

5 kW wind turbine at Sandwich Technology School, Sandwich – DO/06/843

A report by the Acting Head of Planning Applications Group to Planning Applications Committee on 20 March 2007.

Application by the Governors of Sandwich Technology School and Kent County Council Children, Families & Education for the construction of a 5 kW wind turbine to increase energy efficiency and awareness of green issues at Sandwich Technology School, Deal Road, Sandwich.

Recommendation: Planning permission be granted subject to conditions.

Local Member(s): Leyland Ridings

Classification: Unrestricted

Members' Site Meeting

1. A group of Planning Applications Committee Members visited the application site on the 10 October 2006 to acquaint themselves with the proposals for a 5 kW wind turbine at Sandwich Technology School.

The Committee Secretary's Notes of the Site Meeting are attached as **Appendix 1**.

Site

2. Sandwich Technology School is located between Deal Road, to which the main vehicle access to the school leads, and Dover Road to the front of the school. The site is well screened with a tree-lined boundary along Deal Road, and is bordered by residential properties to the north-east on Dover Road. The entire site is within an Open Space designation (Policy OS1 from the Dover District Council Local Plan), which presumes against the loss of open space, with the exception of development in a school site for educational purposes.

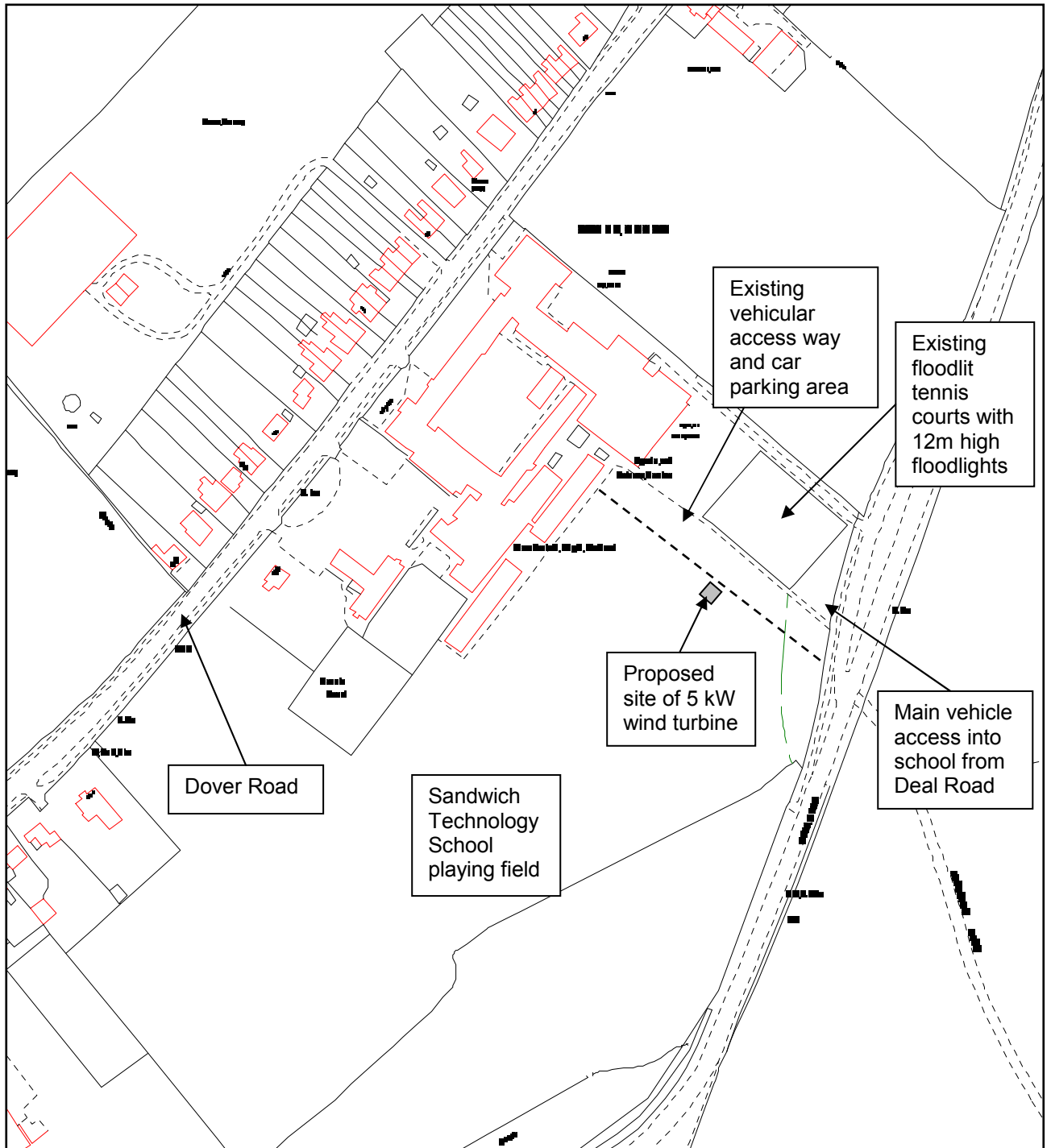
A site plan is attached and shows the school site and the proposed location of the 5 kW wind turbine.

