

RECOMMENDATION : SECTION 106

REFERENCE: P/14/541/RLX

APPLICANT: PENNANT WALTERS (PYWX) LIMITED
HIRWAUN HOUSE HIRWAUN INDUSTRIAL ESTATE HIRWAUN
ABERDARE

LOCATION: FFORCH NEST WIND FARM GLYNOGWR BRIDGEND

PROPOSAL: RELAX CONDITION 29 OF P/06/1080/FUL RELATING TO NOISE LIMITS

RECEIVED: 8th August 2014

SITE INSPECTED: 5th September 2014

APPLICATION/SITE DESCRIPTION

Planning permission was granted to NPower Renewables for the erection of 4 wind turbines and associated works on 4th May 2011, (P/06/417/FUL refers). The turbines formed part of the Fforch Nest windfarm with the remaining number being located in Rhondda Cynon Taff. The consent was the subject to a S106 agreement and was conditional. Condition 29 of the permission stated:

'The rating level of noise immissions from the combined effects of the wind turbines (including the application of any tonal penalty), when calculated in accordance with the attached Guidance Notes, shall not exceed the values set out in the attached Tables. Each of these values shall apply to all of the properties falling within the respective areas shown on the attached plan unless otherwise agreed with the Local Planning Authority. Noise limits for any property which lawfully exists at the date of this consent but which is not covered by any of the areas shown on the plan attached shall be those of the nearest area shown on the plan unless otherwise agreed with the Local Planning Authority.

Reason: In the interests of the amenities of the area (Policy EV27 of the UDP)'

This Section 73 application seeks to vary the aforementioned planning condition by substituting the 'attached tables' referred to in the condition by new tables as produced in an up-dated noise report.

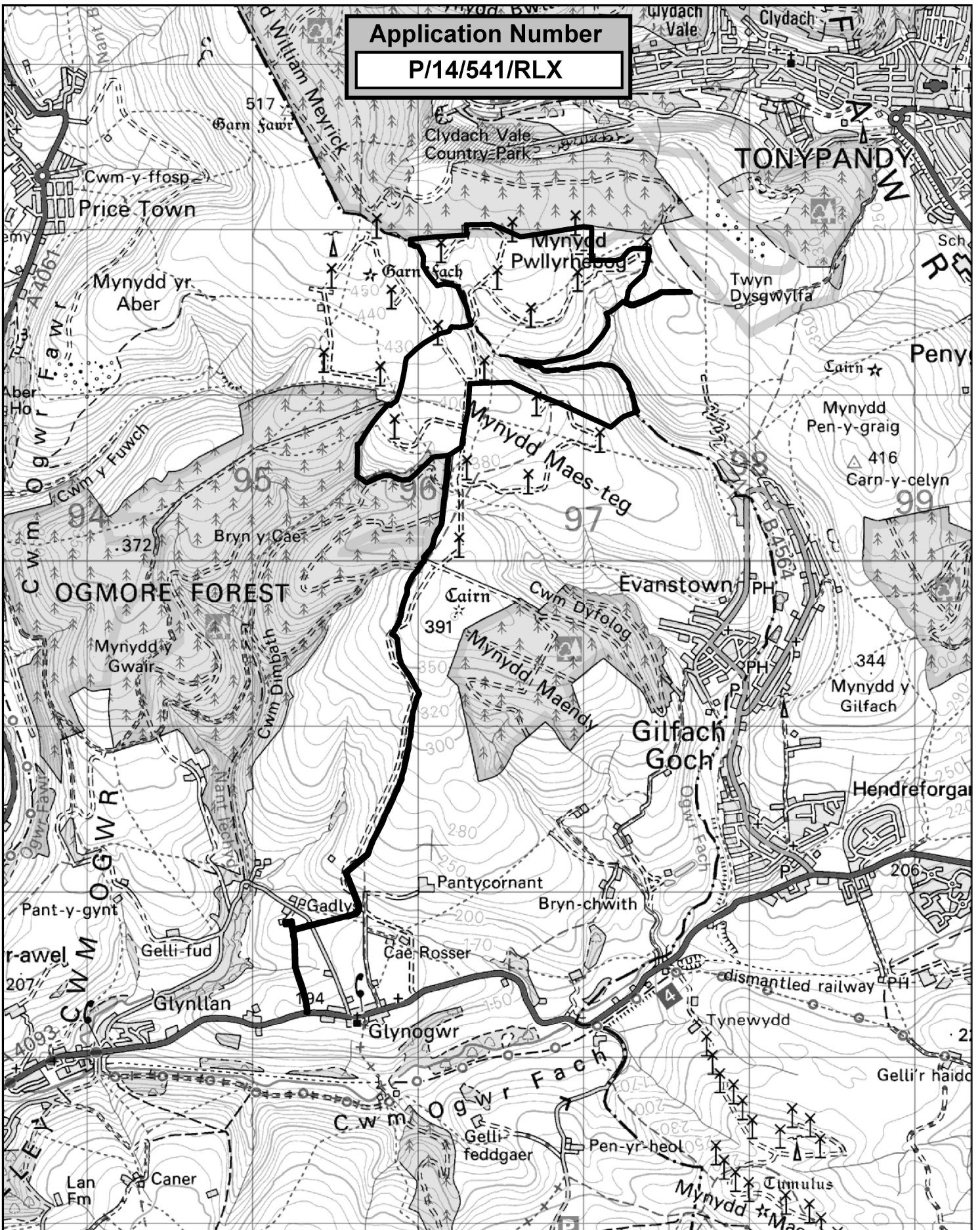
The Pantywal and Fforch Nest wind farms, although granted permission under separate consents, (including a consent granted at appeal for the turbines in Rhondda Cynon Taff) are now owned and operated by Pennant Walters.

