



NON-TECHNICAL SUMMARY
WEST WIGHT PROJECT
Isle of Wight

May 2006



Non-technical summary

Introduction

NTS1 Your Energy Limited (YEL) is seeking to develop a wind farm on the Isle of Wight, and has submitted a planning application to the Isle of Wight Council (IoWC).

NTS2 An environmental impact assessment was volunteered by YEL and has been carried out in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 1999 and best practice guidelines. Its findings are set out in full in an environmental statement and accompanying technical appendices, and summarised in this non-technical summary (NTS).

Drivers for the proposal

NTS3 Global climate is changing as a result of increasing levels of greenhouse gases such as carbon dioxide in the earth's atmosphere. Renewable energy, including wind-generated power, is part of the UK Government's and European Union's strategy to tackle climate change.

NTS4 Under an international agreement, the UK Government has committed to reducing these greenhouse gas emissions by 12.5% below their 1990 levels by 2008-2012. The UK Government has further chosen to reduce carbon dioxide emissions by 20% below base levels by 2010 and 60% by 2050.

NTS5 The European Union also requires the UK Government to encourage the use of renewable energy, and it has committed to ensure that 10% of electricity in the UK will be from renewable sources by 2010.

NTS6 A large percentage of carbon dioxide emissions are derived from the production of energy from fossil fuels such as gas and coal. A key part of the strategy is to increase the supply of electricity from renewable sources. This will also help to ensure security and continuity of supply as fossil fuels deplete and the UK becomes more dependent on overseas sources of fossil fuel.

Economic and community benefits

NTS7 The development of the wind farm will involve a capital investment of approximately £10 million and will generate opportunities for jobs and the supply of goods and services locally.

NTS8 The development of the wind farm with Vestas wind turbines will also help with research, development and testing programmes at the Island's Vestas Blades factory in Newport. This will strengthen the company's technical

knowledge and market position as a leading turbine component manufacturer.

The application site

NTS9 The proposed site for the wind farm is to the south of the villages of Thorley and Wellow, on the western side of the Island, approximately 2.5 km south-east of Yarmouth.

NTS10 The site is in an undulating, rural landscape between the B3401 and the B3399. Broad Lane provides the western boundary and the permanent access to the site, whilst to the east, beyond the site boundary, lies open farmland. Figure NTS1 shows the site in context with its surroundings, and figure NTS2 shows the site layout.

NTS11 There are several dwellings in the surrounding area. Their distances from the closest turbines are shown in table NTS1.

Property	Distance from property to closest turbine (m)
Hartshole Cottage	820 - north
Dodpits House	1,280 – north-east
Churchills Farm House	550 – east
No. 8 Tapnell Cottages	750 – south-west
Dog Kennel Cottage	720 – north-west
Chessell Pottery	1,300 – south-east
Shalcombe Cottage	1,040 - south

Table NTS1: distance from closest turbine to closest property or dwelling

The proposal

NTS12 The proposed wind farm comprises the following components:

- six wind turbines
- one anemometer mast
- temporary construction workers' compound
- switching station
- temporary and permanent access roads
- underground power cable.

NTS13 The wind farm will have an installed electricity generation capacity of between 9.9 MW and 12 MW. At the time of application, it is not possible to state which precise model will be used because wind turbine models are under continuous development. For the purposes of this environmental impact assessment, the Vestas V82 two-speed turbine has been considered. The actual model of turbine used is likely to be of the same or very similar specification, and will be required to comply with the assumed parameters

and physical characteristics used in the assessment. Figures showing components of a wind turbine and meteorological mast are shown in figure NTS3

Temporary elements

- NTS14 A short section of temporary track will be created in the north-west corner of the site to allow heavy vehicles to bypass the junction of Main Road and Broad Lane in Thorley. This will be completely reinstated when construction is complete.
- NTS15 Additional temporary site access tracks may be required by the contractor to allow plant and HGV access to the construction sites at each turbine location. Only arable land will be affected, with no effect on trees or hedgerows. The temporary tracks would be approximately 5 metres in width.
- NTS16 A temporary construction compound (unlikely to exceed 1,200m² in size) will be built to accommodate contractors' and site engineers' facilities, material storage, car parking and plant and material laydown facilities.

Permanent elements

- NTS17 The wind farm will comprise six wind turbine generators, each with a tubular tower, three turbine blades, a nacelle (or hub, which houses the generator, gearbox and various mechanisms), and an electrical transformer (inside the base of the tower).
- NTS18 The Vestas V82 turbine is a three-bladed design with an 82-metre diameter rotor. The advice of the landscape architect was that the tip and hub heights of all six turbines should be similar when seen from important views. To achieve this, four turbines have a hub height of 59 metres, giving a tip height of 100 metres, while the other two, which are sited in localised hollows, have a 68.5 metres hub height above local ground elevation, giving a tip height of 109.5 metres. Thus the overall height of the wind farm will appear to be level. The finish and colour of the turbines will be agreed with the IoWC, but they are likely to be light grey in colour and with a semi-matt finish.
- NTS19 An area of hardstanding approximately 35 metres by 18 metres will be created adjacent to each wind turbine. These 'crane pads' are used as a lay-down area and as a base for cranes and other vehicles during construction, maintenance and decommissioning. The crane pads will remain in place throughout the life of the project.
- NTS20 Approximately 3 kilometres of new, permanent access tracks will be required for construction and operational access. These will be approximately 5 metres in width for the duration of the construction period, but after this they will be reduced to a width of 3 metres by reseeding the edges.
- NTS21 The wind farm will need an electrical switching station to house the electrical switchgear and metering equipment. It will comprise a single storey, pitched roof building, approximately 7 metres by 5 metres in plan, and 4 metres in height. A small parking bay will be located beside it.

- NTS22 A self-supporting, lattice meteorological mast (approximately 59 metres in height) will be erected on site to collect wind speed and direction data during operation.
- NTS23 Approximately 3.5 kilometres of underground electrical and communication cabling will be installed between the turbines and the switching station, routed alongside or under the site access tracks. Further cabling installed parallel to Broad Lane will connect with the existing overhead power lines and electricity grid. This connection is part of a separate planning application.
- NTS24 No lighting will be required for the turbines.
- NTS25 The construction programme will be approximately six to nine months, with construction vehicles comprising:
- conventional light vehicles for personnel
 - standard HGVs for larger loads
 - abnormal or oversized vehicles for very large components such as the turbine blades.
- NTS26 The footprint will occupy approximately 1% of the site area, enabling arable use to continue throughout the 25-year lifetime. No hedgerows or trees need to be removed from the site for construction.

