

Item: 5.3

Planning Committee: 2 September 2020.

Vary Condition 02 (Permitted Noise) of Planning Permission 15/454/TPP at Springfields, Berstane Lodge Road, St Ola.

Report by Executive Director of Development and Infrastructure.

1. Summary

1.1.

Planning permission is sought under Section 42 of the Town and Country Planning (Scotland) Act 1997 for the variation of Condition 2, relating to noise, attached to planning permission 15/454/TPP, for the erection of a six kilowatt wind turbine (maximum height 17.8 metres) at Springfields, Berstane Lodge Road, St Ola. The application has been subject to seven letters of objection, on grounds of impact on residential amenity due to noise. Following submission of specialist supporting information and consultation with Environmental Health, the development is considered to accord with Policies 1 and 7 of the Orkney Local Development Plan 2017. Accordingly, the application is recommended for approval.

Application Number:	20/199/VR.
Application Type:	Vary Condition(s) of Planning Consent.
Proposal:	Vary condition 02 (permitted noise) of planning permission 15/454/TPP.
Applicant:	Mr Stephen Kemp, Springfields, Berstane Lodge Road, St Ola.

1.2.

All application documents (including plans, consultation responses and representations) are available for members to view at the following website address:

https://www.orkney.gov.uk/Service-Directory/D/application_search_submission.htm
(then enter the application number given above).

2. Consultations

Environmental Health has commented as follows:

“Environmental Health have assessed the information provided by the developer and conclude that the developer has shown evidence that the turbine can comply with a “35db LA90/Background plus 5dB whichever is the greater” planning condition as described in ETSU-R-97 and the relevant Institute of Acoustics Good Practice Guides/Supplementary Guidance Notes. Therefore, Environmental Health recommend that if this application is approved Planning Conditions 2, 3, 4, & 5 in

application 15/454/TPP are replaced with the Planning conditions in Schedule 1 of this report.”

3. Representations

3.1.

Objections have been received from:

- Robert Horrobin, Zanmoir, Berstane Road, Kirkwall.
- Sandra Johnston, 9 Ingavoe Drive, Kirkwall.
- Gordon B Kynoch, 11 Ingavoe Drive, Kirkwall.
- David and Gill Newstead, Roundhouse, Berstane Road, Kirkwall.
- Laurence J Tait, Morvean, Berstane Road, St Ola.
- Peter Work, Viggie, 10 Ingavoe Drive, Kirkwall.
- William L Wilson, Falkland, Berstane Road, Kirkwall.

3.2.

The objections are on the following grounds:

- Noise levels, downwind in particular.
- Type of noise.
- Questioning the removal of a condition which has the reason, ‘To protect the residents of nearby residential properties from disturbance as a result of noise generated during operation of the development’.
- Limited period of the noise assessment.
- Period of monitoring for noise assessment was not characteristic of weather, with wind speeds unseasonally low.
- Nuisance experienced by neighbours for several years.
- Policies/guidance by other local authorities specify lower night-time levels for rural areas.

4. Relevant Planning History

4.1. Planning applications

Reference	Proposal	Location	Decision	Date
16/096/PP	Import soil, construct an access and hard standing.	Springfields (Land Near), Berstane Road, St Ola,	Grant Subject to Conditions	03.06.2016

15/454/TPP	Erect a 6kW wind turbine (max height 17.8m) and install underground cables	Springfields (Land Near), Berstane Road, St Ola	Grant Subject to Conditions	12.11.2015
15/278/PP	Re-roof and extend a house	Springfields (Land Near), Berstane Road, St Ola	Grant Subject to Conditions	01.07.2015
90/090/PPF	Erection of house and stables	Berstane Road Kirkwall	Grant Subject to Conditions	26.03.1990

4.2. Noise Complaint

Following receipt of a noise complaint from a third party, the Planning Authority brought into effect the terms of condition 03 attached to the consent: "Should any complaints be received in respect of noise levels, the developer shall fully investigate these complaints and, to establish noise levels at any affected property, shall undertake noise monitoring which shall be carried out by a suitably qualified noise expert or consultancy...". Following completion of the noise monitoring, the applicant took the decision to submit the current application to vary the terms of the noise conditions attached to the turbine consent.