When the issue of noise was assessed on the original planning applications, it was done so on the basis that each wind farm (turbines) would operate together and the limits were set to accord with the recognised guidance and to safeguard the amenity of residents. Co-operation between the original two wind farm operators on the direct apportionment of noise from each wind farm could not be achieved so, accordingly, the maximum level of noise was effectively shared between the two wind farms i.e. Pantywal and Fforch Nest. Conditions were applied to the consents to achieve the necessary controls. As the two wind farms are now under the control of the one operator, permission is being sought to vary the above condition and to amend the noise levels in the related tables. The amendment is necessary in order to accommodate the additional turbines proposed under application P/14/293/FUL and to ensure the wind farm meets current noise level guidelines.

The application has been accompanied by three noise reports which were received in July 2014

Application Number

P/14/541/RLX



Scale 1:30,000

Date Issued:
26/03/2015

Development-Mapping
Tel: 01656 643176

Mark Shephard

Corporate Director-Communities

Communities Directorate,
Bridgend County Borough
Council, Civic Offices,
Angel Street,
Bridgend CF31 4WB.

O:/Drive/Plandraw/new MI layouts/
Committee DC Plan

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Cyngor Bwrdeistref Sirol



with revised assessments received in January and March 2015.

RELEVANT HISTORY

P/06/1080/FUL APPROVED 04-05-2011
+conditions
4 WIND TURBINES, SUB-STATION, TRACKS, MASTS & ACCESS OFF A4093

P/08/962/FUL APPROVED 04-05-2011
+conditions
CONSTRUCTION OF ACCESS TRACK TO SERVE PROPOSED PANTYWAL & FFORCH
NEST WIND FARMS

P/14/626/OBS
OBS FOR VARIATION OF CONDITION RELATING TO NOISE LIMITS

PUBLICITY

The application has been advertised in the press and on site.
Neighbours have been notified of the receipt of the application.
The period allowed for response to consultations/publicity expired on 5th February 2015.

NEGOTIATIONS

Commenced on 10th November 2014 in response to observations received from the Group Manager Public Protection and have included meeting with the developers planning agent and noise consultant and officers of Rhondda Cynon Taff. That authority is also processing an application to vary the planning conditions that control noise limits for the turbines in RCT. Negotiations have resulted in the submission of two Noise Assessments, the latest being received in March 2015.

CONSULTATION RESPONSES

Town/Community Council Observations

Notified on 12th August 2014
The community already have issues with noise; also suffering a constant humming sound.

Group Manager Public Protection

The following observations relate to this application and the proposal to extend Pantywyal and to vary the condition imposed on the original permission for the Pantywyal Wind farm:

Fforch Nest and Pant Y Wal were originally under the ownership of two different developers. Consequently, the noise limits that were originally set for each individual wind farm were such that when they were both operating together, the combined noise levels would not exceed the criteria specified in the ETSU-R-97 relative to background levels, which is the wind farm guidance that Local Authorities must have regard to. As co-operation between the two operators could not be guaranteed and that a direct apportionment of the noise from each wind farm could not be agreed upon, the maximum permitted noise levels were effectively shared between the

two developments.

When dealing with the new extension to the Pant Y Wal wind farm (P/14/293/FUL), the applicant expressed a wish to have one set of noise limits for the wind farms that have existing consents as they are now in the ownership of the same developer. Subsequently, two Section 73 applications were submitted to relax condition 29 of the two original consents. However, the noise levels requested for the Section 73 applications effectively meant there would be an increase of 3dB, which the Public Protection Department objected to.

Upon further meetings between the applicant and officers from Bridgend County Borough Council and Rhondda Cynon Taff, the noise report was resubmitted with 4 sets of revised noise levels for the proposed development and the existing Pant y Wal and Fforch Nest Wind Farms. Without lowering some of the limits to the existing consents, the new development would not be able to meet the cumulative ETSU criteria as they had essentially 'used up' the noise allowance between the other two sites. The fourth sets of limits are in respect of the turbines which fall within Rhondda Cynon Taff. When added together, these 4 sets of proposed noise limits now meet the original ETSU criteria.