Site selection

- NTS27 The selection of a site for the wind farm commenced in August 1999.
- NTS28 The final area of search was chosen from an original list of 11. The short-list included West Central Isle of Wight, Bleak Down and Bowcombe Down / Rowridge. These three areas were selected using planning, environmental and technical constraints (table NTS 2).

Site size
Suitable wind resource
Not on National Trust or Forestry Commission land
Not within nature conservation designation
Not within AONB or heritage coast
More than 500m from urban settlement
Not affecting known archaeological sites
Not affecting national trails/picnic sites/view points
Not affecting conservation areas or historic parks and gardens
Proximity to electricity grid / ease of connection
Good road access
Landscape character
Table NTS 2: site selection criteria

NTS29 From this process the West Central Wight area was deemed most suitable, and further screening and analysis led to the current application area.

Environmental effects

Birds

NTS30 Birds are often perceived to be at particular risk from wind turbines due to the risk of collision with moving blades, as well as possible habitat loss and disturbance effects.

NTS31 While the proposed site was not known to support any particularly scarce or rare species, there are areas of international importance for wintering waterfowl nearby, such as along the Medina and parts of the northern shoreline. Therefore, it was important to determine whether individuals or flocks from these areas also used the site or made regular flights across it.

NTS32 The assessment included desk based research and field surveys.

Breeding bird surveys

NTS33 48 species were recorded during the breeding survey, of which 27 held territories. Of these, seven are recognised as threatened (red list), and three are recognised as recovering populations (amber list), (table NTS 3).

Red list species	Amber list species
Grey partridge	Dunnock
House sparrow	Lapwing
Linnet	Swallow
Red bunting	
Skylark	
Starling	
Yellowhammer	

Table NTS3: red and amber list species identified in breeding bird survey

Wintering birds, 2003/2004

NTS34 63 species were recorded during the 2005/2006 winter bird survey, compared to 51 species in the winter of 2003/2004. 48 species are common to both lists. Whilst the majority of birds recorded on the site during the winter are common and widespread, a number of rarer species were recorded including merlin, peregrine and golden plover.

Vantage point surveys

NTS35 Vantage point surveys were used to gather data for calculating the theoretical collision risk to birds on the site.

NTS36 Most species are considered at no or negligible risk because of their behaviour or scarcity. These include those shown in table NTS4.

Whooper swan	Grey partridge
Hen harrier	Skylark
Barn owl	Bullfinch
House sparrow	Song thrush
Linnet	Reed bunting
Red bunting	Linnets
Starling	Buzzard
Yellowhammer	Barnacle geese
Snipe	
Migrating passerines	
Table NTS4: species considered to be at negligible risk of collision with turbine blades.	

NTS37 A risk assessment model was run for the key species, golden plover, merlin and peregrine.

Golden plover

NTS38 The flight behaviour of golden plover over and across the site suggests that they could be at some risk of collision, though they are agile fliers with good eyesight so are predicted to be reasonably adept at avoiding moving blades. Flights through the area that would be swept by the turbine blades were recorded during the vantage point watches.

NTS39 The assessment takes a precautionary approach to ensure that a worst case scenario is used. The model assumes that the blades will be turning constantly at full speed, which will not be the case. Using the standard avoidance allowance, and omitting a single flight with abnormal behaviour, the calculation predicts an annual collision rate of 7 golden plover.

NTS40 In practice, the species is expected to achieve a greater avoidance than allowed for in the model. The comparative survey counts for winter 2003/2004 and 2005/2006 also suggest that the risk assessment has been done for a ‘worst case’ year.

NTS41 The collision risk calculations predicted that merlin and peregrine were at negligible risk of collision.

Skylark

NTS42 Most skylark activity is below blade height, but during spring males may be at greater risk of collision with turbine blades when they undertake territorial song-flights and will ascend to between 50 and 100 metres. However, the song flights occur primarily in good, still weather, when visibility and hence avoidance potential would most likely be at its best, and when the blades would be moving slowly or not at all.

NTS43 The need to hold territory means that skylark pairs are well spread, but it is possible that a territory could coincide with each of the turbines. The actual risk of fatal collision is considered very low, but as a worst case, up to six

pairs could be affected. This represents 10% of the pairs recorded breeding on the site, but a negligible percentage of the population of the Island as a whole. The viability of the population is most unlikely to be significantly affected.

NTS44 No significant habitat loss, disturbance or displacement of birds were predicted.

Cultural heritage

NTS45 The site is in an area of known archaeological interest, a complex and rich historic landscape that includes a large number of historic buildings and features. The assessment considers the impacts of the proposed development on the historic environment, including archaeological remains, historic structures and buildings, designated landscapes and the historic character and associations of the wider landscape.

Archaeology

NTS46 Effects on archaeology could occur when the ground is disturbed during the construction phase to create turbine and crane pad foundations and to install tracks and underground cables. The results of the archaeological evaluations informed the turbine layout. The locations for the turbines and crane pads have been confirmed as areas of no, or very low archaeological sensitivity. The archaeological impact of the excavations required to construct the turbines is therefore not significant.

NTS47 Areas to the west of the site along Broad Lane, where the underground cable will be installed, are of potential archaeological interest. Mitigation has been introduced to ensure no adverse effects.

Buildings and historic environment

NTS48 While there are no buildings on the site, there are many locally that contribute to the character and quality of the historic landscape of West Wight, including manor houses at Thorley, Ningwood, Shalcombe and Shalfleet, and a number of interesting buildings in the settlements of Thorley, Thorley Street and Wellow, closer to the site. Calbourne and Shalfleet are designated as conservation areas.

NTS49 Due to the limited nature of the construction activities, the construction phase is not considered to have a particular impact. However, the wind farm could potentially affect the visual setting of such buildings.

