

4.0 BASELINE ENVIRONMENTAL CONDITIONS

INTRODUCTION

- 4.1 The application site is located at Wreys Barton Farm, Lewdown, Okehampton, Devon. It is located approximately 1.35 km north-west of Lewdown and consists of a single field which is currently in agricultural use. The site is enclosed by agricultural fields with a lake present adjacent to the western boundary. There are no public rights of way that pass through the application site (refer to Figure 1.1).
- 4.2 The proposed wind turbine would be erected within the eastern area of the field at National Grid Reference (NGR) **SX 43810 87623**. From the base of the proposed turbine (Figure 1.1), there is an approximate distance of:
- 64 m to the closest point of the northern field boundary;
 - 62 m to the closest point of the eastern field boundary;
 - 66 m to the closest point of the southern field boundary; and
 - 156 m to the closest point of the western field boundary.

ENVIRONMENTAL DESIGNATIONS

- 4.3 There are no environmental features within the application boundary which have a statutory environmental designation¹. Likewise, none of the following statutory designations occur within a 5 km radius of the site boundary:
- Area of Outstanding Natural Beauty (AONB);
 - Environmentally Sensitive Area (ESA);
 - Local Nature Reserves (LNRs);
 - National Nature Reserves (NNRs);
 - Ramsar sites;
 - Special Areas of Conservation (SAC);
 - Special Protection Areas (SPAs); or
 - World Heritage Sites.
- 4.4 However, one Site of Special Scientific Interest (SSSI) has been identified within a 5 km radius of the site boundary. This is the Coryton Quarry SSSI located approximately 3.9 km to the south-east of the site. This SSSI is designated for its geological features including *“important exposures of upper Visean limestone and shale which have been recumbently folded on a large scale.”*

¹ Multi-Agency Government Information for the Countryside website: www.magic.defra.gov.uk

GEOLOGY, SOIL AND LAND USE

- 4.5 From the BGS online Geology of Britain viewer, land at the site is underlain by the bedrock geology of the Crackington Formation comprising mudstone and siltstone. There are no records for superficial deposits.
- 4.6 Land quality and soil resources on site would be maintained by following best practice for protecting and handling soils in the Department for Environmental Food and Rural Affairs (Defra) 'Code of Practice for the Sustainable Use of Soil on Construction Sites' (September 2009) (refer to Section 4). No peat resources would be adversely affected during the construction or operational life of the proposed wind turbine.
- 4.7 There is no evidence of historical contaminative land uses at the site. The proposed development would not require significant earthworks or the removal of large volumes of soil or other materials from the site. The site lies on Secondary A Aquifer and, although underlying groundwater is a potential sensitive receptor, no significant impacts are anticipated due to the minor scale of the turbine footprint and no further assessment of this topic is considered necessary.

HYDROLOGY AND FLOOD RISK

- 4.8 The Environment Agency's indicative flood map² for the area shows that the site lies within Flood Zone 1, defined as land which has 'little or no flood risk.' Flood risk is not considered to be a significant issue and therefore is not considered further in this assessment.
- 4.9 The proposed development would not give rise to significantly elevated surface runoff as only the footings of the turbine would be impermeable and these have only a small footprint (100 m²). It is anticipated that surface runoff from the proposed wind turbine would behave as for the existing land, i.e. infiltration into the ground and greenfield runoff. Therefore, surface runoff is not considered to be a significant issue and is not considered further within this assessment.
- 4.10 As the site area does not exceed 1 hectare, a Flood Risk Assessment (FRA) is not required, as set out in the NPPF. Environmental management measures in relation to protection of the aquatic environment during construction are discussed in Chapter 5.

ELECTROMAGNETIC INTERFERENCE AND AVIATION

- 4.11 Wind turbines can potentially interfere with communication systems that use electromagnetic waves as the transmission medium (e.g. television, radio or microwave links). Therefore, an appropriate pre-planning consultation process (i.e. following the approach of the former PPS22 Companion Guide) has been carried out, including relevant telecommunications, television broadcasting, utilities industry and aviation organisations.