On the noise report received in January 2015, the Group Manager Public Protection offered no objection to the development but indicated that the applications submitted to this Council to vary the noise limits, (P/14/540/RLX and P/14/541/RLX) should be determined prior to any permission being granted for the additional wind turbines that are subject of this application. Furthermore, to ensure effective control of the cumulative noise levels it is also critical that Rhondda Cynon Taff grant permission for the variation of the noise limits prior to a decision being made on the Pantywal extension.

On the basis that this authority has no control over a decision that is made by another council, the applicant company commissioned a further noise assessment, (March 2015) and this sought to demonstrate that individual and cumulative noise levels for the proposed and existing wind turbines in this authority's control would not exceed the ETSU-R-97 criteria, even if RCT resolved not to allow a variation and relied on the noise levels set under the original planning permission.

The report has been examined in detail and the Group Manager Public Protection has accepted its conclusions and offers no objection to the respective applications subject to conditions and an agreement, that the applicant can no longer operate at the former limits and that all the other noise conditions attached to the original consents still apply.

REPRESENTATIONS RECEIVED

Alun & Elizabeth Cole, Cae Rosser Isaf

I object to the development on the following grounds (summarised):

Noise levels established under the respective conditions were consistent with normal guidelines and practices;

Strongest possible conditions should be maintained to ensure residential amenity is protected;

Serious and long standing complaints from residents in Gilfach Goch - that noise and vibration is adversely impacting their health;

Mrs M Jenkins, Blackmill & Glynogwr Tennants And Res Association

The residents of the Cwm Area in Nantymoel are already complaining of noise/vibration

problems - additional turbines will exacerbate the problem.

Tim And Monica Blanch, Ty Wrth Yr Eglwys

We object to the development for the following reasons: (summary of comments)

1. We have been pleasantly surprised by the lack of disturbance caused by the development and operation of Pant y Wal and Fforch Nest so far. However, we can still hear the turbines quite clearly when the weather is windy on top of the mountain, and calm in Glynogwr. The noise levels are currently not loud enough to cause us any major disturbance.
2. Have there been any breaches to noise levels on either windfarm since they became operational?
3. We strongly object to the proposed increase in noise levels across the two windfarms. It would amount in reality to an increase in noise levels of 100%. This would cause us major disturbance and distress.
4. We therefore do not see how change of ownership should affect the restrictions on noise levels which were set by BCBC at planning consent stage.
5. As the windfarms are in planning terms, two windfarms, Pennant Walters would be free in the future to sell one on to a separate company. If the increase in noise levels is allowed, this would result in both windfarms having an increased db rate of 3db, a doubling of the allowable level of noise. We do not think this is reasonable and cannot understand why the application has been made.

COMMENTS ON REPRESENTATIONS RECEIVED

The following comments are provided in response to the representations received:

1. The Council agrees with the objectors that the strongest possible control on noise levels should continue to ensure that the amenity of residents is safeguarded. The Group Manager Public Protection has confirmed that the noise levels that were originally set for the respective windfarms (Pantywal and Fforch Nest) were such that, when they were operating together, the combined noise levels would not exceed the criteria specified by the national guidance (ETSU). On the basis that a direct apportionment at each receptor (dwellinghouses) for noise levels was not possible at that time, the noise levels at each receptor were reduced in the planning condition by 3 decibels (dB).
2. Tables proposing revised noise limits for the new development and existing Pantywal and Fforch Nest turbines have been presented as part of the recent noise assessment. The limits have been derived from the combined noise limits for the existing wind farm, (inclusive of the single operator correction and based on background levels of the original application), accounting for the contributions from the nearby Taff Ely and Ferndale wind farms and have been set to ensure that cumulative noise levels from all existing wind farms and the proposed extension do not exceed the existing combined noise limits. The Group Manager has accepted the findings of the report and does not object to the variation of the conditions subject to reworded conditions referring to the noise levels in the revised tables.
3. The Group Manager Public Protection is not aware of any complaints being received by this Council in connection with problems of noise associated with the existing wind farm. Such matters may have been referred to RCT for investigation if they relate to properties in Gilfach Goch.

4. Representations have been received from residents regarding low frequency noise and vibration associated with the existing wind turbines. Technical Advice Note: 8 - Planning for Renewable Energy indicates 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. On the basis of the lack of evidence there are no grounds to consider rejecting the application on the basis of low frequency noise and vibration.

APPRAISAL

The application is referred to the Development Control Committee for determination on the basis of the objections received from local residents and the Community Council.

Planning permission was granted to NPower Renewables for the erection of 4 wind turbines and associated works on 4th May 2011 (P/06/417/FUL refers). The turbines formed part of the Fforch Nest windfarm with the remaining number being located in Rhondda Cynon Taff. The consent was the subject to a S106 agreement and was conditional. Condition 29 of the permission stated:

'The rating level of noise immissions from the combined effects of the wind turbines (including the application of any tonal penalty), when calculated in accordance with the attached Guidance Notes, shall not exceed the values set out in the attached Tables. Each of these values shall apply to all of the properties falling within the respective areas shown on the attached plan unless otherwise agreed with the Local Planning Authority. Noise limits for any property which lawfully exists at the date of this consent but which is not covered by any of the areas shown on the plan attached shall be those of the nearest area shown on the plan unless otherwise agreed with the Local Planning Authority.