NTS50 The assessment of effects on the historic environment concludes that the greatest potential effect will be on listed buildings in Thorley, Thorley Street and Wellow with open views of the site. The effects on the historic landscape context of West Wight are concluded to be of moderate significance.

Landscape and visual effects

- NTS51 Field and desk studies were used to evaluate the landscape in and around the site and to identify views and visual receptors that could potentially be affected. A representative selection of typical views was made for the visual analysis. Figures NTS4 shows areas from which the turbines will be visible, while NTS5 shows a predicted view of the turbines.
- NTS52 The study area covers a 30km radius from the site. This includes the majority of the Isle of Wight and three national landscape designations:
- the New Forest National Park (mainland)
 - the Isle of Wight area of outstanding natural beauty (AONB)
 - the Isle of Wight Heritage Coast.
- NTS53 The proposals will introduce a prominent new element into the rural landscape, and the assessment found that the proposal would have a significant adverse effect on many of the receptors identified in the study area (a summary table is included at the end of this NTS).
- NTS54 The landscape assessment concluded that there would be some moderate to substantial adverse impacts on several local character types.
- NTS55 The visual impact of wind farms is typically a sensitive issue as the effectiveness of secondary mitigation, such as planting, is very limited. The primary mitigation is in the design and layout of the turbines, taking into consideration the potential sensitive viewpoints. This approach has been adopted here.
- NTS56 The cumulative effects have been assessed in conjunction with the permitted Cheverton Down wind farm.
- NTS57 If both the Cheverton Down and West Wight wind turbines were to be built, there would be a significant cumulative effect on the character of the Chalk Downs landscape type, but not on the other landscape types in the study area.
- NTS58 As a result of the distance and topography between the two sets of turbines, their zones of visual influence coincide in very few places. There is nowhere where both sets of turbines would be seen in relatively close proximity, or where there would be significant sequential views of the turbines along a linear route, so there is unlikely to be any significant cumulative effects on views.

Land use, community and social effects

- NTS59 Land use, the effects on tourism and the economy, and public perception of the development were the focus of this assessment.

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- NTS60 Two bridleways and three footpaths cross the site, which are shown in figure NTS6. During the construction period, temporary closure or minor diversions may be needed on three of these rights of way to ensure public safety.
- NTS61 Guidance suggests that the minimum distance between a turbine and a public right of way is a blade length, to ensure that the turbine does not oversail the right of way. None of the six turbines oversails a footpath, though turbines 4 and 6 are within 55 metres of the two bridleways on site that are regularly used by horse riders. Predictions of changes in the use of these bridleways is uncertain.
- NTS62 No other significant land use effects are considered likely as the proposal will only remove 1% of the landholding from arable use. Some mitigation is included to ensure that construction activities do not affect the quality of the farmland.
- NTS63 Tourism provides approximately 30% of the Islands income, with visitors contributed £352 million in 2004/2005. The main revenue raised by tourists is from overnight stays. The tourist industry employs 17.4% of the working population, more than double the tourism-based employment in the South East of England generally.
- NTS64 There is no definitive information available on the reasons why people visit the Isle of Wight, though it is likely to be a combination of several factors, including award winning beaches, landscape, visitor attractions and provision for outdoor activities.
- NTS65 The wind farm is not expected to affect any major tourist accommodation facility or attraction directly, as most of the main tourist towns are along the southern coast, away from views of the wind farm. The mooring facilities in Cowes and elsewhere along the Medina are similarly unaffected.
- NTS66 Tourism could potentially be affected indirectly if views of the wind farm deterred visitors, though research elsewhere suggests that this does not happen in practice. Tourist-generated revenue is not predicted to be significantly affected by the proposals.
- NTS67 If the turbine components used are manufactured at the Vestas Blades facility in Newport, the wind farm will provide an opportunity for the company to demonstrate its products to potential clients as well as providing opportunities for staff training and product familiarisation. In addition, the wind farm could provide Vestas with a local facility to undertake research into the performance of wind turbine blades. All of these aspects will assist and support the continued success and stability of wind turbine blade production on the Island. Through this relationship there would be the potential for increased future investment in the Island's private sector and related businesses associated with Vestas Blades. This is predicted to be a beneficial impact of moderate to substantial significance.

NTS68 Boards may be installed at selected viewpoints to provide information relating to renewable energy and the wind farm.

Noise and vibration

NTS69 The noise assessment identified sensitive receptors around the development site, and a baseline noise survey was undertaken at representative locations (table NTS 1).

NTS70 The noise assessment addresses noise during construction, decommissioning and operation of the wind farm.

NTS71 The exact construction plant specifications are not yet known, but a series of best practice mitigation measures will be employed during the construction and decommissioning phase of these proposals to ensure no undue disturbance at any local receptors.

NTS72 Noise can be generated by the rotation of the blades in the air (aerodynamic noise) and by the internal machinery (mechanical noise). The blades are designed to minimise noise whilst optimising electricity generation. Particular attention is paid to refining blade design in order to achieve both objectives.

NTS73 Mechanical noise arises from the gearbox and, to a lesser extent, the generator. The mechanism and housing are designed to minimise the production and transmission of noise. As a result, modern turbines are much quieter than older models.

NTS74 The assessment was carried out in accordance with standard guidance, and produced the noise limits set out in table NTS 5.

Criteria	Noise limit	Notes
Day-time hours	35-40 dB(A) or 5 dB(A) above the prevailing background during quiet day-time periods*, whichever is greater	Actual value within the range depends on the number of dwellings in the vicinity, the effect of the limit on the number of kWh generated, and the duration of the level of exposure
Night-time hours (23:00-07:00)	43 dB(A) or 5 dB(A) above the prevailing background, whichever is greater	The 43 dB(A) lower limit is based on a sleep disturbance criteria of 35 dB(A), with an allowance of 10 dB(A) for attenuation through an open window and 2 dB(A) subtracted to account for the use of L_{A90} rather than the L_{Aeq}

Table NTS5: noise limits suggested in ETSU-R-97

NTS75 Table NTS 6 shows the results of the noise prediction at 9 metres per second, the speed deemed to produce maximum noise from the wind turbines.