Proposal

3. The application has been submitted by the Governors of Sandwich Technology School and Kent County Council Children, Families & Education and proposes the construction of a 5 kW wind turbine to increase energy efficiency and awareness of green issues at the school.
4. Sandwich Technology School is keen to promote a sustainable way of living, and to minimise the school's ecological footprint upon the land. The School, having investigated both solar and wind power as sources of alternative energy, consider that a 5 kW wind turbine would be the most cost effective way of introducing this renewable energy source into the school.
5. The applicants suggest that the wind turbine would fit in neatly with the existing school architecture, being visible, but not too obtrusive. It is proposed that the turbine be sited adjacent to existing floodlit tennis courts, which has floodlight posts already approximately 12m high. The School has stated that the turbine would act as a visual

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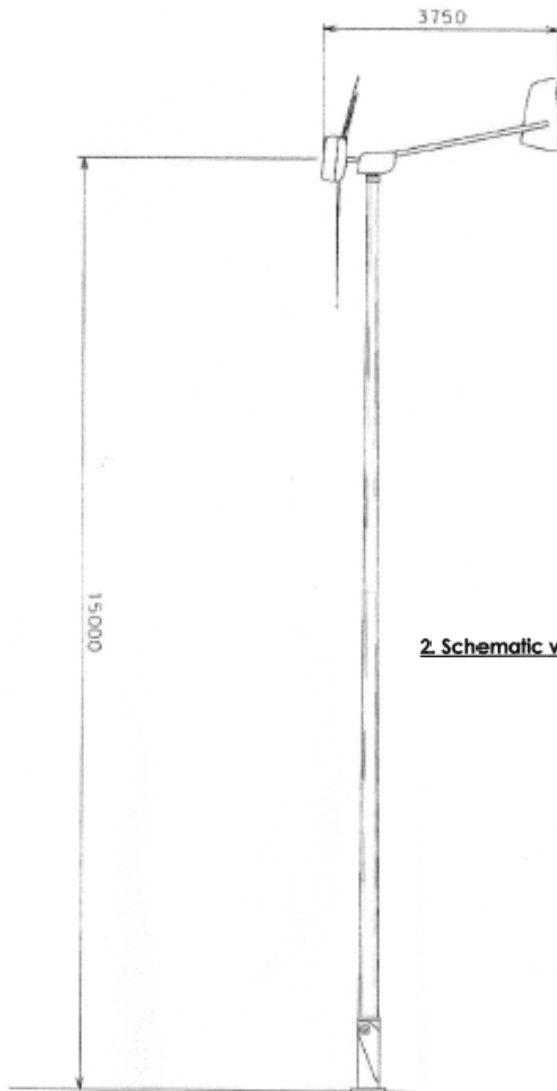
Site Plan