² Environment Agency Flood Map. Available online at <http://maps.environment-agency.gov.uk>

- 4.12 The site is not located within any Airfield Safeguarding Zone (Civilian or Ministry of Defence) or Meteorological Safeguarding Zone. However, the Civil Aviation Authority (CAA) would be consulted on the planning application (as set out in the DECC 'Wind Energy and Aviation Interests'; Memorandum of Understanding – 2011; and Civil Air Publication 764).
- 4.13 A detailed assessment of EMI and aviation is given in Chapter 7.

LANDSCAPE AND VISUAL CHARACTER

- 4.14 The National Character Area as defined by Natural England is designated as '149 – The Culm'. This is described as *“an undulating, open, remote rural landscape, sparsely wooded and dominated by livestock farming. Intricate steep valley systems form rolling ridges feeding into wider major river valleys.”*
- 4.15 The approximate elevation of the site is 125 metres Above Ordnance Datum (mAOD). From the proposed turbine location, the land slopes in a south-westerly direction into a shallow valley containing a number lakes and the River Thrushel.
- 4.16 A Zone of Theoretical Visibility (ZTV) has been determined and a Landscape and Visual Impact Assessment (LVIA) has been carried out to assess impacts on landscape designations, landscape character and key public viewpoints. A detailed LVIA is presented in Chapter 8.

NOISE

- 4.17 Noise is generated by wind turbines as they rotate to generate electricity. This only occurs above the 'cut-in' wind speed and below the 'cut-out' wind speed. Below the cut-in wind speed there is insufficient strength in the wind to generate efficiently and above the cut-out wind speed the turbine is automatically shut down to prevent any malfunctions from occurring.
- 4.18 In general, the principal sources of noise from wind turbines are from the blades rotating in the air (aerodynamic noise) and from internal machinery, normally the gearbox and, to a lesser extent, the generator (mechanical noise). The blades of the proposed EWT Directwind 54*500 wind turbine are designed to minimise noise whilst optimising power transfer from the wind. Furthermore, the EWT 500 does not contain a gearbox and the nacelle at the top of the tower is insulated to minimise noise radiation from the generator and other components, which are also isolated from the tower and the blade assembly to prevent structure-borne noise.
- 4.19 There are a moderate number of residential properties within a 1 km radius and, as such, a detailed assessment of the potential effect of the proposed wind turbine on the local acoustic environment is given as Chapter 9 of this ES.

ECOLOGY

- 4.20 There are no statutory ecological designations for the site; it is currently used for agriculture and none of the existing hedgerows or trees on site would be affected directly by the proposed development.
- 4.21 Whilst the impacts on existing habitats are not likely to be significant, the potential presence of protected species (e.g. Natural England (NE) Technical Information Note (TIN) 059 'Bats and Single Large Wind Turbines') on or in close proximity to the site cannot be discounted at this stage. Therefore, the following ecology studies have been carried out:
- review of relevant biodiversity planning policy and legislation;
 - baseline ecological information for the site and immediate surrounds;
 - assessment of impacts of the proposed development;
 - mitigation measures for adverse impacts; and
 - residual impacts.
- 4.22 Baseline ecological information has been derived through site survey (i.e. extended Phase 1 Habitat Survey), bat surveys and desk study. A detailed assessment of ecology and nature conservation is presented in Chapter 10.

ARCHAEOLOGY AND CULTURAL HERITAGE

- 4.23 From an online search, there are a number of heritage assets within a 12 km radius of the site. Therefore, an archaeological evaluation has been carried out to determine the location of Scheduled Monuments, Listed Buildings and conservation areas in the vicinity of the site and within the ZTV area including an assessment of the predicted effects of the proposed development on the setting of key heritage assets.
- 4.24 The findings of the archaeology and cultural heritage assessment are presented in Chapter 11 of this ES.