Reason: In the interests of the amenities of the area (Policy EV27 of the UDP)'

This Section 73 application seeks to vary the aforementioned planning condition by substituting the 'attached tables' referred to in the condition by new tables as produced in an up-dated noise report.

The main issue for consideration in the determination of this Section 73 application is whether the noise levels in the revised tables will accord with the ETSU criteria and be set so as not to affect the amenities of nearby residents and the wider community. Policies ENV7 (Natural Resource

Protection and Public Health) and ENV 18 (Renewable Energy Developments) of the Bridgend Local Development Plan provide the local policy framework for the determination with TAN 8: Renewable Energy, TAN 11: Noise and ETSU-R-97 being the relevant national guidance. The acceptability of the accompanying noise report is the critical factor in whether a decision to vary the condition and the associated noise tables should be granted.

On the basis of the observations received from the Group Manager Public Protection it appears that the methodology, equipment, modelling and the resultant data are acceptable with the assessment having fully considered the predicted combined and cumulative noise levels of the existing and proposed wind turbines, whilst also having regard to turbines at Taff Ely and Ferndale. It is concluded that cumulative noise levels from all operating turbines will result in no increase above the ETSU limits.

If planning permission is to be granted, the timing of the consents will be crucial. The Section 73 applications, including the application being processed by RCT for the variation of the identical condition that covers that part of the Fforch Nest wind farm in RCT's control, will need to be approved prior to the grant of the Pantywal extension. This is to prevent the possibility of the applicants withdrawing the Section73 applications after the consent has been given for the new scheme. It is also crucial to ensure that if the Section 73 applications are granted, that the

applicant can then no longer operate at the former limits and that all the other noise conditions attached to those original consents still remain. The aforementioned matters will be secured through a related S106 agreement.

CONCLUSION

This application is recommended for approval because the variation of the condition and the associated revised tables of noise levels that are proposed to be inserted accords with Government and Council policy and will ensure that the future operation of the existing wind turbines will not be detrimental to the amenity of residents by virtue of associated noise.

RECOMMENDATION

(A) The applicant enters into a Section 106 Agreement to:

To agree not to action, implement or rely on Consent P/06/1080/FUL and to agree that the table of noise limits set out as Table 5.13 (Set 3) Proposed Planning Condition Limits for the Existing Fforch Nest Wind Farm: Bridgend CBC Turbines 11-14 (Other Times) and Table 5.14 (Set 3) Proposed Planning Condition Limits for the Existing Fforch Nest Wind Farm: Bridgend CBC Turbines 11-14 (Night Time) in the White Young Green Noise Assessment dated March 2015 shall be implemented and observed by the Developer from the date of the section 106 Agreement.

(B) The Corporate Director Communities be given plenary powers to issue a decision notice granting consent in respect of this proposal once the applicant has entered into the aforementioned Section 106 Agreement, as follows:-

- 1 The permission hereby granted shall endure for a period of 25 years from the date when electricity is first exported from a wind turbine within this site, to the electricity grid network ('First Export Date').

Reason: In recognition of the expected lifespan of the wind farm and in the interests of safety and amenity once the plant is redundant

- 2 Not later than 12 months before the expiry date of this permission, a decommissioning and site restoration scheme shall be submitted for the written approval of the Local Planning Authority. Such scheme will include the management and timing of works and a traffic management plan to address highways issues during the decommissioning period. Full restoration of the wind farm site shall be completed within 24 months of the expiry date of this permission and the site shall be decommissioned in accordance with the scheme.

Reason: In the interests of visual amenity and landscape protection and in the interests of safety and amenity

- 3 If any wind turbine fails to produce electricity to the grid for a continuous period of 12 months and, if so instructed by the Local Planning Authority, the wind turbine and its associated ancillary equipment shall be removed from the site within a period of 6 months from the end of that 12 month period unless otherwise agreed in writing by the Local Planning Authority.

Reason: In the interests of visual amenity and to ensure that the turbines produce

electricity whilst in situ and that they are removed from the land if they cease to function

- 4** All wind turbines blades shall rotate in a clockwise direction.

Reason: In the interests of visual amenity and landscape protection

- 5** The overall height of the wind turbines shall not exceed 115m to the tips of the turbine blades.

Reason: In the interests of visual amenity and landscape protection

- 6** All wind turbines shall be of a 3 bladed configuration and shall be of a semi-matt finish and shall not display any prominent name, sign, symbol or logo on any external surfaces unless otherwise agreed in writing by the Local Planning Authority.