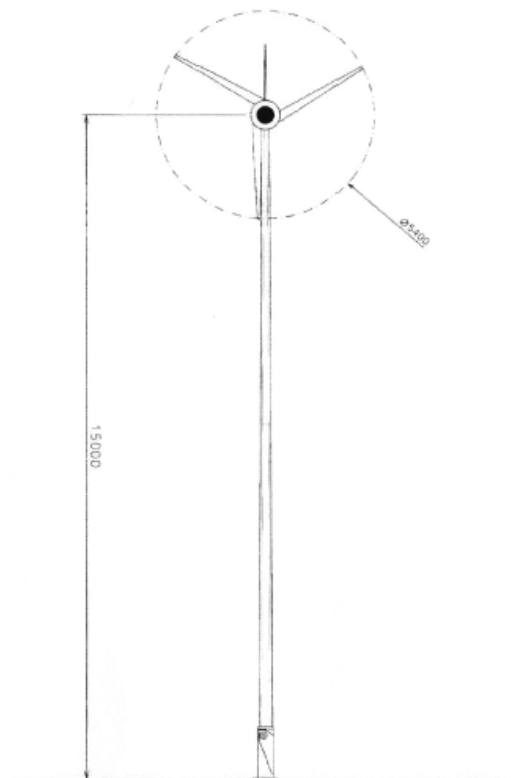
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Scale 1:2500

Proposed Elevation



2. Schematic views of the turbine from all sides.



Max height of turbine the highest point is 17.7 metres
Please note that above drawings are shown not to scale

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reminder to both students and visitors that the School is promoting an environmentally friendly way of life, and reducing local pollution.

6. The applicants have stated that any kilowatts generated by the turbine would be used by the school, decreasing the need for the use of fossil fuels. The applicants also state that cleaner energy production would be a bonus for the local community, and media publicity would potentially help others to follow their lead. Sandwich Technology School is working towards a Silver Eco-School certification, and information about the wind turbine would be displayed on an Eco-Noticeboard.
7. The wind turbine proposed is an Iskra AT5-1 free standing wind turbine. Its height would be 15m to the hub, with a 5.4m rotor diameter, therefore giving an overall height of 17.7m to the highest point. The Iskra wind turbine proposed here is rated to have an output of 5 kW and is commonly used for powering community and local authority projects. *An elevation of the turbine is attached for information.*
8. The wind turbine is expected to generate an average of 7,960 kilo-watt-hours of electricity each year, equivalent to a saving of nearly 3,600-kg of carbon dioxide. With this average annual generation figure in mind, the applicants estimate that the wind turbine would generate between 4-7% of the school's total electricity demand. The applicants have stated in their supporting documentation that the energy capture of the proposed turbine has been designed to be effective even at low wind speeds, thus making wind energy generation feasible at locations where the average wind speed is low. The applicants have also stated that the turbine has been specifically designed for low noise operation and minimal visual impact.

Planning Policy

9. Planning Policy Statement 22: Renewable Energy, sets out the Government's national policies for renewable energy, which are vital to facilitating the delivery of the Government's commitments on both climate change and renewable energy. The document sets out that Local Planning Authorities should consider the opportunity for incorporating renewable energy projects both in new developments and some existing buildings.

The key principles of the document state that *“small scale projects can provide a limited but valuable contribution to overall outputs of renewable energy and to meeting energy needs both locally and nationally. Planning Authorities should therefore not reject planning applications simply because the level of output is small”* The document also states that *“development proposals should demonstrate any environmental, economic and social benefits as well as how any environmental and social impacts have been minimised through careful consideration of location, scale, design and other measures”*.

