

Visual Impact Assessment.

1. Introduction

3DVS have undertaken this EIV-VIA study on behalf of *Newgen*, which is intended to form part of an application for the determination of the erection of an Endurance wind turbine at Martins Nest Farm, Victoria, Hepworth. The report identifies the visual impact of this turbine through photography.

2. Site Context.

Grid Reference	
Lat/Lon:	53 32.974 – 001 43.496
OSGB:	SE18323 - 05917
Landscape Description & Use	Agriculture
Green Belt	Yes
National Park	No
A.O.N.B	No
Planning Authority	Barnsley
Distance from site to nearest residential property owned by customer.	233m
Distance to nearest property not owned by customer.	263m
Distance from nearest commercial property.	322m
Centres of residence	Hepworth
Public Highways	A616. Hay Slack Lane.
Public Footpaths/Bridleways etc.	Barnsley Boundary Walk.

3. Existing Environment.

A desktop study was undertaken to gather information on the existing baseline landscape conditions, location of visual receptors and geographical context to establish the area over which the wind turbine development may have a visual impact. In addition to the desktop study, site survey work was undertaken to verify the findings of the data collection, to identify specific landscape features and to undertake a detailed visual analysis. Photographs were taken from viewpoints from potential visual receptors.

4. Terrain/Landscape/Site Context.

The site lies in a field southeast of Slack Top Lane and Southwest of Grime Lane. The landscape is a series of rectangular fields bounded by dry stone wall. There are a number of farms and other properties nearby. The land slopes gently to the east, however to the west the land falls away steeply along a north south trending escarpment. There are other turbines in the area, in the main Evoco & Proven in manufacture as well as an existing Iskra. To the west a number of large utility turbines were noted.

5. Methodology for Assessment of Landscape Resource and Visual Impacts.

The assessment of the visual impacts were conducted in accordance with current guidance or adapted, namely The Landscape Institute and Institute of Environmental Management and Assessment *Guidelines for Landscape and Visual Impact Assessment*, (Second Edition) 2002, as described below.

In defining the landscape visual impact Tables 1, 2 & 3 below have been used as guides.

Table 1. Sensitivity Classification

Sensitivity of Landscape Resource	
Landscape of particularly distinctive, character susceptible to relatively small changes e.g. National Park	High
Landscape with relatively ordinary characteristics reasonably tolerant of changes	Medium
Landscape with few features of value or interest, potentially tolerant of significant change.	Low

Note on Table 1, specifically A.O.N.B, National Parks, SSSI and World Heritage sites etc.

This report addresses the visual impact of the proposed site from the viewpoint of an individual or individuals looking towards the site from various viewpoints or ‘visual receptors’, it does NOT assess the ‘physical’ impact on the Land e.g. Flora/Fauna, Geology, terrain and land use, therefore the objective terminology used in this report is of a different meaning, and RELATES to visual impact.

For example:

The proposed site may be in a National Park, by definition a high sensitivity landscape. However the site from a particular viewpoint, say a road or footpath may be masked or hidden by trees, from a ‘visual’ reception point of view this would be classed as ‘slight’ as the turbine is not in full view to the ‘visual’ receptor. The same criteria are applied to any properties that may have visual reception to the site.

Issues on the physical change to the landscape (as above) should be addressed by other reports.

Table 2. Magnitude Classification.

Magnitude of Change	
Substantial change in landscape characteristics over an extensive area, ranging to very intensive change over a limited area. Permanent, long term.	High
Moderate change in landscape component over a wide area and/or moderate change in localised area.	Moderate
Discernable but slight change in any landscape component. Short term, temporary	Slight
Virtually imperceptible change. Insignificant scale to affect the integrity of the landscape component	Negligible

Table 3. Impact Significance.

	Low Sensitivity	Medium Sensitivity	High Sensitivity
Substantial Magnitude	Moderate Impact	Substantial Impact	Substantial Impact
Moderate Magnitude	Slight Impact	Moderate Impact	Substantial Impact
Slight Magnitude	Slight Impact	Slight Impact	Moderate Impact
Negligible Magnitude	Negligible Impact	Slight Impact	Slight Impact

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Table 4 provides a summary of predicted visual impact upon completion of installation and construction

Table 4. Predicted Visual Impact over the next 5 years.

Activity	Effect upon landscape resource	Sensitivity	Magnitude	Significance of visual impact.
Increase in traffic due to construction works and erection of plant	Loss of a small area of grassland	LOW	LOW	SLIGHT
Initial Operation Stage	Continuation of existing conditions – Loss of small area of grassland	LOW	LOW	SLIGHT
Continued full time operation	Continuation of existing conditions – Loss of small area of grassland.	LOW	LOW	SLIGHT

Table 5. Predicted Visual Impacts Upon Completion of Construction.

