	Lesser Trefoil	LC	† - R
<i>Trifolium repens</i>	White Clover	LC	† - F
<i>Tripleurospermum inodorum</i>	Scentless Mayweed	LC	† - F
<i>Tussilago farfara</i>	Coltsfoot	LC	† - R
<i>Ulmus glabra</i>	Wych Elm	LC	† - R
<i>Ulmus minor</i>	Elm	LC	† - LF
<i>Veronica persica</i>	Common Field Speedwell	LC	† - F
<i>Viburnum opulus</i>	Guelder Rose	LC	P
<i>Vicia cracca</i>	Tufted Vetch	LC	† - O

Figure 1: Phase 1 Habitat Survey – Habitat Map of Hemsby



Species Status No. 7 The Vascular Plant Red Data List for Great Britain (JNCC, 2005)

Handbook for Phase 1 habitat survey – A technique for environmental audit (JNCC, 2003)



Photo 1. Pond T8 showing poor water quality and shaded character.



Photo 2. Main ditch T1 in west of the site, showing narrow reed fringe.



Photo 3. Main access to western part of site looking towards Ormesby Road.



Photo 4: Looking westwards towards the location of Turbine 2.



Photo 5. T8 from the SW.



Photo 6. Main access track looking east with T7 on the right.



Photo 7. T2, taken from the west side.



Photo 8. T5 large specimen of *Ulmus minor*.