Planning Policy Statement 22: Renewable Energy, sets out 'Locational Considerations' which are material in determining applications for renewable energy sources:

Landscape and visual effects from renewable energy developments

“The landscape and visual effects of particular renewable energy development will vary on a case by case basis according to the type of development, its location and the landscape setting of the proposed development”

“Of all renewable technologies, wind turbines are likely to have the greatest visual and landscape effects. However, in assessing planning applications, Local Authorities should recognise that the impact of turbines on the landscape will vary according to the size and number of turbines and the type of landscape involved [...]”

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“Planning Authorities should take into account the cumulative impact of wind generation projects in particular areas. Such impacts should be assessed at the planning application stage and Authorities should not set arbitrary limits in local development documents on the number of turbines that will be accepted in particular locations”

Noise from renewable energy developments

“Renewable energy technologies may generate small increases in noise levels (whether from machinery such as aerodynamic noise from wind turbines, or from associated sources – for example, traffic). Local Planning Authorities should ensure that renewable energy developments have been located and designed in such a way to minimise increases in ambient noise levels. Plans may include criteria that set out the minimum separation distances between different types of renewable energy projects and existing developments. The 1997 report by ETSU for the Department of Trade and Industry should be used to assess and rate noise from wind energy development.*

*Note – The Energy Technical Support Unit produced a report for the Department of Trade and Industry which should be used to assess and rate noise from wind energy development as set out in Planning Policy Statement 22: Renewable Energy.

10. The Development Plan Policies summarised below are relevant to the consideration of the application:

(i) **The Adopted 2006 Kent & Medway Structure Plan:**

Policy SP1 – The primary purpose of Kent’s development and environmental strategy will be to protect and enhance the environment and achieve a sustainable pattern and form of development. This will be done principally by, amongst other matters:

- responding to the implications of long term climate change by:
 - advancing the conservation and prudent use of energy, water and other natural resources;
 - minimising pollution and assisting the control of greenhouse gas emissions;

Policy QL1 – All development should be well designed and be of high quality. Developments, individually or taken together, should respond positively to the scale, layout, pattern and character of their local surroundings. Development which would be detrimental to the built environment, amenity, functioning and character of settlements or the countryside will not be permitted.

Policy EN1 – Kent’s countryside will be protected, conserved and enhanced for its own sake. Development in the countryside should seek to maintain or enhance it.

Policy EN2 – Kent’s undeveloped coast and estuaries will be protected, conserved and enhanced. Development in such areas and in adjoining countryside will not be permitted if it materially detracts from the scenic, heritage, wildlife or scientific value of these areas. Development so permitted should include appropriate mitigation and/or compensation.

Policy EN3 – Kent’s landscape and wildlife habitats will be protected, conserved and enhanced. Development will not be permitted if it would lead

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to the loss of features or habitats which are of landscape, historic, wildlife or geological importance, or are of an unspoilt quality free from urban intrusion unless there is a need for development which outweighs these considerations.

Where a need for development in the countryside is justified, important features and characteristics will be retained. Proposals should reflect the need for conservation, reinforcement, restoration or creation of countryside character and provide for the appropriate management of important features and the wider landscape.

Policy NR3 – Development necessary for the production of energy from renewable sources will be supported where there would be no overriding conflict with environmental interests.

Provision of renewable and sustainable energy production as an integral component of new development and in small-scale and community projects will be supported.

(ii) **Dover District Council Local Plan 2002:**

Policy ER1 – Proposals for development of energy from renewable sources will be permitted provided that: -

- the benefits of renewable energy generation outweigh any adverse impacts;
- where applicable, they are located in close proximity to the existing electricity distribution infrastructure.

Policy DD1 – Proposals for development will not be permitted unless they are acceptable in terms of:

- Layout and functional needs of the development;
- Siting, massing and scale of new buildings;
- Architectural style and materials;
- Spatial and visual character of the surrounding area;
- Landform and landscaping;
- Privacy and amenity, including the avoidance of pollution;
- Energy efficiency.