5. Relevant Planning Policy and Guidance

The full text of the Orkney Local Development Plan 2017 and supplementary guidance can be read on the Council website at:

<https://www.orkney.gov.uk/Service-Directory/D/Planning-Policies-and-Guidance.htm>

The policies listed below are relevant to this application:

- Orkney Local Development Plan 2017:
 - Policy 1 – Criteria for All Development.
 - Policy 7 – Energy.
- Supplementary Guidance: Energy.
- Scottish Government Advice:
 - PAN 1/2011 Planning and Noise.
- Circular 4/1998 - use of conditions in planning permissions.

Circular 4/1998 provides guidance on the use of conditions in granting planning permission and stipulates that, while the power to impose planning conditions is very wide, it needs to be exercised in a manner which is fair, reasonable and practicable.

The Circular confirms that, for planning conditions to be considered fair, reasonable and practicable, they must satisfy six tests:

- Necessary.
- Relevant to planning.
- Relevant to the development to be permitted.
- Enforceable.
- Precise.
- Reasonable in all other respects.

6. Legal Aspects

6.1.

Section 25 of the Town and Country Planning (Scotland) Act 1997 as amended (the Act) states, “Where, in making any determination under the Planning Acts, regard is to be had to the development plan, the determination is, unless material considerations indicate otherwise...to be made in accordance with that plan...”

6.2.

Where a decision to refuse an application is made, the applicant may appeal under section 47 of the Act. Scottish Ministers are empowered to make an award of expenses on appeal where one party's conduct is deemed to be unreasonable. Examples of such unreasonable conduct are given in Circular 6/1990 and include:

- Failing to give complete, precise and relevant reasons for refusal of an application.
- Reaching a decision without reasonable planning grounds for doing so.
- Not taking into account material considerations.
- Refusing an application because of local opposition, where that opposition is not founded upon valid planning grounds.

6.3.

An award of expenses may be substantial where an appeal is conducted either by way of written submissions or a local inquiry.

7. Background

7.1.

Planning permission 15/454/TPP approved the installation of a six kilowatt wind turbine (maximum height 17.8 metres) at Springfields, Berstane Lodge Road, St Ola. The turbine is installed and is operational. Noise from the turbine led to a noise complaint from a neighbour. Springfields and the turbine lie just outwith the Kirkwall town boundary, and the turbine is 144 metres north of Springfields, as indicated on the location plan attached as Appendix 1 to this report.

7.2.

Condition 02 attached to the decision notice states:

“02. Throughout the life of the development, noise generated by the wind turbine(s) hereby permitted, shall not exceed 35dB(A) L90, 10 min at wind speeds not exceeding 10 m/s as measured not less than 10m from the façade of any noise sensitive property. Measurements shall be made in accordance with the guidance in the supplementary guidance notes to the planning obligation, chapter 8 of the publication "The Assessment and Rating of Noise from Wind Farms (ETSU-R-97, Department of Trade and Industry, September 1996).

Note: The property of Springfields, Berstane Lodge Road, St Ola, Orkney, KW15 1SZ is not considered to be a noise sensitive property in relationship to the turbine hereby approved due to the owner's financial interest in the turbine. Any separation of the ownership of the house and the turbine, including occupation of the house by an individual or party without a financial interest in the turbine, is likely to cause noise issues which may result in the turbine no longer being able to comply with this condition.

Reason: To protect the residents of nearby residential properties from disturbance as a result of noise generated during operation of the development.”.

7.3.

The purpose of the condition is to minimise disturbance to third party residential properties in the surrounding area from noise being generated by the turbine operation.

7.4.