NTS76 None of the sensitive receptors will be subjected to noise levels above the suggested limits derived from the guidance.

Location	Noise level at 9 m/s (dB L _{A90})
Hartshole Cottage	39.0
Dodpits House	31.3
Churchills Farmhouse	39.0
No. 8 Tapnell Cottages	37.5
Dog Kennel Cottage	36.5
Chessell Pottery*	32.0
Shalcombe Cottage	35.7

Table NTS6: summary of noise predictions for noise measurement locations
*Nearest residence

NTS77 Noise generated by the traffic associated with the proposals was also considered. According to guidance, a 25% increase in traffic corresponds to an increase in noise levels of 1dB(A), which is just detectable. The traffic prediction for the proposals shows a maximum increase in traffic of approximately 4%. Traffic will therefore not cause any significant noise effects.

NTS78 The assessment also considered the potential effect of low frequency noise. A Government policy document states that:

“There is no evidence that ground transmitted low frequency noise from wind turbines is at a sufficient level to be harmful to human health.”

NTS79 Research into low frequency noise around a modern wind farm found that the vibration levels 100 metres from the nearest turbine were 10 times lower than the safety requirements for residential properties. The nearest property to the turbines at West Wight is approximately 550 metres away, so there will be no significant effect.

NTS80 No significant residual noise or vibration effects are predicted to result from this proposal.

Air quality and climate

NTS81 The air quality and climate assessment focused on:

- the reduction in emissions of greenhouse gases and other pollutants
- effects on local air quality from traffic-related emissions
- dust that may arise during the construction phase.

NTS82 Wind power avoids many of the environmental costs of conventional generation, including poor local air quality and the damage to the natural and built environment caused by acid rain from pollutants such as oxides of nitrogen (NO_x) and sulphur dioxide (SO₂).

NTS83 Electricity produced from renewable sources displaces electricity that would otherwise be generated from conventional fossil fuel power stations and

reduces emissions. The West Wight wind farm is predicted to save the following quantities of pollutants per year:

- between 19,665 and 29,819 tonnes of CO₂
- between 44 and 234 tonnes of SO₂
- between 75 and 88 tonnes of NO_x.

NTS84 These calculations are based on the current mix of energy sources in the UK, such as coal, gas, nuclear and other renewables. Over the 25-year life-time of the wind farm, the composition of the mix will change, and therefore these are only a guide to likely savings.

NTS85 Nitrogen dioxide (NO₂), fine particulate (PM₁₀) matter and dust were the focus of the local air quality assessment. Background air quality concentrations showed very low concentrations of these pollutants. The traffic assessment suggests a very small increase in traffic movements, and the effect on local receptors from NO₂ and PM₁₀ concentrations was predicted to be negligible.

NTS86 Unmanaged dust emissions from construction activities have the potential to cause nuisance. Whilst the majority of excavation work is remote from receptors, the trenching work for laying the 33kV underground cable follows Broad Lane near the north-west corner of the site. Due to its proximity to dwellings in Thorley, this activity had most potential for causing nuisance. A series of best practice construction mitigation measures have been proposed for the construction work which will fully mitigate any effects on nearby property. No residual effects are predicted in the air quality assessment.

Habitat and wildlife

NTS87 The Isle of Wight has an unusually rich and complex variety of wildlife. Approximately 11% of the land is notified as various sites of special scientific interest (SSSIs), and many of these are also covered by European conservation designations. There is also a list of more than 300 non-statutory sites of local importance, known as sites of importance for nature conservation. The Island supports some 54 species of national nature conservation priority, and a further 180 of importance at the national scale.

NTS88 Local statutory sites are identified in NTS table 7 and shown on figure NTS7.

NTS89 There is a locally listed site of interest of nature conservation (SINC) known as Hummet Copse on the site, located directly north of turbine 4 (figure NTS2). It will not be affected by the proposals.

NTS90 The assessment comprised desktop and field surveys. Field surveys included a phase 1 habitat survey and specific surveys for:

- newts
- red squirrels and dormice

- badgers
- bats.

NTS91 Some additional monitoring of brown hare, a locally designated biodiversity action plan (BAP) species, was also undertaken.

Designation	Name
SSSI	Prospect Quarry
	Compton Down
	Yar Estuary
	Bouldor & Hamstead Cliffs
	Newtown Harbour
	Cranmore
	Compton Chine to Steephill Cove
	Mottistone Down
	Freshwater Marshes
	Calbourne Down
	North Park Copse
	Headon Warren & West High Down
	Colwell Bay
	Rowridge Valley
	Locks Farm Meadow
Lacey's Farm Quarry	
Special Protection Area	Solent & Southampton Water
Ramsar Site	Solent & Southampton Water
Special Area of Conservation	Isle of Wight Downs
	Solent Maritime

Table NTS7: statutory nature conservation sites locally

Phase 1 habitat survey

NTS92 The phase 1 habitat survey shows that the site is dominated by arable fields with generally species-poor, peripheral hedgerows. Five small copses are dominated by ivy in the ground layer. There are some strips of rank grassland and weedy vegetation along ditches, bridleways and around some field margins. The small streams that issue from the site are relatively low in wildlife interest. Prospect Quarry, beyond the southern boundary of the site, is notified as a SSSI for its geology and calcareous grasslands.

NTS93 Smooth newt were seen on the site, and palmate newt were recorded in the Prospect Quarry pond. No evidence of the rare great crested newt was found.

NTS94 There were signs of red squirrel and dormouse in some of the copses, and four badger setts were noted in the general area. Field evidence suggested that only one group of badgers are present on site.

NTS95 Bats may be susceptible to collisions with moving turbine blades, but a survey concluded that the site provides little suitable feeding habitat. Ditches, streams, hedgerows and copses could provide more suitable foraging or commuting routes. It is thought that the use of the site by bats is

low. The turbines are located in the arable fields, away from the habitat features such as copses and hedgerows that have more potential for use by roosting, feeding and commuting bats.

NTS96 Elsewhere in the world, and in some circumstances, some species of migratory bat are known to be vulnerable to collisions with man-made structures, including wind turbines (despite their ability to echolocate). In the absence of large-scale migratory movements of bats at this site (and indeed in the UK generally), any significant risk of collision is considered to be limited to foraging bats or those moving between feeding and roosting sites.