Policy OS1 – Proposals for development which would result in the loss of open space, will not be permitted unless:

- in the case of a school site, the development is for educational purposes;
- or
- in the case of small scale development, it is ancillary to the enjoyment of the open space, and
- the site has no overriding visual amenity interest, environmental role, cultural importance or nature conservation value.

Consultations**11. Dover District Council:** make the following observations:

“It is considered that the open location of the wind turbine as proposed, would result in a visually obtrusive and incongruous form of development, to the detriment of visual and landscape amenity.

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Whilst the principle of facilitating the use of alternative energy sources is strongly encouraged, this must not be at the expense of the visual or landscape amenity of the wider area. It is therefore suggested that a more appropriate location within the school grounds should be sought, where it benefits from the existing landscape screening. Should an alternative location be pursued, perhaps closer to the tree boundary, care must be taken to ensure that this does not raise the issue of wildlife protection”

Following further consultation with a background noise assessment, the District Council make the following observations:

“The Council’s Senior Environmental Protection Officer has stated that, in his view, the proposed wind turbine is a sufficient distance from the nearest residential facade such that the predicted level of noise will not cause sleep disturbance. Accordingly, he reiterates his conclusion that the application is acceptable in noise terms.

Nevertheless, the Council maintains its objection to the proposals for the reasons set out above”.

Sandwich Town Council: raise no objection to the proposal

Environment Agency: has no objection to the proposal.

Jacobs (Noise): make the following observations:

“Following the applicants having undertaken a background noise measurement survey concurrently with wind speed data, I am now satisfied that, in accordance with the relevant guidance, the proposed wind turbine would not result in adverse noise impacts to nearby sensitive properties”

Jacobs (Landscaping): has no objections to the development but makes the following observations:

“The proposed site currently hosts a variety of vertical elements, including streetlights and taller floodlights for the tennis courts along the access drive to Sandwich Technology School. Mature trees to the south of the proposed wind turbine site around the perimeter of a mown field also add to the vertical elements within the landscape. Although the lighting columns are not as tall as the proposed 15m wind turbine and the do not have any moving parts, the turbine is unlikely to appear out of scale or in isolation.

The proposed wind turbine would be visible from the grounds of Sandwich Technology School and Sports and Leisure Centre to the west. Glimpses of the turbine would also be possible from vehicles travelling along Deal Road to the east. However, impacts are negligible due to the built up character of the area. Views from residential properties to the west are restricted due to the existing technology school and sports and leisure centre buildings. However, views from upper storey windows of the top of the turbine and moving parts are possible from Dover Road to the west, causing a very slight adverse visual impact

We do not object to the proposed siting of the wind turbine. Existing tall vertical elements such as lighting columns and trees would reduce the impact caused by the wind turbine on the landscape. Adverse visual impacts from housing along Dover

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Road would be very slight as only the top of the turbine would be visible from upper storey windows, above a developed setting”

EDF Energy: no objections to the proposal, providing their rights regarding access and maintenance to any of our cables within the area at all times.

Kent International Airport: Has no objection to this application, however, should be overall height of the development exceed 20m above ground level, it will be necessary for the Airport to reconsider its opinion.

NERL Safeguarding: The proposed development has been examined from a technical aviation safeguarding aspect and does not conflict with our safeguarding criteria. Accordingly, NERL has no safeguarding objection to the proposal.

Local Member

12. The local County Member, Mr. L. Ridings was notified of the application on the 12 July 2006 and has raised no objections to the proposal.

Publicity

13. The application was publicised by the posting of three site notices on the school boundaries with Deal Road and Dover Road. No residential properties were individually notified given the distance to the nearest property being outside the 90m consultation zone.