The wind turbine is a Kingspan six kilowatt model. Environmental Health uses data from turbine manufacturers to set separation distances from noise sensitive/third party dwellings. A single turbine of the installed model typically requires a separation distance of 140 metres. The approximate distance from the turbine to nearby houses is as follows:

- 8 Ingavoe Drive – 180 metres.
- 9 Ingavoe Drive – 164 metres.
- Viggie, 10 Ingavoe Drive – 153 metres.
- 11 Ingavoe Drive – 151 metres.
- Ingavoe, Berstane Road – 185 metres.
- Morvean, Berstane Road – 174 metres.
- Zanmoir, Berstane Lodge Road – 173 metres.
- Falkland, Berstane Lodge Road – 163 metres.
- Roundhouse, Berstane Lodge Road – 153 metres.

The location of the houses within their sites generally means that the rear gardens of the houses are situated closer to the turbine. A 140 metre radius from the turbine is shown in the annotated aerial photograph, attached as Appendix 2 to this report.

7.5.

In addition to the distance separation, conditions are typically attached to approvals of turbines of this scale referencing noise generated and to ensure noise levels remain within guidance. In addition to condition 02 as included at 7.2 above, the three following conditions were attached to 15/454/TPP:

03. Should any complaints be received in respect of noise levels, the developer shall fully investigate these complaints and, to establish noise levels at any affected property, shall undertake noise monitoring which shall be carried out by a suitably qualified noise expert or consultancy previously agreed in writing by the Planning Authority and which shall be carried out by the method statement stated in section 2.0 "Procedure to be followed in the event of a complaint" page 102 of the publication "The Assessment and Rating of Noise from Wind Farms" (ETSU-R-97, Department of Trade and Industry, September 1996).

Reason: To protect the residents of nearby residential properties from disturbance as a result of noise generated during operation of the development.

04. Should any noise monitoring undertaken in accordance with condition 3 above demonstrate that the noise thresholds in condition 2 are being exceeded, the developer shall submit a scheme of mitigating measures to the Planning Authority for written agreement within three months of the breach being identified. The agreed mitigating measures shall be implemented within three months of the written agreement or within any alternative timescale agreed in writing by the Planning Authority and thereafter retained throughout the life of the development unless otherwise agreed in writing by the Planning Authority.

Reason: To protect the residents of nearby residential properties from disturbance as a result of noise generated during operation of the development.

05. Where noise measurements are carried out in accordance with condition 3 above, the assessment of measured noise emission levels should be referenced to derived (not measured) 10m height above ground level wind speeds. The article "Prediction and assessment of wind turbine noise" from the Institute of Acoustics bulletin April 2009 Vol. 34 and the document published by the Institute of Acoustics "The Good Practice guide to the Application of ETSU-R-97 for the assessment and Rating of Wind turbine Noise" should be referred to in regard to this matter.

Reason: For avoidance of doubt regarding a technical matter and to follow recognised current good practice.

8. Proposal and Assessment

8.1.

Planning permission is sought under Section 42 of the Town and Country Planning (Scotland) Act 1997 for the variation of Condition 2, relating to noise, attached to planning permission 15/454/TPP.

8.2. Supporting Information

A Noise Assessment has been submitted in support of the application to establish the noise levels at the nearest noise sensitive receptors during operation of the turbine and to assess the impact of those noise levels in relation to the requirements of ETSU-R-97, "The Assessment and Rating of Noise from Wind Farms".

8.3. Residential Amenity – Noise

8.3.1.

Policy 1 (iv) requires development to protect amenity and have no unacceptable adverse impact on the amenity of adjacent or nearby properties/users. Supplementary Guidance: Energy notes there are two distinct noises generated from wind energy developments: mechanical noise and aerodynamic noise from the passage of wind through the blades. It is also stipulated within the Guidance that "The noise generated from a proposed wind energy development must be assessed to ensure compliance with the Department of Trade and Industry publication "The Assessment and Rating of Noise from Wind Farms"."

8.3.2.

Neighbours to the north and west of the turbine have objected to the proposed variation due to concerns that it would impact residential amenity. This follows a history of concern from one of the objectors regarding noise impacts since the turbine was erected. Previous noise complaints are raised within the objections as well as concerns that the variation would not improve the situation.

8.3.3.

