



WITHERNWICK WIND FARM

ENVIRONMENTAL STATEMENT

NON TECHNICAL SUMMARY

MARCH 2007

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1 INTRODUCTION

An application for planning permission has been submitted to East Riding of Yorkshire Council for nine wind turbines on land to the East of the village of Withernwick approximately six Kilometres south of Hornsea. Figure 4.1 indicates the location of the application site and Figure 4.2 shows the layout of the proposed wind farm. Figure 4.4 provides details of the typical wind turbine.

The application was accompanied by an Environmental Statement (ES). The ES is the written report presenting the findings of the Environmental Impact Assessment (EIA). The EIA is a systematic process of examining the proposal and predicting the effects likely to result from it. The ES aims to provide East Riding of Yorkshire Council with sufficient information on the proposal and its likely effects to allow them to make an informed decision on the proposal. The photomontages in Volume 2 of the ES illustrate what the turbines would look like from various view points around the site.

The purpose of the Non Technical Summary is to provide a summary of the ES presented in a clearly understandable way, avoiding technical terms and jargon. The complete ES provides full details of the proposal, the methods used to predict effects; the size of the effects and measures to remove or reduce those effects. The structure of this Non-Technical Summary will broadly follow that of the full Environmental Statement.

1.1 The Applicant

The planning application has been submitted by EnergieKontor UK Ltd. This company was formed in 1999 and is part of the EnergieKontor group. The parent company, EnergieKontor AG, was established in 1990 in Bremerhaven in Northern Germany, as a private and independent enterprise. EnergieKontor is now one of Europe's leading wind energy developers. EnergieKontor UK Ltd has built two wind farms in the UK and has further projects throughout the UK at various stages of development. The EnergieKontor group is also active in Portugal as well as Germany. EnergieKontor has built almost 60 wind farms comprising over 400 wind turbines with a total power of around 400MW representing an investment of over £300 million.

1.2 The Need for Environmental Impact Assessment

In the mid-eighties there was concern within Europe that the regulatory bodies that decided whether or not major projects should go ahead did not have enough information on all of the potential effects of those projects. Europe-wide requirements have subsequently been introduced to ensure that decision making bodies are provided with sufficient information on the potential effects of large and/or complex projects. In England these requirements have been implemented through the Environmental Impact Assessment Regulations 1999.

The proposed wind farm at Withernwick falls within a category of development that does not automatically require an Environmental Impact Assessment (EIA) in every case, but one where EIA may be required if the proposal meets or exceeds certain thresholds and criteria of the Regulations. Having had regard to these EnergieKontor UK Ltd considers that the application for planning permission for the wind farm at Withernwick needs to be accompanied by an Environmental Statement.

1.3 The Environmental Statement

The following documents have been submitted to East Riding of Yorkshire Council in connection with the proposal:

- The planning application
- Volume 1 of the Environmental Statement, Written Text
- Volume 2 of the Environmental Statement, Figures and Visualisations
- Volume 3 of the Environmental Statement, Technical Appendices
- The Non-Technical Summary (this document)
- Design and Access Statement

Copies of the Full Environmental Statement can be purchased for £250.00 (paper) or £10 (CD) plus post and packaging. Copies of the Non Technical Summary are available free of charge. If you wish to obtain any copies please contact:

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ENERGY AND PLANNING POLICY

2.1 Climate Change

The scientific evidence of global warming is compelling. The Earth's climate is changing - over the past century global temperatures have risen significantly. All the evidence points to the primary cause of this being an increase in greenhouse gases in the atmosphere due to human activities. Of the greenhouse gases, carbon dioxide (CO₂) is by far the most significant in terms of its effects on the earth's climate. This gas absorbs infra-red radiation emanating from the earth's surface and traps the sun's heat in the atmosphere.