Representations

14. I have received 6 letters of representation from nearby residents to date. A summary of the issues raised are set out below:

- Dover Road is a residential area and has been for over 100 years, long before the school was built and therefore the inconvenience to the residents in Dover Road should be paramount to the School;
- The noise generated by this turbine will be a major disturbance to us residents. It is well known the noise these turbines generate;
- The proposed siting of this 18m high turbine would be an eyesore for the historic town of Sandwich;
- We understand that the turbine would be a cost effective and environmentally friendly way of generating power for the School, but at what cost to its neighbours and the town?
- We find it incredible that a wind turbine should even be considered in a residential area;
- Concerned about noise pollution, unsightliness and devaluation of own properties;
- Is KCC prepared to soundproof resident's properties and will they offer compensation?
- Increased noise disturbance 24-hours per day;
- The turbine would deface the local landscape;
- The latest information available from the Energy Savings Trust states that *“the cost of energy efficiency measures around 1.3 pence per kilowatt hour (per unit). The cost of wind energy is currently around 2.4 pence per unit”*
- If the School is keen on being considered “green”, they should start by switching off all unnecessary lights and computers which can be seen most evenings after the school has closed;

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- No information in the supporting documents which relates to any risk assessments carried out on the geological impact from the constant vibrations of such a mechanical structure to the surrounding area. Several houses in the area have suffered from subsidence, and subsequent correctional underpinning, due to an alleged fault line running across this area with unstable strata possibly as a result of underground blasting carried out during past mining operations;
- The supporting documentation openly admits, “wind turbines are likely to have the greatest visual and landscape impact”. This begs the question, was solar panelling considered and if so, what process was used to determine that the wind turbine form of renewable energy would be more suitable in this instance than solar panelling, which would certainly have less adverse impact, and would be the option of choice for local residents?
- With this eyesore in the ground’s of the school, who would want to buy a house in the Deal or Dover area now?
- Object to the siting of the planning notice. Most residents were completely unaware of the notice, as it was sited on the By-pass of side of the school;

Discussion

15. In considering this proposal, regard must be had to the Development Plan Policies outlined in paragraph (10) above. Section 38(6) of the 2004 Planning and Compulsory Purchase Act states that applications must be determined in accordance with the Development Plan unless material considerations indicate otherwise. Therefore, this proposal needs to be considered in the context of the Development Plan Policies, Government Guidance and other material planning considerations arising from consultation and publicity. Issues of particular relevance in this case include the impact upon residential amenity through potential noise generation from the proposed wind turbine, the wider visual impact of the proposed development on the local landscape and any relevant Development Plan Policies.

Renewable energy wind technology

16. The application has been submitted by the School in an attempt to address sustainable ways of living and to reduce the school’s ecological footprint upon the land. The 5 kW turbine being proposed is the type most commonly found in community and local authority projects. From the figures supplied, bearing in mind the average annual mean wind speed in Sandwich, the proposed turbine is likely to generate between 4-7% of the school’s total energy usage. In relative terms, this is approximately the equivalent of providing sufficient electricity to power between 125 to 150 computers.

17. Planning Policy Statement 22 (PPS 22) sets out the Government’s national policies for land use planning in England with regard to renewable energy developments. The key principles of the Policy Statement are set out in paragraph (9) above, and form material planning considerations in the determination of this application. However, it should be noted that PPS 22 sets out that *“Planning Authorities should not reject applications simply because the level of output is small”* and that *“development proposals should demonstrate any environmental, economic and social benefits as well as how any environmental and social impacts have been minimised through careful considerations of location, scale, design and other measures...”*. Bearing this in mind, Members should note the discussions relating to the proposed location, as set out in paragraphs (28) to (30) below, as well as the scale and visual impact of the turbine in paragraphs (24) to (26).

18. In addition to PPS22, Policy NR3 from the Adopted Kent and Medway Structure Plan supports the production of energy from renewable sources where there would be no overriding conflict with environmental interests. This Policy also states that the provision

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of renewable and sustainable energy production is an integral component of both new development and small-scale community projects such as at school sites. Policy SP1 of the Adopted Structure Plan supports projects that respond to the implications of climate change by advancing the conservation and prudent use of energy, water and other natural resources. In the case of this development, the wind turbine would ensure that a sustainable source of energy is generated through the use of an existing sufficient annual mean wind speed in the Sandwich area, and therefore I consider that the proposal would fully accord with these Policies.