NTS97 The feeding ecology of the species recorded close to the site makes it most unlikely that they will be feeding in the areas where the turbines are located. Species that are occasionally recorded foraging over arable land, such as pipistrelles, predominantly feed between 5 and 10 metres above the ground, well below the area swept by the blades. Any risks to foraging and commuting bats are therefore considered extremely low, and the consequent impact on bat populations negligible.

Traffic and transport

NTS98 The traffic and transport assessment deals with the effect of vehicles associated with the proposals on traffic patterns and sensitive receptors in the vicinity of the site. The assessment addresses all phases, but its main focus is on the short construction phase when most vehicles are predicted to visit the site. The issues addressed include:

- severance
- driver delay
- pedestrian delay and amenity
- hazardous loads.

NTS99 Three classes of vehicle are associated with the development during construction:

- light vehicles (eg contractors' vans, private motor cars)
- heavy vehicles (eg HGVs of maximum rigid length of 12 metres and a maximum articulated length of 16.5 metres)
- abnormal vehicles (classified as any vehicle over 25 metres in length or 3.6 metres wide).

NTS100 An audit was undertaken to identify the preferred transport routes for oversized and conventional construction vehicles between a suitable delivery port and the site. Figure NTS8 shows the two routes derived from the route analysis.

NTS101 The assessment identified that some minor, temporary modifications to the road network would be required to allow passage of oversized vehicles. This might include movement of signs and bollards.

NTS102 Table NTS 8 shows the predicted one-way traffic during the construction period.

Activity	Construction month					
	1	2	3	4	5	6
Site mobilisation and establishment of construction compound	100	-	-	-	-	-
Establishment of access tracks and crane pads	1000	900	-	-	-	-
Turbine and switching station foundation construction	-	375	375	375	-	-
Erection of wind turbines and switching station	-	-	300	300	300	-
Cabling and site commissioning	-	-		150	150	150
Approximate total vehicle movements per month	1100	1275	675	825	450	450
Approximate total vehicle movements per day	51	59	32	39	21	7

Table NTS8: one way traffic during construction period

NTS103 All traffic predictions resulted in negligible changes in traffic volumes. The maximum change predicted is 3.5% for route section 2. The assessment concluded that there would be a negligible change in severance, driver delay, pedestrian delay and amenity.

NTS104 Traffic flows associated with the operation of the wind farm will be even lower than those experienced during construction. The wind farm will be operated and managed remotely, so traffic movements will be restricted to maintenance checks, which are typically carried out using cars or small vans, and will be of the order of one visit per week or fewer.

NTS105 Decommissioning is likely to be carried out over a 4-month period with many of the components such as concrete foundations and cabling left *in situ*. Permanent tracks may be left for farming use.

NTS106 Large components are likely to be broken-up on site, avoiding the need for abnormal loads to be transported away from the site. Traffic movements associated with decommissioning are likely to be less than 25% of those associated with construction.

NTS107 No residual effects from traffic are predicted from the proposals.

Water environment

NTS108 The water environment assessment focuses on the quality of surface and groundwater bodies. As no water abstraction or sewage disposal is required for the proposals, the focus of this assessment was on:

- site preparation and earth moving activities

- use of fuels, lubricants and other required chemicals on-site during construction and operation of the project
- the effect of site access roads, infrastructure and tower foundations that may occur on surface water bodies and groundwater hydrology.

NTS109 A number of small watercourses issue from the site. Water quality in these tributaries is generally of good quality and they will be sensitive to changes during the construction and operation of the development.

NTS110 Particular sensitivity will occur where access tracks cross or run close to watercourses. Changes to runoff characteristics have therefore been considered, particularly as there is a history of localised flooding on watercourses downstream of the development.

NTS111 The geology immediately underlying the site is not used for abstraction, whilst other groundwater bodies to the south that are used are protected by impermeable clay. There are therefore no significant risks to sensitive groundwater resources.

NTS112 No evidence of existing contamination or earlier activities that might have caused contamination on or around the site has been identified in desk studies.

NTS113 Mitigation through design is suggested for the watercourse crossing for the track to turbine 6. Mitigation such as a sustainable drainage scheme and measures to deal with the prevention of spillages will be formalised in a site management plan.

Shadow flicker, aviation and communication

Shadow flicker

NTS114 Shadow flicker can be caused by the turbine blades casting a shadow through windows of residences, causing an on-off flickering effect. The magnitude of the effect is dependent on many factors such as the:

- size of windows and angle of view
- number and nature of windows (room type, for example)
- orientation of the residence relative to the turbine
- presence of intervening topography, buildings or vegetation
- turbine hub-height and rotor diameter
- frequency of bright sunshine and cloudless skies
- prevailing wind direction and hence usual rotor orientation
- colour and finish of the turbine blades.

NTS115 The shadow flicker assessment identified two properties on the outer edge of the calculated shadow sweep area (Dog Kennel Cottage and Hartshole Cottage).

NTS116 The residents of these properties could experience a very small and occasional effect. This is likely to be further reduced when local topography and existing screening vegetation is taken into consideration.

NTS117 If shadow flicker is found to occur, the responsible turbine can be temporarily closed down automatically for the period when an effect may be caused. No residual shadow flicker effect is therefore predicted.

Aviation and communication

NTS118 Although close to two regionally important airports, the national air traffic service (NATS) assessment showed that the site was outside the zone where wind turbines would have any effect on infrastructure.

NTS119 Turbines could affect the quality of communication signals, including TV signals sent via the transmitter at Rowridge. Two communication companies lodged objections to the scheme on the grounds of possible signal disruption (Arqiva and T-Mobile). In practice, no interference to their operation is predicted.

NTS120 The likelihood of TV interference requires property-specific investigation during commissioning and operation of the wind farm. Complete mitigation is possible through measures that can be addressed in planning conditions, such as:

- re-orientation of existing aerials to an alternative transmitter
- installation of directional aerials to mildly affected properties
- supplying cable or satellite television services (subject to parallel broadcast of terrestrial channels)
- installation of a new repeater station in a location where interference can be avoided (this is more complex for digital but also less likely to be required for digital viewers)
- switching from analogue to digital television broadcasts where available through the installation of ‘free view’ type digital receiver boxes.