Reason: In the interests of visual amenity and landscape protection

- 7** The turbines shall not be illuminated and there shall be no permanent illumination on the site unless otherwise agreed in writing by the Local Planning Authority.

Reason: In the interests of visual amenity and landscape protection

- 8** Subject to the allowance for micro-siting provided in this condition, the turbines shall be erected at the coordinates indicated on the approved layout plan reference A025062\PYW02R(B) dated June 2009. Variations to the indicated position of any turbine(s) shall be permitted by up to 30 metres in any direction.

Reason: To comply with the environmental assessments undertaken of the proposed development and to take account of local environmental conditions.

- 9** All cabling within the site shall be installed underground except where it exits the substation.

Reason: In order to safeguard the amenity of the landscape

- 10** Notwithstanding the provisions of condition 18, delivery of turbine and crane components may take place outside the hours specified subject to not less than two working days notice of such traffic movements being given to the Local Planning Authority and such deliveries first being approved in writing by the Local Planning Authority.

Reason: In the interests of highway safety and the free flow of traffic

- 11** Any future construction shall only be carried out in accordance with the agreed 'Construction Method Statement' and the 'Construction Traffic Management Plan' unless otherwise agreed in writing by the local planning authority.

Reason: In the interests of environmental protection and the minimisation of likely significant environmental effects.

- 12** Any facilities for the storage of oils, fuels or chemicals shall be sited on impervious bases and surrounded by impervious bund walls. The volume of the bunded compound should be at least 110% of the capacity of the tank. If there are multiple tanks, the bunded compound should be at least equivalent to the capacity of the largest tank plus 10%. All filling points, vents, gauges and sight glasses shall be located within the bund. The bund shall be sealed with no discharge to any watercourse, land or underground strata. Associated pipework shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge

downwards into the bund.

Reason: To prevent pollution of the water environment

- 13** Should any contaminated material be observed (visual or olfactory), which has not been previously identified, then no further development (unless otherwise agreed in writing with the local planning authority) shall be carried out until the developer has undertaken a site investigation to determine the nature and extent of the contamination. In the event that contamination is confirmed the developer must liaise with the local planning authority on measures required to protect surface water and groundwater interests. This may include undertaking a risk assessment and derivation of appropriate remedial targets.

Reason: To protect the quality of controlled waters in the area

- 14** Nothing other than uncontaminated materials suitable for use shall be tipped on the site.

Reason: To prevent pollution on the water environment

- 15** No barbed wire shall be used along the access track.

Reason: To protect the amenity of walkers and other users of the rights of way.

- 16** No development shall take place until a scheme for the replanting of any hedgerows or boundary planting removed for the proposed access during construction has been submitted to and approved in writing by the Local Planning Authority. The scheme shall be implemented as approved. Development shall be carried out in accordance with the details.

Reason: For the protection of nature conservation interests and in the interests of visual amenity

- 17** The agreed landscape and ecological management, mitigation and monitoring plan shall be continuous and in accordance with the details and programme approved by the Local Planning Authority.

Reason: To protect and encourage habitats in the interests of biodiversity and visual amenity

- 18** Construction work shall only take place between the hours of 07:00 - 19:00 on Monday to Friday inclusive, 07:00 - 13:00 hours on Saturdays with no such working on a Sunday or local or national public holiday. Outside these hours, development at the site shall be limited to emergency works and dust suppression, unless otherwise approved in writing by the Local Planning Authority. The receipt of any materials or equipment for the construction of the site, other than turbine blades, nacelles, and towers, is not permitted outside the said hours, unless otherwise approved in writing by the Local Planning Authority having been given a minimum of two working days notice of the occurrence of the proposed event

Reason: In the interests of the amenities of the area.

- 19** The rating level of noise immissions from the combined effects of the wind turbines (including the application of any tonal penalty) when determined in accordance with the attached Guidance Notes, shall not exceed the values for the relevant integer wind speed set out in, or derived from, Tables 1 and 2 attached to these conditions at any dwelling which is lawfully existing or has planning permission at the date of this permission. Each of these values shall apply to all of the properties falling within the respective areas shown on the attached plan unless otherwise agreed with the Local Planning Authority. Noise limits for any property which lawfully exists at the date of this consent but which is not

covered by any of the areas shown on the plan attached shall be those of the nearest area shown on the plan unless otherwise agreed with the Local Planning Authority.

Where the Local Planning Authority is satisfied of an established breach of the noise limits set out in the attached Tables 1 & 2, upon notification by the Local Planning Authority in writing to the wind farm operator of the said breach, the wind farm operator shall submit to the Local Planning Authority a scheme to mitigate the breach of the noise limits which shall include a means to prevent its future recurrence and a timetable for its implementation. The scheme which shall be agreed in writing by the Local Planning Authority shall be implemented and retained thereafter unless otherwise agreed with the Local Planning Authority.