Following completion of the noise assessment carried out on site, which has been scrutinised by Environmental Health, it is possible to set maximum noise levels based on a surveyed background situation at the site. This is a more site-specific response and levels, rather than standard maximum levels, which are the default. Environmental Health has confirmed that the proposed variation would allow the turbine to continue to operate, whilst protecting neighbouring properties from any unacceptable impact on amenity from noise. In order to achieve this, and in addition to the removal of condition 02, Environmental Health requires that a new condition be attached which replaces conditions 03, 04 and 05. The proposed new condition would meet the tests of necessity, purpose, relevance or precision, as was the case with the original conditions. Taking that replacement of planning conditions into account, the proposed development would comply with the requirements of Circular 4/1998 and Supplementary Guidance: Energy.

8.3.4.

All other relevant conditions attached to the original planning permission would be attached again.

9. Conclusion

The proposal has been assessed against the relevant policies of the Orkney Local Development Plan 2017 and Supplementary Guidance: Energy, taking into account

all objections raised, and the detailed and specialist noise advice from Environmental Health, which in turn follows Environmental Health's assessment of the survey and supporting information provided by the developer. Environmental Health concludes that the developer has provided evidence that the turbine can comply with a "35db LA90/Background plus 5dB whichever is the greater" planning condition as described in ETSU-R-97 and the relevant Institute of Acoustics Good Practice Guides/Supplementary Guidance Notes. Should that conclusion be accepted, and conditions 02, 03, 04 and 05 of application 15/454/TPP be replaced with a new condition to protect residential amenity from noise, the development would comply with Policies 1 and 7 of the Orkney Local Development Plan 2017 and Supplementary Guidance: Energy. Accordingly, the application is recommended for **approval**, subject to the conditions attached as Appendix 3 to this report.

10. Contact Officer

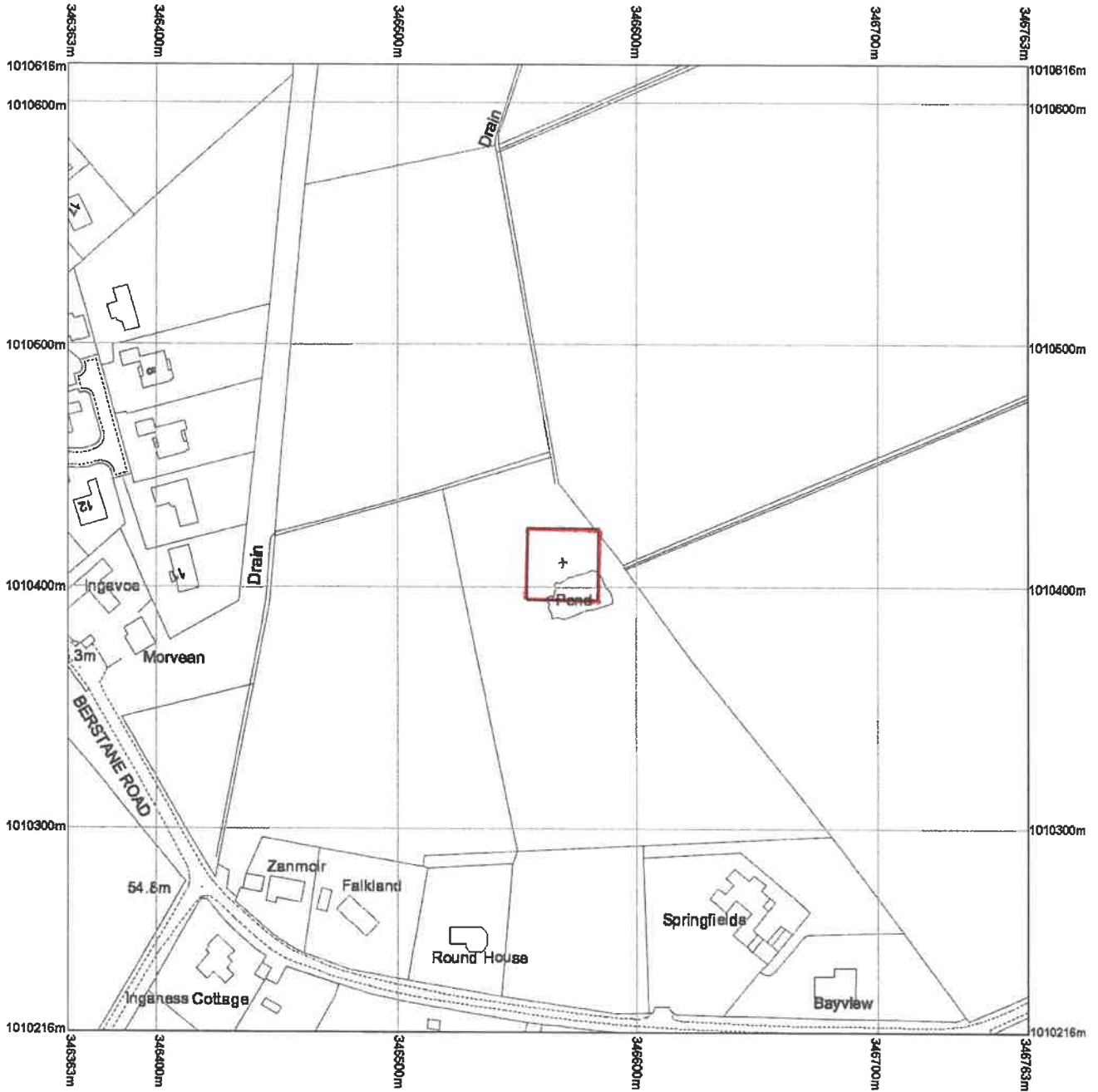
Margaret Gillon, Senior Planner – Development Management, Email margaret.gillon@orkney.gov.uk