The consequences of climate change continuing at its current rate are significant in both environmental and economic terms. Recognition of this has led to the international community entering into commitments to cap and reduce emissions of greenhouse gases and carbon dioxide in particular. The UK Government has given international commitments to introduce a range of measures to combat climate change.

2.2 UK Energy Policy

Around 70% of global emissions come from the way energy is produced and used. National energy policy therefore has a critical role to play in tackling climate change.

The Government has been looking at the ways energy is produced in the UK in its Energy Review. It has identified two critical challenges in relation to energy supply in the UK. These two factors have shaped the Government's approach to how the nation will produce its energy in the future. These factors are:

- Choosing a mix of generation sources to limit and reduce greenhouse gas production as a means of tackling climate change.
- Ensuring security of supply.

The UK currently benefits from a diverse electricity generation mix: 37% is generated from gas-fired power stations, 34% from coal, 20% from nuclear and 5% from renewables. Over the next two decades the UK will need to build more power stations to replace those oil, coal and nuclear plants that will be closing and to meet anticipated increases in demand.

Producing power from renewable energy (wind, wave, solar etc.) is an integral part of the Government's long term aim of reducing CO₂ emissions. As the production of energy utilising renewable sources produces very little carbon dioxide and other greenhouse gases it plays an important part in tackling climate change.

It is also recognised that increasing the amount of energy produced from renewable sources can reduce dependence on imported fossil fuels. Domestic production of energy through developments that use renewable energy can make a significant contribution to the Government's goal of secure and reliable energy supplies.

In recognition of the important contribution that renewable forms of energy can make to the energy policy goals, the report reiterates the targets set in the 2003 Energy White Paper:

- 10% of electricity supply from renewable sources by 2010
- 20% of electricity supply from renewable sources by 2020

The Government recognises that if these targets are to be achieved both onshore and offshore wind will need to make a significant contribution in conjunction with maximising the potential contribution from other technologies.

2.3 Planning Policy

National energy policy has influenced national, regional and local planning policy. Planning Policy Statement 22 sets out national planning policies in relation to renewable energy. It reiterates the Government's targets of generating 10% of power from renewable sources by 2010 and 20% by 2020. It recognises that positive planning for renewable energy contributes to the Government's sustainable development strategy.

The policies of the adopted development plan set out the approach that the planning authority will take to different proposals in their area. These policies must be taken into account as part of the decision-making process. The development plan for the area of the Withernwick wind farm proposal comprises:

- Regional Spatial Strategy for Yorkshire and the Humber (Published December 2004)
- Joint Structure Plan for Kingston Upon Hull and the East Riding of Yorkshire (Adopted June 2005)
- Holderness District Wide Local Plan (Adopted April 1999)

Planning policy in these documents is broadly supportive of renewable energy developments. The Regional Spatial Strategy includes targets for renewable energy production. For the Humber Area (which includes East Riding of Yorkshire) the targets are 124MW by 2010 and 350MW by 2021.

However, development plan policy also recognises that there are local factors that will also need to be considered in determining applications for renewable development projects. Wind farms involve large structures which can have significant visual and landscape effects, generate noise, may affect radio, television and radar signals. In common with other developments, siting also needs to take into account impacts on archaeology, hydrology and traffic.

The overall policy framework is one of a positive approach to this type of development unless local considerations are sufficiently important to override this approach.

3 THE PROPOSAL

The site of the proposed Withernwick wind farm is an area of low lying land between 10 and 15 metres above sea level. It is located to the east of the village of Withernwick around 6 kilometres south of Hornsea. The location of the site is indicated on Figure 4.1.