Reason: In the interests of the amenities of the area

- 20** At the request of the Local Planning Authority, following a complaint to it about noise immissions from the wind farm, the operator of the wind farm shall, if requested shut down the turbines and at its expense, employ a consultant approved by the Local Planning Authority, to measure, assess and report to the Local Planning Authority the level of noise immissions from the wind farm at the property to which the complaint relates (the 'complainant's property') following the procedures described in the attached Guidance Notes.

Reason: In the interests of the amenities of the area

- 21** Wind speed, wind direction and power generation data for each wind turbine shall be continuously logged and provided to the local planning authority at its request and in accordance with the attached Guidance Notes within 28 days of such request.

Reason: In the interests of the amenities of the area

- 22** The agreed scheme to alleviate shadow flicker at any residential property shall continued to be implemented as approved by the Local Planning Authority.

Reason: In the interests or residential amenity.

*** THE FOLLOWING ARE ADVISORY NOTES NOT CONDITIONS**

This application is recommended for approval because the variation of the condition and the associated revised tables of noise levels that are proposed to be inserted accords with Government and Council policy and will ensure that the future operation of the existing wind turbines will not be detrimental to the amenity of residents by virtue of associated noise.

The notes, table and plan to be read in conjunction with conditions 19-21 further explain these conditions and specify the methods to be deployed in the assessment of complaints about noise immissions from the wind farm and are attached as separate appendix to this decision notice.

**MARK SHEPHARD
CORPORATE DIRECTOR COMMUNITIES**

Background Papers
None

APPENDIX A

**TO BE READ IN CONJUNCTION WITH
APPLICATION NUMBER P/14/541/RLX OF THE REPORT
OF THE CORPORATE DIRECTOR COMMUNITIES**

PLANNING APPLICATION P/14/541/RLX

TABLES AND SCHEDULE OF GUIDANCE NOTES RELATING TO NOISE CONDITIONS 19-21

Table 1 - Between 07:00 and 23:00 - Noise limits expressed in dB $L_{A90,10\text{-minute}}$ as a function of the measured wind speed (m/s) at 10 meter height as determined within the site averaged over 10 minute periods										
Location	Measured wind speed at 10 m height, m/s									
	3	4	5	6	7	8	9	10	11	12
R1-Price Town	15.1	19.1	22.1	24.1	25.1	25.6	25.9	26.1	26.1	26.1
R2-Ogmore Vale	13.2	17.2	20.2	22.2	23.2	23.7	24.0	24.2	24.2	24.2
R3-Evanstown	19.2	23.4	26.4	28.5	29.7	30.1	30.5	30.8	30.8	30.8
R4-Tonypandy	12.4	16.4	19.4	21.5	22.5	23.0	23.3	23.4	23.4	23.4
R5-Clydach Vale	17.0	21.0	24.0	26.0	27.0	27.5	27.8	28.0	28.0	28.0
R6-Pantycornant	13.4	17.7	20.8	23.0	24.3	24.9	25.1	25.0	24.9	24.8
R7-Gilfach Goch	18.1	22.2	25.2	27.1	28.2	28.7	29.0	29.2	29.2	29.2
R8-Penllwyn Gwent	16.6	20.7	23.7	25.7	26.8	27.2	27.5	27.7	27.6	27.6

Table 2 - Between 23:00 and 07:00 - Noise limits expressed in dB $L_{A90,10\text{-minute}}$ as a function of the measured wind speed (m/s) at 10 meter height as determined within the site averaged over 10 minute periods										
Location	Measured wind speed at 10 m height, m/s									
	3	4	5	6	7	8	9	10	11	12
R1-Price Town	15.1	19.1	22.1	24.1	25.1	25.6	25.9	26.1	26.1	26.1
R2-Ogmore Vale	13.2	17.2	20.2	22.2	23.2	23.7	24.0	24.2	24.2	24.2
R3-Evanstown	19.2	23.3	26.2	28.2	29.1	29.6	29.9	30.1	30.1	30.1
R4-Tonypandy	12.4	16.4	19.4	21.4	22.4	22.9	23.2	23.4	23.4	23.4
R5-Clydach Vale	17.0	21.0	24.0	26.0	27.0	27.5	27.8	28.0	28.0	28.0

Table 2 - Between 23:00 and 07:00 - Noise limits expressed in dB $L_{A90,10\text{-minute}}$ as a function of the measured wind speed (m/s) at 10 meter height as determined within the site averaged over 10 minute periods

Location	Measured wind speed at 10 m height, m/s									
	3	4	5	6	7	8	9	10	11	12
R6-Pantycornant	13.4	17.7	20.4	22.3	23.2	24.7	23.9	24.1	24.2	24.3
R7-Gilfach Goch	18.1	22.1	25.1	27.0	28.0	28.5	28.8	29.0	29.0	29.0
R8-Penllwyn Gwent	16.6	20.6	23.6	25.5	26.5	27.0	27.3	27.5	27.5	27.5

Table 3: Coordinate locations of the properties listed in Tables 1 and 2

Location	Easting	Northing
R1-Price Town	293984	192371
R2-Ogmore Vale	293145	190478
R3-Evanstown	297604	189605
R4-Tonypandy	299202	192186
R5-Clydach Vale	297193	192988
R6-Pantycornant	296086	188025
R7-Gilfach Goch	298100	190433
R8-Penllwyn Gwent	294625	188737

Note to Table 3: The geographical coordinate references are provided for the purpose of identifying the general location of dwellings to which a given set of noise limits applies.