NTS121 No residual effects are predicted in this assessment.

Conclusion

NTS122 This non-technical summary has outlined the findings of the environmental impact assessment for the West Wight wind farm. Full details are set out in the environmental statement and accompanying technical appendices.

NTS123 Whilst the development will have some residual significant effects, most have been addressed and mitigated wherever practicable. The principal residual effect is predicted to be the impact of the wind farm on landscape and visual resources. This has been recognised and reduced through the

layout of the turbines. There may be also be some minor effects on a few species of birds.

NTS124 Overall the wind farm will make a positive contribution to sustainable development in the Isle of Wight and the UK generally. The wind farm will lead to a reduction in the production of greenhouse gases and provide a renewable supply of energy to a significant proportion of the Island's households.

NTS125 These tables summarise the potential residual effects of the proposed wind farm after appropriate mitigation measures have been employed. Explanations of the methods of assessment of the significance and mitigation measures are given in each of the chapters of the environmental statement.

Birds

Significant residual effect	Importance of receptor	Magnitude of change	Nature	Duration	Significance	Level of certainty
Golden plover collision risk	Medium	Medium	Adverse	Long term	Moderate	Uncertain
Skylark collision risk	Medium	Negligible to small	Adverse	Long term	None to slight	Uncertain

Table NTS9: birds - residual effects**Cultural heritage**

Significant residual effect	Receptor sensitivity	Impact magnitude	Nature	Duration	Significance	Certainty
Potential improvements in knowledge of the archaeology of the site gained from investigations	High/medium	Medium/small	Beneficial	Long term	Moderate/substantial	Reasonable
Effects on settings of historic buildings and areas	High/medium	Medium/none	Adverse	Short term	Moderate/substantial – none	Reasonable
Effect on historic landscape of West Wight	Medium	Medium/none	Adverse	Short term	Moderate/none	Reasonable

Table NTS10: cultural heritage - residual effects

Landscape and visual

	Significant residual effects	Sensitivity of receptor	Magnitude of change	Duration	Significance	Nature	Level of certainty
Landscape resources - character areas / types	Open Farmland (Type 6)	High	Large	Long term/ reversible	Substantial	Adverse	Reasonable
	Chalk Downs (Type 1 and LCT1)	High	Medium/ large	Long term/ reversible	Substantial	Adverse	Reasonable
	Bays (Type3) Soft Cliffs(Type8) Northern Coastal Cliffs(LCT11)	High	Small	Long term/ reversible	Moderate	Adverse	Reasonable
	Estuaries (Type5)	High	Small/ medium	Long term/ reversible	Moderate	Adverse	Reasonable
	Settled Farmland (Type7)	Medium/ High	Small	Long term/ reversible	Moderate	Adverse	Reasonable
	Rolling Farmland (Type9) Traditional Enclosed Pasture (LCT2)	High	Small/ medium	Long term/ reversible	Moderate/substantial	Adverse	Reasonable
	Coastal and Inter-tidal Area	Medium	Small	Long term/ reversible	Moderate/slight	Subjective	Reasonable
	North West Solent Estates	High	Small/ medium	Long term/ reversible	Moderate	Subjective	Reasonable
	Lymington and Pennington Coastal Plain	High	Small/ medium	Long term/ reversible	Moderate	Subjective	Reasonable
	Barton and Milford Coastal Plain	Medium	Small	Long term/ reversible	Moderate/slight	Subjective	Reasonable
	Beaulieu Heath	High	Small/ negligible	Long term/ reversible	Slight	Subjective	Reasonable
	Eastern Forest Heaths	High	Small/ negligible	Long term/ reversible	Slight	Subjective	Reasonable
	Open Coastal plain and Cliff Coastline	Medium	Medium/ small	Long term/ reversible	Slight	Subjective	Reasonable

Table NTS11: landscape resources - residual effects

Visual amenity - viewpoints	Residual effects	Receptor	Sensitivity of receptor	Magnitude of change	Overall effect	Nature	Level of certainty	Duration
	Viewpoint 1: Wellow Millennium Green adjacent to B4301	Residents	High	V substantial / substantial	Major+	Significant Adverse	Reasonable	Long term/ reversible
		Green users (dog walking and sports)	High / medium	Substantial	Major / moderate+			
	Viewpoint 2: B3399 west of Shalcombe	Motorists	Medium	V Substantial	Major/ moderate+	Significant Adverse	Reasonable	Long term/ reversible
	Viewpoint 3: Thorley Church Gate	Residents	High	Substantial	Major	Significant Adverse	Reasonable	Long term/ reversible
		Church goers, cyclists	High / medium		Major/ moderate+			
		Motorists	Medium		Major/ moderate			
	Viewpoint 4: Tennyson Trail on Compton Down Golf Course	Walkers, Horse riders, cyclists	High	Substantial	Major	Significant Adverse	Reasonable	Long term/ reversible
		Golfers	High/ medium		Major/ moderate+			
	Viewpoint 5: Freshwater Way, near Kings Manor Farm	Walkers, Horse riders, cyclists	High/ medium	Moderate	Moderate+	Significant Adverse	Reasonable	Long term/ reversible
Viewpoint 6: Bridge over River Yar, Yarmouth	Motorists	High/ medium	Moderate	Moderate+	Significant Adverse	Reasonable	Long term/ reversible	
	Yachtsmen, Fishermen	High/ medium		Moderate+				
Viewpoint 7: Newtown National Nature Reserve	Walkers	High	Moderate	Major/ moderate	Significant Adverse	Reasonable	Long term/ reversible	
	Birdwatchers, Sailors	High/ medium		Moderate+				
Viewpoint 8: Swainstondown Gate	Walkers, Horse riders, cyclists	High	Moderate/slight	Moderate+	Significant Adverse	Reasonable	Long term/ reversible	