3.1 Site Selection

EnergieKontor UK Ltd started examining potential sites for a wind farm development in East Riding of Yorkshire along with other regions of the UK in 2002. The site selection process involved two stages. Firstly, a broad brush approach was taken which looked at information on wind speeds and investigations on the location and extent of any areas with national designations such as Site of Special Scientific Interest and any areas close to housing. Those areas with insufficient wind, which were within nationally designated areas or were close to housing were discounted from further consideration. The second stage of the process involved drawing up a list of the sites that remained and these sites were subject to more detailed examination. This included considerations of potential impacts on radio, radar and microwave signals, whether suitable access from the highway could be gained, how close connection to the electricity grid was and whether the landowners would agree to the development. From this more detailed exercise three suitable sites emerged; this site at Withernwick, another site at Monkwith (which is currently the subject of another planning application for a wind farm) and a site at Welwick (subsequently discounted because of potential impacts on ecology).

3.2 Project Description

The planning application seeks permission for 9 turbines. The planning application boundary and the layout of the turbines are indicated on Figure 4.2. The turbines would be of a typical modern design comprising three rotor blades mounted on hub connected to a nacelle (containing gearbox and generator), tower and foundation. The maximum height of the hub would be 80 metres from ground level and the maximum diameter of the rotors would be 82 metres. The maximum height of the turbine from base to blade tip would be 121m. Each turbine would have a generating capacity of 2MW to 2.5MW depending on the final wind turbine model chosen. A typical turbine design is indicated on Figure 4.4. The 9 turbines would generate enough electricity in a year for around 10,000 – 12,500 houses

The turbine towers would be of tapering tubular steel and rotor blades would be made from fibre reinforced epoxy. The finish of the turbines would be of a low-reflectivity white, grey or off-white in colour. All the turbines would rotate in the same direction and there would be no lighting of the turbines.

Each turbine would be fitted with a transformer which would be housed within a separate concrete building adjacent to the base of the turbine.

The turbine layout was arrived at taking into account a number of technical and environmental considerations. The turbines are arranged to minimise energy loss from turbulence and to avoid sensitive areas of the site. In addition a key consideration was the visual impact of the turbines.

The existing farm access from the site to Cowden Lane would be widened to provide access for vehicles to the site. A new access track would run south and west from this junction to allow access to each of the turbine locations and substation. Around 2400metres of new track would be required. Typically the track would be 5 metres wide with widening as

necessary. Initially the access track would allow vehicles to bring construction materials and components onto the site. Following construction the tracks would be used for servicing and maintaining the turbines and electrical equipment.

The turbines would be connected by underground cables which would take the power from each turbine to the substation compound and building. The connection to the electricity supply grid is anticipated to be a direct connection to the 66Kv overhead line just to the west of the site.

It is estimated that the wind farm would take between 5 and 7 months to construct. At the end of its 25 year operational period the wind farm would be decommissioned. This would involve the complete removal of turbines, switchgear and other equipment, the removal of the concrete foundations to a depth of one metre below ground level. All of these areas would be re-instated to their original condition prior to the wind farm being built.

4 ENVIRONMENTAL IMPACTS OF THE PROPOSAL

In the process of developing the proposals consultation was carried out with a number of parties who it was felt may have an interest in, or be affected by, the proposals. A leaflet setting out a description of the proposal and inviting views on what the key issues may be was sent to 84 organisations and local residents. The purpose of consultation was to involve these stakeholders at an early stage to identify all possible issues and to take these into account in the design of the proposal. The key issues identified in this process were also those on which the Environmental Impact Assessment (EIA) was focussed. The EIA process has been an integral part of the proposals design. Where potential adverse impacts have been identified the design has been modified to reduce, eliminate or otherwise offset these impacts. Summaries of the assessments of these issues are set out below.

4.1 Reduction in Emissions

The UK Government is committed to generating 10% of its electricity from renewable sources by 2010 and 20% by 2020. Regional Targets seek to secure at least 40.7MW in East Riding by 2010. At present there is very little energy production from renewable energy sources within East Riding of Yorkshire. The Withernwick wind farm will make an important contribution in meeting these targets.