Guidance Notes For Noise Conditions

These notes are to be read with and form part of the noise conditions 29-32. They further explain the condition and specify the methods to be employed in the assessment of complaints about noise immissions from the wind farm. The rating level at each integer wind speed is the arithmetic sum of the wind farm noise level as determined from the best-fit curve described in Guidance Note 2 of these Guidance Notes and any tonal penalty applied in accordance with Guidance Note 3. Reference to ETSU-R-97 refers to the publication entitled "The Assessment and Rating of Noise from Wind Farms" (1997) published by the Energy Technology Support unit (ETSU) for the Department of Trade and Industry (DTI).

Guidance Note 1

- (a) Values of the LA_{90,10}-minute noise statistic should be measured at the complainant's property, using a sound level meter of EN 60651/BS EN 60804 Type 1, or BS EN 61672 Class 1 quality (or the equivalent UK adopted standard in force at the time of the measurements) set to measure using the fast time weighted response as specified in BS EN 60651/BS EN 60804 or BS EN 61672-1 (or the equivalent UK adopted standard in force at the time of the measurements). This should be calibrated in accordance with the procedure specified in BS 4142: 1997 (or the equivalent UK adopted standard in force at the time of the measurements). Measurements shall be undertaken in such a manner to enable a total penalty to be applied in accordance with Guidance Note 3.
- (b) The microphone should be mounted at 1.2 – 1.5 metres above ground level, fitted with a two-layer windshield or suitable equivalent approved in writing by the Local Planning Authority, and placed outside the complainant's dwelling. Measurements should be made in "free field" conditions. To achieve this, the microphone should be placed at least 3.5 metres away from the building facade or any reflecting surface except the ground at the approved measurement location. In the event that the consent of the complainant for access to his or her property to undertake compliance measurements is withheld, the wind farm operator shall submit for the written approval of the Local Planning Authority details of the proposed alternative representative measurement location prior to the commencement of measurements and the measurements shall be undertaken at the approved alternative representative measurement location.
- (c) The LA_{90,10}-minute measurements should be synchronised with measurements of the 10-minute arithmetic mean wind and operational data logged in accordance with Guidance Note 1(d), including the power generation data from the turbine control systems of the wind farm.
- (d) To enable compliance with the conditions to be evaluated, the wind farm operator shall continuously log arithmetic mean wind speed and wind direction at hub height for each turbine and arithmetic mean power generated by each turbine, all in successive 10-minute periods, unless otherwise agreed in writing with the Local Planning Authority. During any noise compliance test, the mean wind speed and wind direction shall also be measured on-site at a height of 10m above ground level. The wind speed measurement shall not be unduly affected by any turbine wake. It is this measured 10 metre height wind speed data which is correlated with the noise measurements determined as valid in accordance with Guidance Note 2, such correlation to be undertaken in the manner described in Guidance Note 2. All 10-minute periods shall commence on the hour and in 10-minute increments thereafter. In the event that it is not possible to undertake wind speed measurements at 10m, the wind speed can be measured at another height and converted to a height of 10m according to a method to be agreed with the Local Planning Authority.
- (e) Data provided to the Local Planning Authority in accordance with the noise condition shall be provided in comma separated values in electronic format.

Guidance Note 2

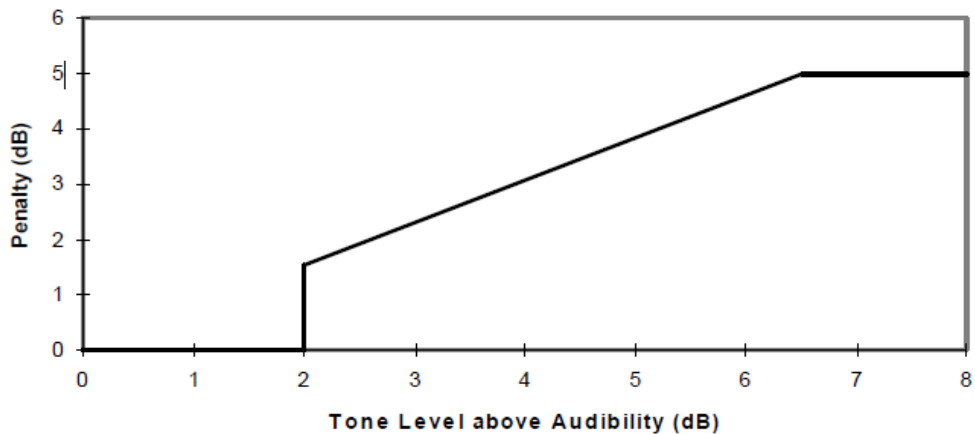
- (a) The noise measurements shall be made so as to provide not less than 20 valid data points as defined in Guidance Note 2.
- (b) Valid data points are those measured for the range of wind speeds, wind directions, times of day and power generation data requested by the Local Planning Authority, but excluding any periods of rainfall measured in the vicinity of the sound level meter. Rainfall shall be assessed by use of a rain gauge that shall log the occurrence of rainfall in each 10 minute period concurrent with the measurements periods set out in Guidance Note 1. In specifying such conditions the Local Planning