11. Appendices

Appendix 1: Location Plan.

Appendix 2: Annotated Aerial Photograph.

Appendix 3: Proposed Planning Conditions.



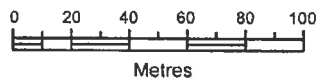
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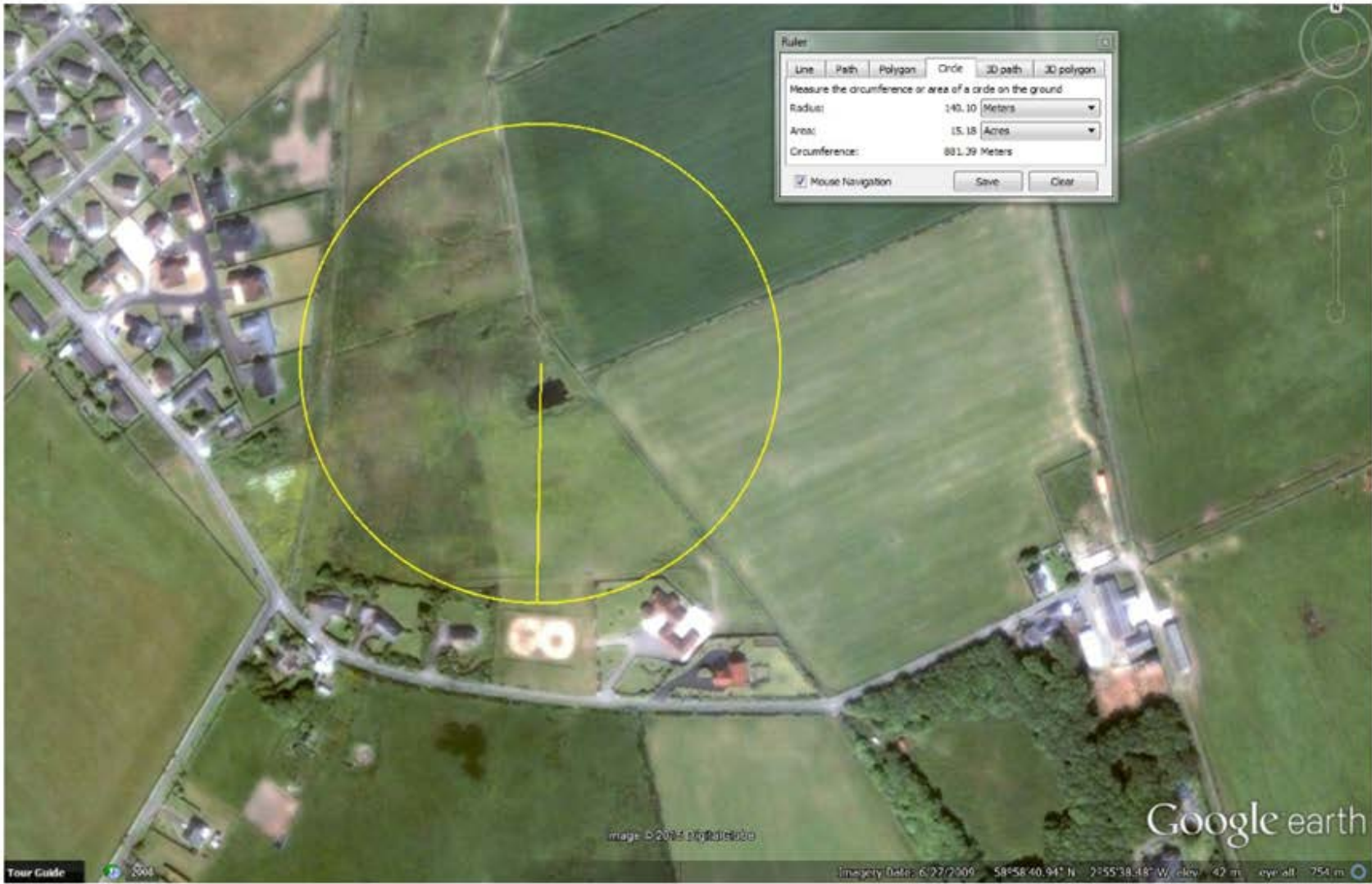
The representation of a road, track or path is no evidence of a right of way.