The production of electricity from wind replaces the amounts of gaseous emissions which would have been produced by the burning of fossil fuels to produce electricity. The amount of emissions that would be avoided for different greenhouse gases if the wind farm operated for 25 years is indicated in the following table. The two figures represent the savings provided by nine 2MW or 2.5MW turbines.

Emission	Tonnes of Emissions Saved over 25 Years
CO ₂	1,271,295 (2.5MW) 1,017,0361 (2MW)
SO ₂	14,782 (2.5 MW) 11,826 (2MW),
NO _x	4,434 (2.5MW) 3,547 (2MW)

4.2 Security of Supply

An increase in renewable energy developments can make a significant contribution to the Government's goal of ensuring secure and reliable energy supplies. Exploitation of the UK's wind resources reduces the nation's dependence on imported fossil fuels as a means of generating electricity.

4.3 Economic Impacts

The development of the wind farm is a multi-million pound project. There would be local economic benefits arising from this investment. No permanent jobs would be created by

the proposal but EnergieKontor would use local contractors for construction wherever possible. Experience indicates that local contractors are usually awarded these contracts. The benefits to construction personnel would be passed on from the purchase of goods and services locally. In addition rental payments would be made to the host landowners.

The tourist industry has traditionally been an important component of the East Riding economy. The importance of tourism and its potential to regenerate coastal areas of the East Riding is identified by local authorities in a number of policy documents. There have been a number of studies undertaken to try to assess the impact windfarms have on tourism. The results of these studies indicate that the majority of visitors to an area are unlikely to be discouraged from visiting an area by the presence of a wind farm.

4.4 Landscape and Visual Amenity

The effects on the landscape and the visual impacts of wind farms are often the issues that generate the greatest reaction to a proposed development of this kind. There are two main considerations; impact on the character of the landscape and changes to local views.

An independent landscape and visual assessment of the wind farm was undertaken, involving a review of landscape character and designations, and evaluation of a number of viewpoints around the Withernwick site.

In common with all on-shore wind farms, the introduction of nine large structures will lead to significant visual and landscape effects. These effects are not necessarily unacceptable. Changes resulting from the proposal may engender positive or negative responses depending on the individual's perception and preferences.

The assessment concludes that the nine wind turbines of the Withernwick proposal would relate well to local landscape character, respect the scale and composition of the landscape and significant landscape and visual effects would be localised as a result of the relatively flat landscape and limited locations for distant views. The composition of the array has been tailored to key receptors and significant effects on residential properties would be limited. Overall it was concluded that the proposal would be acceptable in this location.

4.5 Nature

A review of the ecological interests of the site and potential impact of the proposal on ecology over a wider area was undertaken. Initially this comprised a habitat survey over the development site and wider area. Further detailed habitat and species specific work followed that initial survey. Population estimates and flight lines of breeding birds were established and collision mortality rates calculated.

The findings of the surveys were that the site of the proposed wind farm site is considered to be of low ecological value as it is dominated by common habitats of low nature conservation importance. The site consists almost entirely of arable fields and set-aside fields with species-poor immature hedgelines forming field boundaries and a limited number of immature field trees within hedgelines. The proposal would not impact on any international, national or local sites designated for their nature conservation value. The effect of the construction phase on local protected species populations would be of negligible significance. The assessment found that there would be short term disturbance caused by the proposal which would have a minor short term effect on local protected species populations. The long term site operation would have a minor effect on local bat population through displacement. The effect of the proposals on breeding bird populations through habitat loss and disturbance is minor to negligible. The effect of collision mortality from the proposed wind farm on wintering bird populations has been assessed as negligible significance.

Overall, it was concluded that the proposed development would not have a significant effect on the ecology and nature conservation value of the site and its setting and through the proposed habitat enhancement there will be a net benefit to the ecology of the area.

4.6 Cultural Heritage

The whole of the application area, including the site access road was the subject of a desk-based study and field survey. All sites identified by the desk-based study and the survey were recorded and assessed for potential impacts on cultural heritage (archaeology, listed buildings etc.).