Authority shall have regard to those conditions which prevailed during times when the complainant alleges there was disturbance due to noise or which are considered likely to result in a breach of the limits.

- (c) For those data points considered valid in accordance with Guidance Note 2(b), values of the $LA_{90,10}$ -minute noise measurements and corresponding values of the 10-minute wind speed, as measured at a ten metre height wind speed using the procedure specified in Guidance Note 1(d), shall be plotted on an XY chart with noise level on the Y-axis and the measured 10m mean wind speed on the X-axis. A least squares, "best fit" curve of an order deemed appropriate by the independent consultant (but which may not be higher than a fourth order) should be fitted to the data points and define the wind farm noise level at each integer speed.

Guidance Note 3

- (a) Where, in the opinion of the Local Planning Authority, noise immissions at the location or locations where compliance measurements are being undertaken contain or are likely to contain a tonal component, a tonal penalty is to be calculated and applied using the following rating procedure.
- (b) For each 10-minute interval for which $LA_{90,10}$ -minute data have been determined as valid in accordance with Guidance Note 2 a tonal assessment shall be performed on noise immissions during 2 minutes of each 10-minute period. The 2-minute periods should be spaced at 10-minute intervals provided that uninterrupted uncorrupted data are available ("the standard procedure"). Where uncorrupted data are not available, the first available uninterrupted clean 2-minute period out of the affected overall 10-minute period shall be selected. Any such deviations from the standard procedure, as described in Section 2.1 on pages 104-109 of ETSU-R-97, shall be reported.
- (c) For each of the 2-minute samples the tone level above or below audibility shall be calculated by comparison with the audibility criterion given in Section 2.1 on pages 104-109 of ETSU-R-97.
- (d) The tone level above audibility shall be plotted against wind speed for each of the 2-minute samples. Samples for which the tones were below the audibility criterion or no tone was identified, a value of zero audibility shall be substituted.
- (e) A least squares "best fit" linear regression line shall then be performed to establish the average tone level above audibility for each integer wind speed derived from the value of the "best fit" line at each integer wind speed. If there is no apparent trend with wind speed then a simple arithmetic mean shall be used. This process shall be repeated for each integer wind speed for which there is an assessment of overall levels in Guidance Note 2.
- (f) The tonal penalty is derived from the margin above audibility of the tone according to the figure below.



Guidance Note 4

- (a) If a tonal penalty is to be applied in accordance with Guidance Note 3 the rating level of the turbine noise at each wind speed is the arithmetic sum of the measured noise level as determined from the best fit curve described in Note 2 and the penalty for tonal noise as derived in accordance with Guidance Note 3 at each integer wind speed within the range specified by the Local Planning Authority.
- (b) If no tonal penalty is to be applied then the rating level of the turbine noise at each wind speed is equal to the measured noise level as determined from the best fit curve described in Guidance Note 2.
- (c) In the event that the rating level is above the limit(s) set out in the Tables 1 and 2 attached to the noise conditions, the independent consultant shall undertake a further assessment of the rating level to correct for background noise so that the rating level relates to wind turbine noise immission only.
- (d) The wind farm operator shall ensure that all the wind turbines in the development are turned off for such period as the independent consultant reasonably requires to undertake the further assessment or any other assessment to determine compliance with tables 1 and 2 as attached. The further assessment shall be undertaken in accordance with the following steps:
 - (i) Repeating the steps in Guidance Note 2, with the wind farm switched off, and determining the background noise (L_3) at each integer wind speed within the range requested by the Local Planning Authority.
 - (ii) The wind farm noise (L_1) at this speed shall then be calculated as follows where L_2 is the measured level with turbines running but without the addition of any tonal penalty:

$$L_1 = 10 \log \left[10^{L_2/10} - 10^{L_3/10} \right]$$

- (iii) The rating level shall be re-calculated by adding the tonal penalty (if any is applied in accordance with Guidance Note 3) to the derived wind farm noise L_1 at that integer wind speed.
- (iv) If the rating level after adjustment for background noise contribution and adjustment for tonal penalty (if required in accordance with note (iii) above) at any integer wind speed lies at or below the values set out in the Tables 1 and 2 attached to condition 19 then no further action is necessary. If the rating level at any integer wind speed exceeds the values set out in these Tables then the development fails to comply with condition 19.