The representation of features as lines is no evidence of a property boundary.

Scale 1:2500



Supplied by: Getmapping
Centre coordinates: 346563, 1010416
OS License Number: 100030848



Ruler

Line Path Polygon Circle 3D path 3D polygon

Measure the circumference or area of a circle on the ground

Radius: 140.10 Meters

Area: 15.18 Acres

Circumference: 881.39 Meters

Mouse Navigation

Save Clear

Google earth

Appendix 3.

Colour.

01. The colour of the wind turbine hereby approved shall be matt grey/metallic for the tower and matt grey (RAL 7000) for the nacelle and blades.

No logos or branding shall be used on the wind turbine.

Reason: To minimise the visual impact of the development and to protect the visual amenity of the area.

Noise.

02. The rating level of noise immissions from the effect of the wind turbine (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, the tables attached to these conditions at any dwelling which is lawfully existing or has planning permission at the date of this permission and:

a) Within 21 days from receipt of a written request from the Planning Authority following a complaint to it from an occupant of a dwelling alleging noise disturbance at that dwelling, the wind turbine operator shall, at its expense, employ a consultant approved by the Planning Authority to assess the level of noise immissions from the wind turbine at the complainant's property in accordance with the procedures described in the attached Guidance Notes. The written request from the Planning Authority shall set out at least the date, time and location that the complaint relates to and any identified atmospheric conditions, including wind direction, and include a statement as to whether, in the opinion of the Planning Authority, the noise giving rise to the complaint contains or is likely to contain a tonal component.

b) The assessment of the rating level of noise immissions shall be undertaken in accordance with an assessment protocol that shall previously have been submitted to and approved in writing by the Planning Authority. The protocol shall include the proposed measurement location identified in accordance with the Guidance Notes where measurements for compliance checking purposes shall be undertaken, whether noise giving rise to the complaint contains or is likely to contain a tonal component, and also the range of meteorological and operational conditions (which shall include the range of wind speeds, wind directions, power generation and times of day) to determine the assessment of rating level of noise immissions. The proposed range of conditions shall be those which prevailed during times when the complainant alleges there was disturbance due to noise, having regard to the written request of the Planning Authority under paragraph (a), and such others as the independent consultant considers likely to result in a breach of the noise limits.