One cultural heritage site has been identified within the planning application boundary. This site is a brick built nineteenth century culvert drain which runs adjacent to the line of the access track. In addition to this identified site it is possible that further buried and unrecorded remains of archaeological importance survive across the proposed development area.

No known cultural heritage sites have the potential to be directly adversely affected by the proposals. The potential for unknown archaeology being present on the site has been addressed through the mitigation measures to undertake a scheme of investigation to monitor soils stripping and take appropriate action in light of any finds.

Ninety sites of cultural heritage significance predicted to be inter-visible with the proposed development have been identified within the wider landscape. Twenty Nine Scheduled Ancient Monuments, one Designed Landscape, nineteen Listed Buildings of Category I, twenty two Listed Buildings of Category II* and nineteen Conservation Areas lie within 15 km of the proposed development. None of these cultural heritage sites are likely to receive a significant indirect adverse effect from the proposed development.

4.7 Noise

Background measurements were carried out at a number of locations in order to determine suitable limits. The procedure for establishing noise limits is set out in the document: *ETSU-R-97, Assessment and Rating of Noise from Wind Farms*. Environmental noise predictions were made for a range of wind speeds for the proposed 9 turbine layout. The predictions found that the most stringent noise limits established by ETSU-R-97 would be satisfied. Operational noise from the wind farm has been assessed in accordance with national planning guidance and demonstrated to be within acceptable levels.

4.8 Traffic and Transportation

An assessment of the traffic and transportation effects was carried out involving site visits and traffic observations.

Disturbance to local residents and other road users due to abnormal load deliveries is a potential negative effect. However, given the low number of vehicles involved and mitigation measures proposed the amount of disturbance would be limited.

HGV movements delivering construction materials would also result in negative impacts affecting road users and local residents. The significance of the effects are considered to be low given the short duration of the works, the existing levels of traffic along most of the route and the mitigation measures proposed.

4.9 Soil and Water

An assessment has been carried out of the likely impacts of the proposal on the soil and water environments involving desk studies and site visits. The potential effects considered were:

- Pollution incident;
- Erosion and sedimentation;
- Changes to water and groundwater resources i.e. private water supplies;
- Changes to the natural drainage patterns;
- Changes to runoff rates and volumes;
- Impediments to flows and flood risk;

A number of mitigation measures have been introduced into the design to minimise, eliminate or offset the effects of the wind farm on the soil and water environment.

The layout has been designed to locate all infrastructure as far away as possible from watercourses. The layout has been designed to restrict stream crossings to a solitary location and limit any construction activity within 25metres of water bodies.

An Environmental Management and Pollution Prevention Plan would ensure that mitigation measures are put in place and activities carried out in such a manner to minimise or prevent effects on surface and ground waters. With the proposed mitigation in place the assessment found that there will be no significant impacts on the soil and water environment from this development.

4.10 Infrastructure, Safety and Shadow Flicker

Infrastructure

Wind turbines are large structures that produce electro-magnetic radiation. These two characteristics mean that they can interfere with broadcast transmissions such as radio and television. Consultation was undertaken with those organisations whose transmissions may be affected including mobile telephone service providers, emergency services, television companies etc. From the replies received it was predicted that there would be no disturbance to communications systems with the mitigation measures proposed.

Wind turbines have the potential to affect aviation safety both through the interference with radar and navigation systems and the height of the turbines. Consultation with civil aviation stakeholders indicates that the proposals will not interfere with their operations.

The application site is located just over one kilometre to the west of the boundary of Cowden military firing range. The range is not currently active is in the process of being decommissioned.

The wind farm is proposed to be located next to the site of the planning application for an underground gas storage facility at Whitehill. That application was submitted by E.On UK plc. The gas storage proposal includes a number of underground pipeline route options to connect with the National Transmission System for gas. One of those route options crosses the applications site of the proposed wind farm. It would be possible to accommodate both this pipeline and the wind farm on the site.