Visual amenity - viewpoints	Viewpoint 9: Tennyson’s Monument, Tennyson’s Down	Walkers, Horse riders, cyclists	High	Moderate	Major/ moderate	Significant Adverse	Reasonable	Long term/ reversible
	Viewpoint 10: Ferry Terminal	Ferry users	Medium	Moderate/slight	Moderate/ minor+	Not Significant	Reasonable	Long term/ reversible
	Viewpoint 11: Seafront at Milford on Sea	Residents	High	Slight	Moderate	Not Significant	Reasonable	Long term/ reversible
		Walkers, Horse riders, cyclists, visitors	High/ medium		Moderate/ minor+			
		Motorists	Medium		Moderate/ minor			
	Viewpoint 12: Northwood, Cowes	Residents	High/ medium	Slight	Moderate/ minor+	Not Significant	Reasonable	Long term/ reversible
		Motorists	Medium		Moderate/ minor			
	Viewpoint 13: Stone Point, Lepe Country Park	Visitors to the beach, Country Park and National Park	High	Slight	Moderate	Not Significant	Reasonable	Long term/ reversible
	Viewpoint 14: Beaulieu Heath, New Forest	Walkers, Horse riders, cyclists	High	Slight	Moderate	Not Significant	Reasonable	Long term/ reversible
		Model aircraft flyers	High/ medium		Moderate/ minor+			
		Motorists	High/ medium		Moderate/ minor+			
	Viewpoint 15: Seafront at Barton-on-Sea	Residents	High	Slight /negligible	Moderate/ minor+	Not Significant	Reasonable	Long term/ reversible
		Visitors	High/ medium		Moderate/ minor			
		Motorists	Medium		Minor+			

Visual amenity - viewpoints	Viewpoint 16: Brading Down	Walkers, Horse riders, cyclists	High	Negligible	Moderate/ minor	Not Significant	Reasonable	Long term/ reversible
		Motorists	High/ medium		Minor+			
	Viewpoint 17: Mudeford Quay, Christchurch	Walkers	High/ medium	Negligible	Minor+	Not Significant	Reasonable	Long term/ reversible
		Visitors	High/ medium		Minor+			
		Yachtsmen Fishermen	High/ medium		Minor+			
	Viewpoint 18: New Forest near A31(T)	n/a	High	Negligible	no impact	n/a	Reasonable	n/a
	Table NTS12: visual amenity - residual effects							

Land use, and social and community

	Significant residual effect	Importance of receptor	Magnitude of change	Nature	Duration	Significance	Level of certainty
Land use	Loss of agricultural land	Low	Small	Adverse	Long term	Slight	Absolute
	Use of site for the generation of energy	Medium	Large	Beneficial	Long term	Substantial	Absolute
	Change in walking experience on public rights of way	Low to high	Large	Subjective	Long term	Moderate to substantial	Absolute
	Reduction in use of bridleways	Low to high	Uncertain	Adverse	Long term	Uncertain	Uncertain
Community	Improved renewable energy business relationships on the Island	Low to medium	Medium	Beneficial	Long term	Moderate to substantial	Reasonable
	Proposed development will provide an educational resource	Low	Small	Beneficial	Long term	Slight	Reasonable

Table NTS13: land use, community and social residual effects

Water environment

Effect	Type	Probability	Sensitivity	Magnitude	Significance	
					Ranking	Rationale
Construction						
Effects on surface water:						
Disturbance to stream bed and bank from a single crossing	-ve	Certain	Local	Low	Negligible	Crossing constructed in accordance with best practice but some effects unavoidable.
Accidental spillage of oils, fuels or polluting substances	-ve	Unlikely	Local	Low	Negligible	Spillages will be controlled and response measures will be in place for accidental events.
Effects on geology:						
Excavation of locally important Bembridge Limestone for turbine foundations and roadstone	-ve	Certain	District	Low	Negligible	No exposures of important geological strata affected. Small volume of limestone removed during construction.
Effects on soils:						
Soil excavations for turbine bases, tracks and other excavations	-ve	Certain	Local	Low	Negligible	A very small volume of soil removed for development: where possible re-used.
<i>Operation</i>						
Effects on surface water:						
Accidental spillage of pollutants from on-site activities	-ve	Unlikely	Local	Low	Negligible	Spillages controlled and response measures in place for accidental events
Symbols and criteria used in the above categories						
	-ve = Negative	Certain	International	Major	Major	
	+ve = Positive	Likely	National	Medium	Minor	
		Unlikely	Regional	Low	Negligible	
			District			
			Local			
Table NTS14: water environment - residual effects						