c) Where a dwelling to which a complaint is related is not listed in the tables attached to these conditions, the wind turbine operator shall submit to the Planning Authority for written approval proposed noise limits selected from those listed in the Tables to be adopted at the complainant's dwelling for compliance checking purposes. The

proposed noise limits are to be those limits selected from the Tables specified for a listed location which the independent consultant considers as being likely to experience the most similar background noise environment to that experienced at the complainant's dwelling. The rating level of noise immissions resulting from the combined effects of the wind turbines when determined in accordance with the attached Guidance Notes shall not exceed the noise limits approved in writing by the Planning Authority for the complainant's dwelling.

d) The wind turbine operator shall provide to the Planning Authority the independent consultant's assessment of the rating level of noise immissions undertaken in accordance with the Guidance Notes within 2 months of the date of the written request of the Planning Authority for compliance measurements to be made under paragraph (a), unless the time limit is extended in writing by the Planning Authority. The assessment shall include all data collected for the purposes of undertaking the compliance measurements, such data to be provided in the format set out in Guidance Note 1(e) of the Guidance Notes. The instrumentation used to undertake the measurements shall be calibrated in accordance with Guidance Note 1(a) and certificates of calibration shall be submitted to the Planning Authority with the independent consultant's assessment of the rating level of noise immissions.

e) Where a further assessment of the rating level of noise immissions from the wind turbine is required pursuant to Guidance Note 4(c), the wind turbine operator shall submit a copy of the further assessment within 21 days of submission of the independent consultant's assessment pursuant to paragraph (d) above unless the time limit has been extended in writing by the Planning Authority.

f) Once the Planning Authority has received the independent consultant's noise assessment required by this condition, including all noise measurements and any audio recordings, where the Planning Authority is satisfied of an established breach of the noise limits set out in the attached tables 1 & 2, upon notification by the Planning Authority in writing to the wind turbine operator of the said breach, the wind turbine operator shall within 21 days propose a scheme for the approval of the Planning Authority. The scheme shall be designed to mitigate the breach and to prevent its future recurrence. This scheme shall specify the timescales for implementation. The scheme shall be implemented as reasonably approved by the Planning Authority and according to the timescales within it. The scheme as implemented shall be retained thereafter unless otherwise agreed with the Planning Authority.

Table 1 – Between 07:00 and 23:00 – Noise limits expressed in dB LA90,10-minute as a function of the standardised wind speed (m/s) at 10 metre height as determined within the site averaged over 10 minute periods.

Locations.	Standardised wind speed at 10 metre height (m/s) within the site averaged over 10 minute periods.									
	3	4	5	6	7	8	9	10	11	12
9 Ingavoe Drive Viggie, 10 Ingavoe Drive Zanmoir, Berstane Lodge Road Falkland, Berstane Lodge Road Roundhouse, Berstane Lodge Road	35.0	35.0	36.5	38.3	40.1	42.0	43.8	45.6	47.4	49.3

Locations	Standardised wind speed at 10 metre height (m/s) within the site averaged over 10 minute periods.									
	3	4	5	6	7	8	9	10	11	12
9 Ingavoe Drive Viggie, 10 Ingavoe Drive 11 Ingavoe Drive Zanmoir, Berstane Lodge Road Falkland, Berstane Lodge Road Roundhouse, Berstane Lodge Road	35.0	35.0	36.5	38.3	40.1	42.0	43.8	45.6	47.4	49.3

Table 2 – Between 23:00 and 07:00 – Noise limits expressed in dB LA90,10-minute as a function of the standardised wind speed (m/s) at 10 metre height as determined within the site averaged over 10 minute periods.