Safety

Wind farms have a proven track record for safety. A very small number of wind turbines have been known to lose parts of the rotor assembly through accidental damage such as lightning or mechanical failure. Turbine control and monitoring systems operate with several safety levels to protect the plant from damage. In the case of faults arising the turbines shut down automatically through fail safe braking mechanisms. In addition, turbines are fitted

with vibration sensors so that if, in the unlikely event a blade is damaged, the turbine will automatically shut down.

Shadow Flicker

Rotating wind turbine blades can cast moving shadows which can affect neighbouring properties. As the blades rotate, there can be alternating light and shadow, an effect known as shadow flicker. The effect occurs inside buildings, where the shadow falls on a window. The impact of shadow flicker has been assessed for properties within an arc of 130 degrees either side of north and within 10 rotor diameters (in this case 820metres) of any turbine position. This assessment has quantified the likelihood of shadow flicker effects occurring at nearby properties as a result of the proposed wind farm, along with their times and durations. Overall the effects have been identified as being minor. Mitigation measures are not considered to be necessary.

5 CONCLUSION


The UK Government has recognised that climate change is a serious issue that needs to be tackled. The production of power from renewable sources not only assists in meeting targets for reducing CO₂ production but also contributes to the aims of securing future energy supplies. Energy policy in the UK includes a number of mechanisms to encourage the development of the renewable energy sector. Energy policy has influenced national and local planning policy. Planning policy documents at regional, strategic and local levels all include positive policies to encourage renewable energy developments. In considering the proposed wind farm at Withernwick, East Riding of Yorkshire Council will also need to take into account any local considerations such as impact on the landscape or effects on nearby residents.

One of the key purposes of the Environmental Statement is to provide the Local Planning Authority with information on the predicted effects of the proposal which include positive and negative effects. The conclusions of the Environmental Statement are that the proposed wind farm development at Withernwick will provide significant environmental benefits as part of the strategy for tackling climate change. It would also provide local economic benefits to the local community and with the proposed habitat enhancement works would have a net ecological benefit. The development would change the landscape and have a visual impact. The significance of the visual impact would be limited and positive or negative depending upon individual perception. The other potential issues of noise, impact on cultural heritage, impact on hydrology and traffic have been sufficiently mitigated to limit their significance. Overall, it is concluded that the potential impacts do not outweigh the environmental and economic benefits of the proposal.