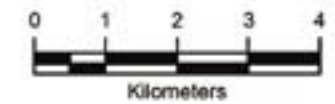


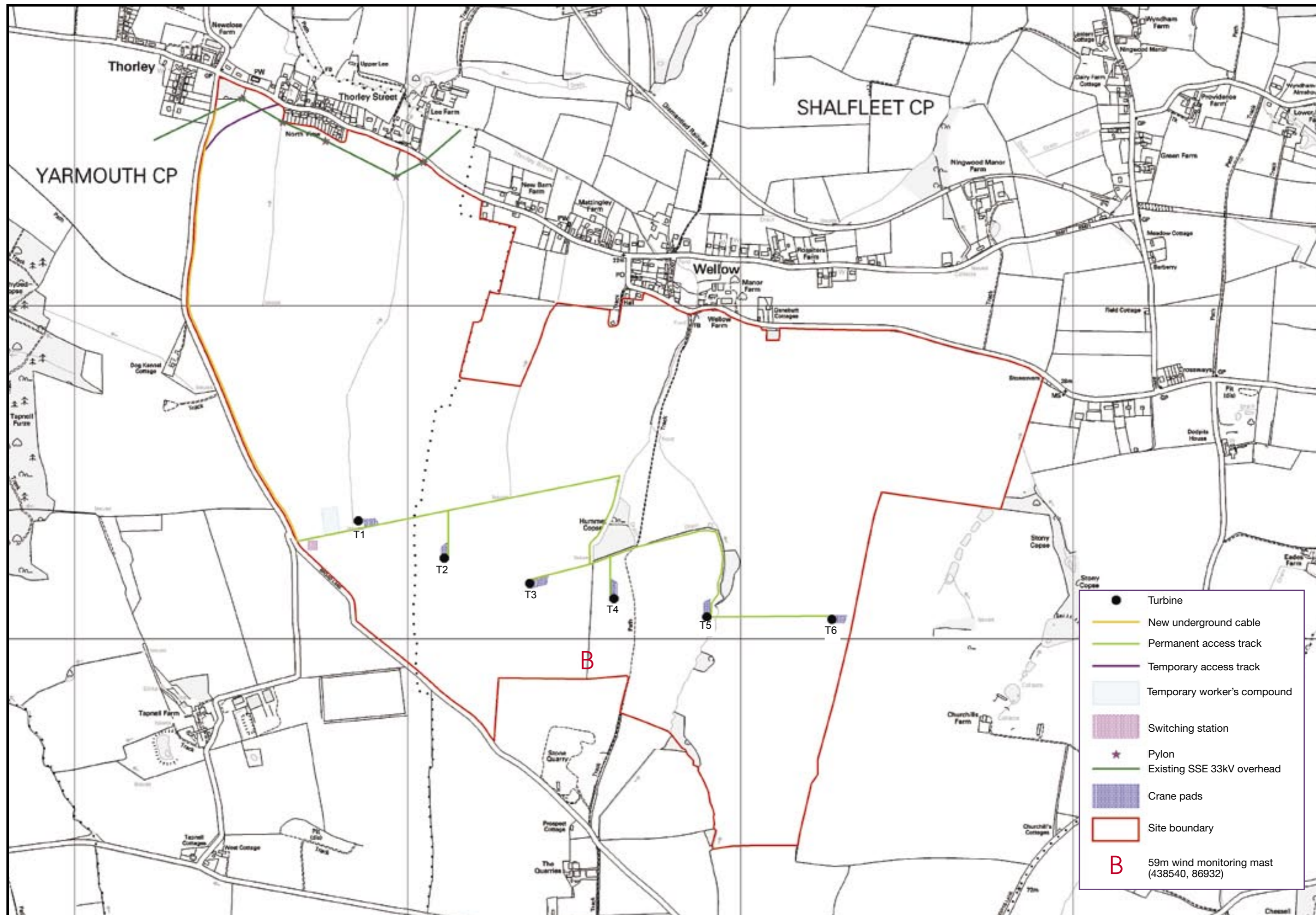
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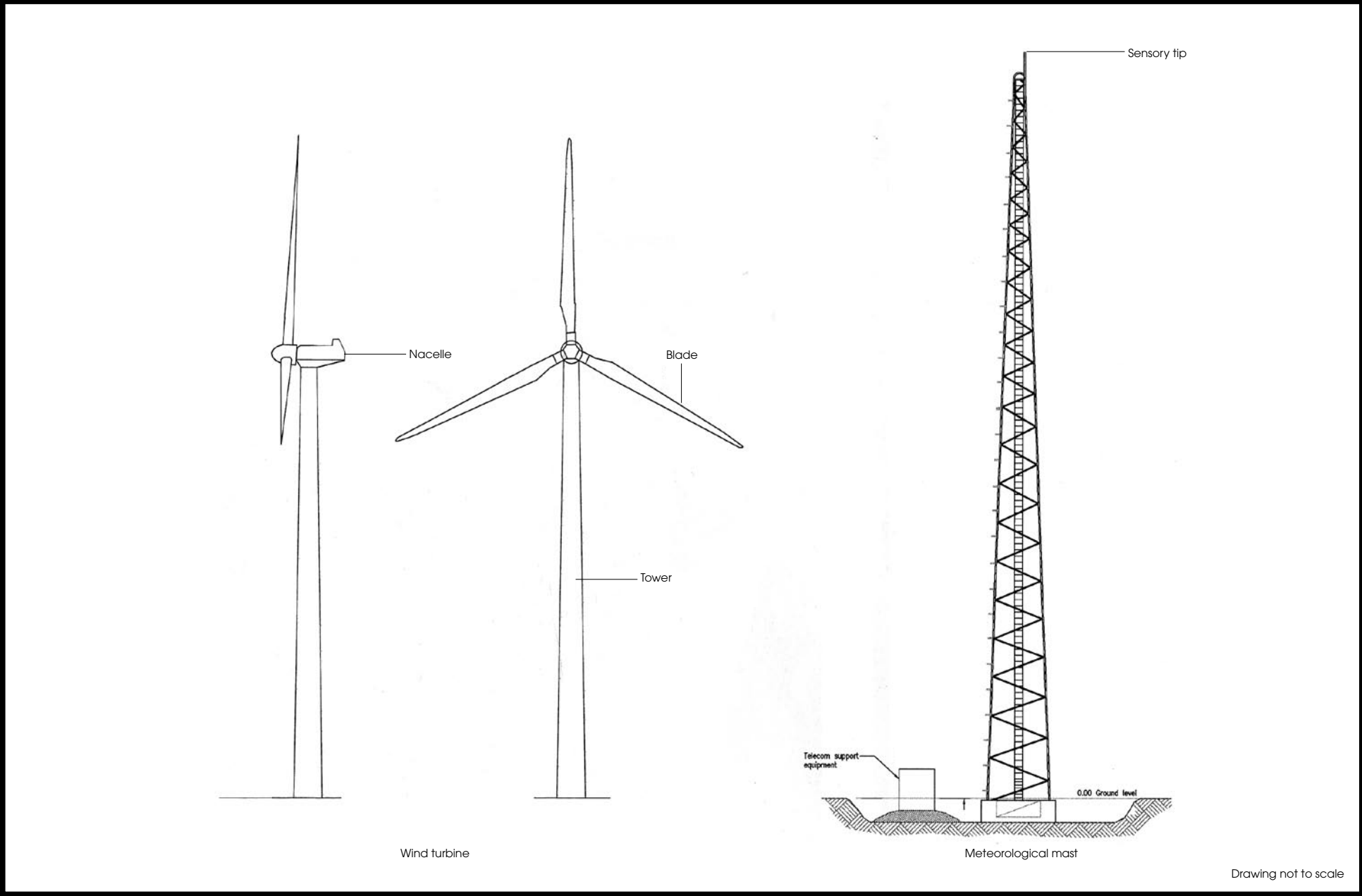
- Turbines



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Wind turbine

Meteorological mast

Drawing not to scale