Noise impact

19. In my opinion, noise impact on nearby noise sensitive properties is one of the key considerations in determining this application. Following on from initial concerns over a lack of information on background noise levels by the noise advisor, (Jacobs), as well as concerns raised relating to potential noise disturbance by local residents, the applicants were able to undertake a background noise level survey at the school site. The background noise level survey was then considered by the noise advisor, whose final comments are set out in paragraph (11) above. This has all progressed since the Members' Site Meeting in October 2006.
20. It has been confirmed by virtue of a background noise survey over both day and night-time periods, and an environmental noise impact assessment of the proposed noise generation by the turbine at varying wind speeds, that there would be no detrimental noise impact on the nearest noise sensitive residential properties fronting Dover Road. Members are reminded that the distance from the proposed turbine to the nearest noise sensitive residential property is approximately 170 metres, and that distance is separated by way of a road, Dover Road, and numerous school buildings, including single, two and three storey elements.
21. It has been calculated that the noise generated from the turbine at a distance of 100m from its base would be significantly lower than the average background noise as calculated from the undertaking of a background noise assessment by the applicant. For day-time hours, ETSU (see definition in paragraph (9) above) suggests maximum noise limits of 35 – 40 dB, or 5 dB above the prevailing day-time background, whichever is the greater assessed during "amenity hour" periods (ETSU defines "amenity hours" as evenings from 18:00 hours to 23:00 hours plus Saturday afternoons from 13:00 hours to 18:00 hours and Sundays from 7:00 hours to 18:00 hours). The calculated noise level from the proposed turbine at 100 metres away from its base is indicated to be within the suggested noise limits for "amenity hours" as set out by ETSU. Members should also note that the noise generated by the turbine is predicted to be significantly less than the average day / night-time background noise level.
22. When considering Development Plan Policies, Members should note that Policy ER1 of the Dover District Council Local Plan supports development proposals where the benefits of renewable energy generation outweigh any adverse impact to the surrounding area. Given that the noise assessment has been undertaken and the results show that at the nearest property there would be no adverse affect caused by the turbine, I do not consider there to be any detrimental noise impact on the surrounding area.
23. Planning Policy Statement 22 recognises the noise implications caused by renewable energy technology, in particular with wind turbines. As such, PPS 22 sets out guidelines for acceptable noise levels for wind turbine developments. Members will note that the implications of the turbine on nearby noise sensitive residential properties is discussed in paragraphs (19) to (21) above in accordance with ETSU guidance (as defined in paragraph (9) above). Therefore, in light of the findings of the noise assessment and in

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accordance with both the relevant Development Plan Policies and PPS22, in my opinion an objection on noise grounds cannot be sustained.

Visual impact

24. Members will note that both residential objections and a District Council objection have been lodged with regard to the landscape and visual impacts of the wind turbine with regard to its chosen location. I would draw Members' attention to the advice given by the landscape specialist on the matter, where it is stated in paragraph (11) above that any *'adverse visual impacts from housing along Dover Road would be very slight as only the top of the turbine would be visible from upper storey windows, above a developed setting'* and that the *"impacts are negligible due to the built up character of the area"*. I would concur with this view and I would not raise any objections to the proposed siting of the turbine at the Technology School.
25. In relation to the proposed wind turbine's chosen colour, the applicants have indicated that the entire turbine would be finished in grey (Dark Squirrel Grey, RAL 7000). The applicants suggest that grey is proven to blend in better than other colours such as dark green, brown and black against rural backgrounds and also against the skyline. I would agree with the applicant and therefore would not raise any objection to the proposed colour of the turbine within its local context.
26. Planning Policy Statement 22 recognises that *"out of all renewable energy technologies, wind turbines are likely to have the greatest landscape effects, however Planning Authorities should recognise that these impacts will vary according to the size and number of turbines and the type of landscape involved..."* In my opinion, given the size of the turbine at its tallest point would be 17.7 metres, and the fact that the site is relatively well screened from mature tree and vegetation planting as well as the existing built environment at the site, I do not raise any objection to the proposed development on visual impacts.