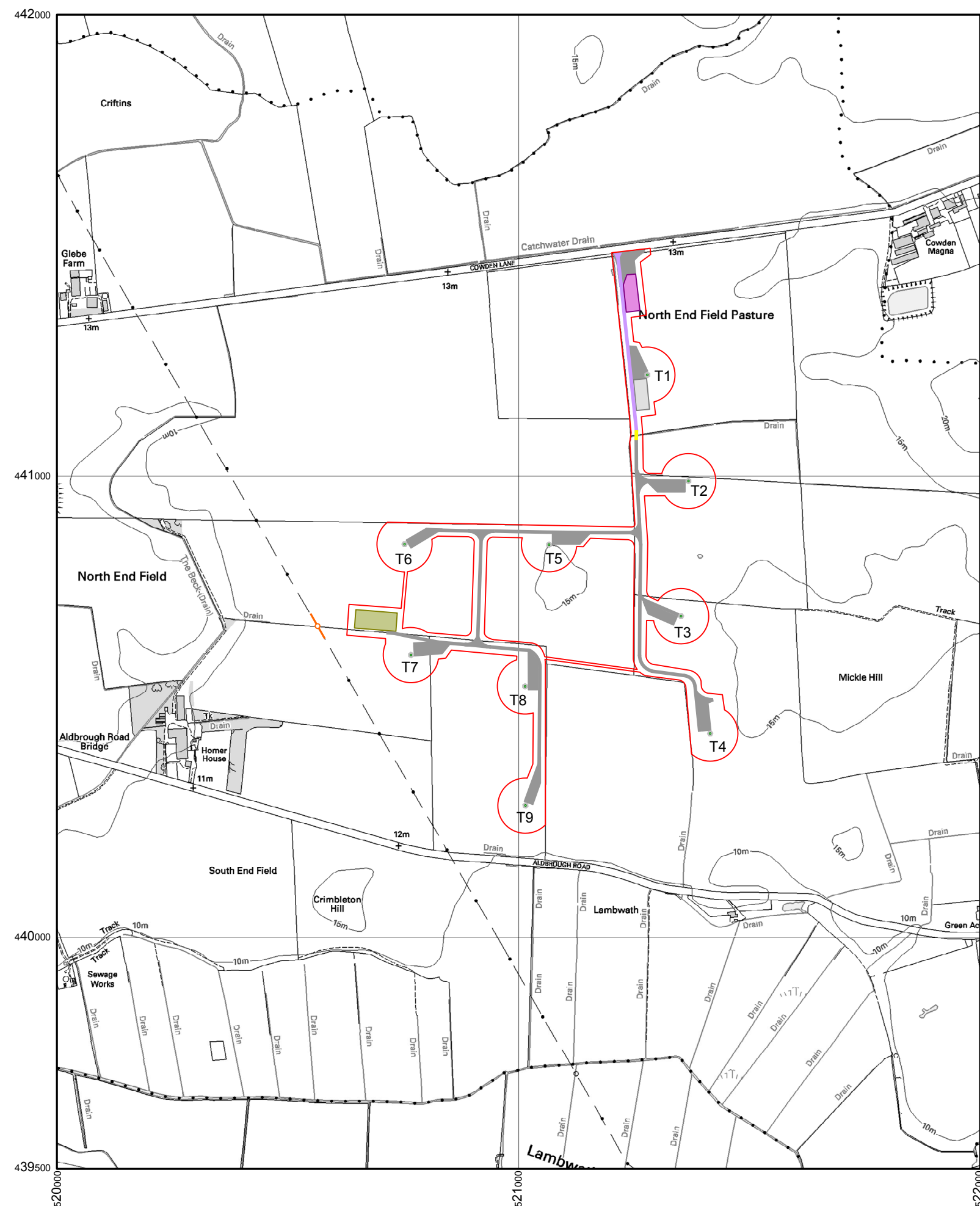
Withernwick Wind Farm

FIGURE 4.1
SITE LOCATION

KEY

 Site boundary





Witherwick Wind Farm

FIGURE 4.2

SITE LAYOUT

KEY

- Site boundary
- Potential grid connection point
- T3 Turbine position and reference number
- Existing track and junction to be improved.
- Proposed access tracks and hard standing areas
- Existing drain crossing to be improved
- Temporary site compound
- Temporary storage areas
- Sub-station location

Turbine Details:

Maximum hub height: 80m
Maximum blade diameter: 82m

Grid References:

Turbine	Easting	Northing
T1	521279	441219
T2	521368	440989
T3	521352	440696
T4	521415	440442
T5	521066	440856
T6	520753	440852
T7	520767	440612
T8	521014	440544
T9	521015	440286