Locations.	Standardised wind speed at 10 metre height (m/s) within the site averaged over 10 minute periods.									
	3	4	5	6	7	8	9	10	11	12
9 Ingavoe Drive Viggie, 10 Ingavoe Drive Zanmoir, Berstane Lodge Road Falkland, Berstane Lodge Road Roundhouse, Berstane Lodge Road	38.0	38.0	38.0	38.0	38.0	40.3	42.8	45.2	47.6	50.1

Location	Standardised wind speed at 10 metre height (m/s) within the site averaged over 10 minute periods.									
	3	4	5	6	7	8	9	10	11	12
9 Ingavoe Drive Viggie,10 Ingavoe Drive 11 Ingavoe Drive Zanmoir, Berstane Lodge Road Falkland, Berstane Lodge Road Roundhouse, Berstane Lodge Road	38.0	38.0	38.0	38.0	38.0	40.3	42.8	45.2	47.6	50.1

Guidance Notes for Noise Conditions:

These notes are to be read with and form part of the noise condition. They further explain the condition and specify the methods to be employed in the assessment of complaints about noise immissions from the wind turbine. The rating level at each integer wind speed is the arithmetic sum of the wind turbine 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 ETSUR-97 refers to the publication entitled “The Assessment and Rating of Noise from Wind s” (1997) published by the Energy Technology Support unit (ETSU) for the Department of Trade and Industry (DTI).

Guidance Note 1:

(a) Values of the LA90,10-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 tonal 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 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 turbine operator shall submit for the written approval of the 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 LA90,10-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.

(d) To enable compliance with the conditions to be evaluated, the wind turbine 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 Planning Authority. The mean wind speed data for the operating turbines shall be 'standardised' to a reference height of 10 metres as described in ETSU-R-97 at page 120 using a reference roughness length of 0.05 metres. It is this standardised 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.

(e) Data provided to the 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 in the conditions specified in the agreed written protocol under paragraph (d) of the noise condition, 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 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 LA90,10-minute noise measurements and corresponding values of the 10- minute wind speed, as derived from the standardised ten metre height wind speed averaged across all operating wind turbines 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 standardised 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 turbine noise level at each integer speed.

Guidance Note 3:

(a) Where, in accordance with the approved assessment protocol under paragraph (d) of the noise condition, 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 LA90,10-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 17 on page 104 of ETSU-R-97 (The Assessment and Rating of noise from Wind s)

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 Planning Authority in its written protocol under paragraph (d) of the noise condition.

(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 attached to the noise conditions or the noise limits for a complainant's dwelling approved in accordance with paragraph (e) of the noise condition, 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 turbine operator shall ensure that the wind turbine in the development is turned off for such period as the independent consultant requires to undertake the further assessment. The further assessment shall be undertaken in accordance with the following steps:

(e) Repeating the steps in Guidance Note 2, with the wind turbine switched off, and determining the background noise (L3) at each integer wind speed within the range requested by the Planning Authority in its written request under paragraph (c) and the approved protocol under paragraph (d) of the noise condition.

(f) The wind turbine noise (L1) at this speed shall then be calculated as follows where L2 is the measured level with turbine running but without the addition of any tonal penalty:

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

(g) The rating level shall be re-calculated by adding the tonal penalty (if any is applied in accordance with Note (3) to the derived wind turbine noise L1 at that integer wind speed.

(h) 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 attached to the conditions or at or below the noise limits approved by the Planning Authority for a complainant's dwelling in accordance with paragraph (e) of the noise condition then no further action is necessary. If the rating level at any integer wind speed exceeds the values set out in the Tables attached to the conditions or the noise limits approved by the Planning Authority for a complainant's dwelling in accordance with paragraph (e) of the noise condition then the development fails to comply with the conditions.

Reason: To control noise from the development to protect residential amenity.

Radio/Television Reception.

06. Should any complaints be received in respect of disruption to Radio/TV reception, the developer shall fully investigate these complaints and provide a satisfactory solution within a timescale specified in writing by the Planning Authority,

details of which shall be submitted to, and approved in writing by, the Planning Authority. The approved details shall thereafter be implemented in accordance with the terms specified by the Planning Authority and retained throughout the life of the development unless otherwise agreed, in writing, by the Planning Authority.

Reason: To protect the residents of nearby residential properties from unacceptable levels of disruption to Radio/TV reception.

Removal.

07. If the wind turbine hereby approved is not operational and producing energy for a period of one year, then the wind turbine, foundation and any other associated equipment shall be removed and the site restored to its previous condition and use, to the satisfaction of the Planning Authority.

Reason: To protect the visual amenity of the area.