Geological impact

27. Members will note from the residential objections as outlined in paragraph (14) above, and discussions held at the Site Meeting (see Appendix 1) that there have been concerns raised with regard to the geological impact of the proposed turbine on the local ground structure. It has been alleged that there have been recent cases of subsidence, and subsequent correctional underpinning in the area, and concerns have arisen with the constant vibrations caused by such a mechanical structure. In response to these concerns the applicant has stated that no geological impact would occur as the turbine and all forces, vibrations and loads have been independently calculated around the structure and the base. As such the proposed turbine would be fixed to a concrete foundations base (measuring 2800 length x 2800 width x 1500 depth) that is specifically designed to accept the turbine with any adverse loading.

Proposed location

28. The applicants have carefully considered both the current location of the wind turbine as well as any other alternative sites within the Technology School grounds. This has been a process of selection to ensure that the impact of the turbine is kept as minimal as possible in terms of the functioning of the school site, the impact on nearby residential properties and the functionality and performance of the proposed turbine in relation to the prevailing wind direction. In addition to the above, the applicants have also considered the potential impacts of "shadow flicker" on nearby buildings ("shadow flicker" is defined in Planning Policy Statement 22 as being caused when certain combinations of geographical position and time of day, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties and when the blades rotate, the shadow flicks on and off). With this in mind, the applicants have

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ensured that there are no nearby buildings to the East or West of the turbine at dusk and dawn, and as such no nearby buildings are likely to be affected by shadow flicker.

29. Given that the site lies within an Open Space designation, Policy OS1 of the Adopted Local Plan must be considered. This Policy states that *“proposals for development which would result in the loss of open space will not be permitted unless the development is for educational purposes [...]”*. In my opinion, given the small footprint of the turbine proposed, I do not consider the siting of the proposed wind turbine to have any detrimental impact on the Open Space designation as set out in the Local Plan.

30. Accordingly, I would not raise any objection to the chosen location of the wind turbine within the school site and within an Open Space designation, as shown in photographs (1) and (2) on page (13), and consider that the chosen location is the most suitable for the proposed development.

Conclusion

31. Notwithstanding the residential objections as set out in paragraph (14) and the Local Planning Authority objections as set out in paragraph (11) above, I consider the chosen location for the siting of a 5 kW wind turbine at Sandwich Technology School to be acceptable in terms of its impact on local amenity as well as its accordance with both Development Plan Policies and national planning guidelines as set out in Planning Policy Statement 22. I note the concerns raised by local residents relating to potential noise disturbance and an adverse visual impact, but have concluded that objections on these grounds cannot be sustained as stated in paragraphs (23) and (26) above. I consider the wind turbine proposed to be of an acceptable scale and nature and sited in an appropriate location within the Technology School grounds.

Accordingly, I recommend that planning permission be granted subject to the conditions as set out in paragraph (32) below.

Recommendation

32. I RECOMMEND that PLANNING PERMISSION BE GRANTED SUBJECT TO conditions, including conditions covering:

- the standard time limit;
- the development to be carried out in accordance with the approved details;
- the turbine be completely finished in Dark Squirrel Grey, RAL 7000;

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Photograph 1: Location of proposed 5 kW wind turbine shown from school playing field looking north-eastwards towards the turbine site.

Photograph 2: Location of proposed 5 kW wind turbine shown from main vehicular entrance to the School from Deal Road.



Case officer – Julian Moat 01622 696978

Background documents - See section heading