0m 250m 500m



Date	By	Paper	Scale	Rev
Mar 2007	EK	A3	1: 10000	-

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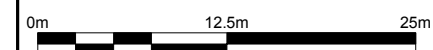
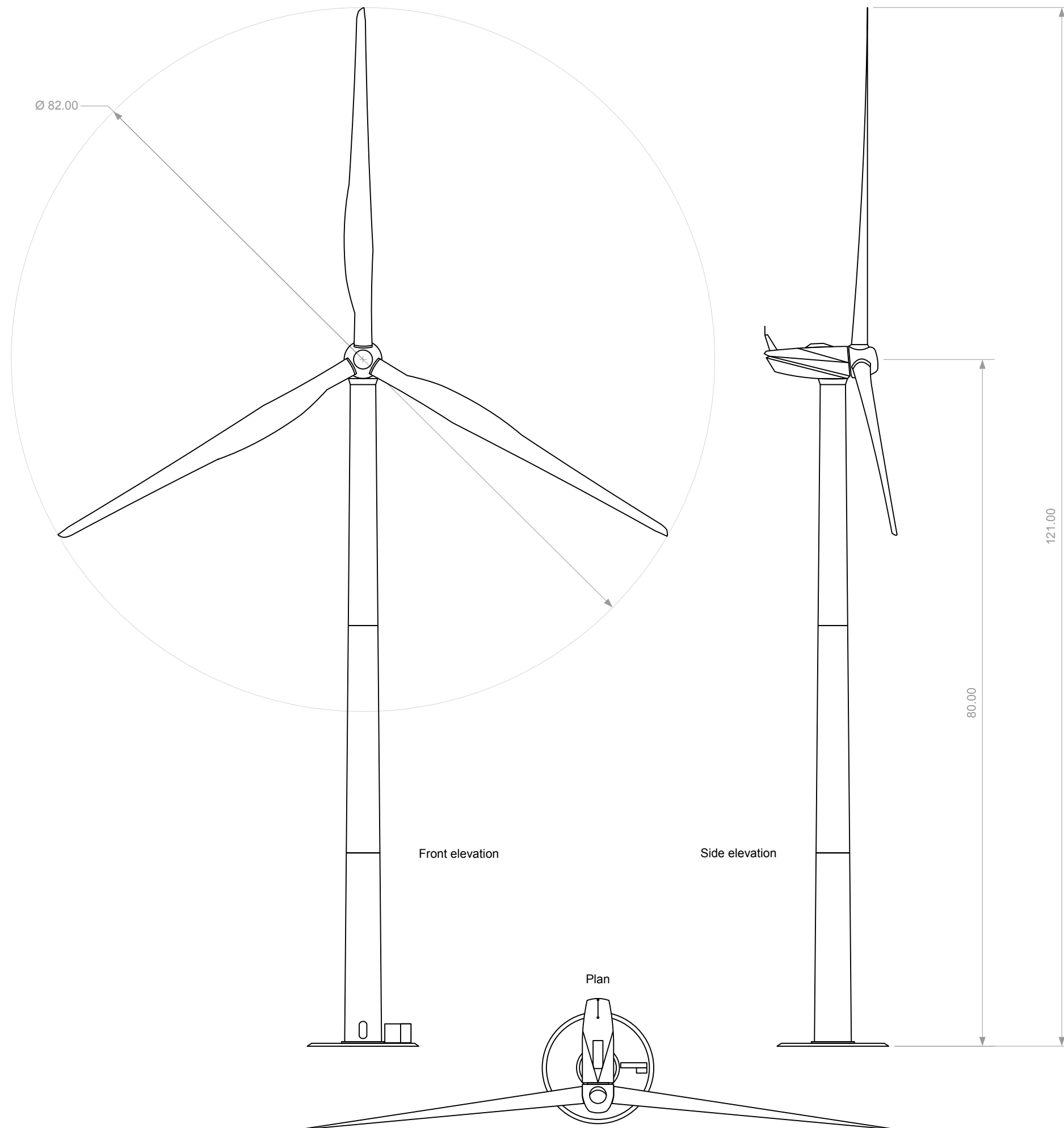
Withernwick Wind Farm

FIGURE 4.4

TYPICAL WIND TURBINE DETAIL.

NOTES

Indicative detail only.



Date	By	Paper	Scale	Rev
Feb 2007	EK	A3	1: 500	-



VIEW EAST FROM ALDBROUGH ROAD, NEAR WITHERNWICK



VIEW NORTH WEST FROM B1242 AT ALDBROUGH