Activity	Effect upon Visual Impact	Sensitivity	Magnitude	Significance of visual impact.
Increased visibility of the site due to the operation of the single wind turbine	Near distance views. Location 1	Moderate	Moderate	Moderate
	Middle Distance Views.			
	Location 2 Location 3	Moderate Slight	Moderate Slight	Slight Slight
	Far distant views.	N/A	N/A	N/A

6. Methodology for Assessment of Visual Impact.

Visual impact is the result of a change in view from receptors such as residential property, public rights of way, land with public access and roads. Residential properties are considered the most sensitive receptors to changes in view whereas road users are the least sensitive as their experience is transient. The magnitude of impact is assessed according to the scale of the effect, which will depend largely upon the size and type of the development and the distance of the receptor/s from the site. The significance of visual impact depends upon the sensitivity of the receptor and the magnitude and duration of the effect

Technical Processes Used in Producing this Report.

1. All location photographs and the Turbine position were logged on site using a GARMIN GPS. The accuracy of positions is +/- 3m.
2. Locations were logged on site as OSGB 10 figure co-ordinates. These were then converted back to Latitude – Longitude bearings so that the positions could be accurately marked on the Google Earth Aerial view and the relevant OS Maps.
3. Original Marker Distances on the GPS were cross referenced with the distances from Google Earth and OS Maps for accuracy. Both, co-ordinate sets, elevation and distance from the Turbine position are clearly marked on the images. Terrain Cross Profiles were produced from OS digital maps 1:50.000/1:25000 vertical exaggeration is approximately x 2.
4. The visualisations were produced using 3D STUDIO MAX and Photoshop. This was done by placing the photographs into 3DS Max, placing a 'virtual camera' in the scene at the correct distance from the turbine and then superimposing the turbine into the scene. Scale height calculations were done to ensure total accuracy of turbine height against distance.
5. Final images were then rendered out, saved as .jpg files and then post processed in Photoshop, re-sizing of image for printing purposes.

Note: Consideration is given to all possible visual receptors within the range 0 to 5000m during the desktop study. However, it would be impractical to examine all visual vantage points for a project of this size and we accept that the turbine could be seen from other locations.

Table 6. Sensitivity of Visual Receptors.

Sensitivity of Visual Receptor.	
Residential properties less than 1 km from the development with direct views from ground floor and first floor windows towards the development. Public Rights of Way less than 1 km from the development with direct views.	HIGH
Residential properties over 1 km from the development or with more restricted views towards the development. Public Rights of Way more than 1 km from the development, or with restricted views. Local side roads and lanes. Sporting and recreational facilities, allotments.	Medium
Offices, commercial developments and industrial sites. Main roads and rail routes.	Low

Table 7. Classification of Magnitude of Visual Receptors.

Magnitude of Impact (Scale).	
The majority of viewers affected/major changes over a large proportion of the view.	Substantial
Many of the potential viewers affected/ major changes over a smaller proportion of the view/moderate change in view/partial view.	Moderate
Few viewers affected / minor change in view/glimpsed view.	Slight
Indiscernible change in the view.	Negligible

Table 8. Significance of Impact (Relationship Between Sensitivity and Magnitude).

	Low Sensitivity	Medium Sensitivity	High Sensitivity
Substantial Magnitude	Moderate	Substantial	Substantial
Moderate Magnitude	Slight	Moderate	Substantial
Slight Magnitude	Slight	Slight	Slight
Negligible Magnitude	Neutral	Neutral	Slight

The photomontage images have been produced to predict the proposed views of the site post construction. Photograph Locations 1 to 3 were taken using a Fuji S2950 digital camera at an optical zoom setting of 1.8, which is equivalent to a 50mm lens on a standard 35mm film format SLR. No tripod or monopod was used. All images are 1.9m above ground level; the height of the photographer. The images are comparable to those observed by the human eye; viewing distance for the images should be between 300mm at 500mm from the eye. The photomontages were produced using 3d Studio Max an industry standard visualisation package, part of the Autodesk AutoCAD group and PhotoShop. Photographs 1 to 3 were taken from publicly accessible viewpoints, to illustrate the site on completion.

7. Visual Baseline Conditions.

A visual analysis was undertaken on 7th March 2012, when weather conditions and visibility were considered to be acceptable.

The Zone of Theoretical Visibility (ZTV) is defined as the area from within which the proposed development would be visible (assuming an eye level of 1.6 m above ground level). The ZTV and potential visual receptors are shown in Part 2 of this report.

3DVS does not employ the use of Digital Elevation Models or Digital Terrain Models as they are not deemed necessary for a project of this size. 3DVS develops its ZTV from observations on the ground and the use of 3D topographical digital OS maps, giving an accurate ZTV for the study area.

8. Visual Receptors.

The local authority has not asked for any specific locations to be considered. However we are asked to note the cumulative impact of this turbine in conjunction with the others in the area.

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There were a number of possible visual receptors identified from the desk top study. These were:

Hey Slack Lane
Dick Edge Lane
Birdsnest Lane
Grime Lane
Hog Close Lane.

All of the above sites were visited on the day.

A total of 3 visual receptors were chosen and photographs taken looking towards the site of the Turbine for assessment on how they might be visually affected by the erection of the proposed turbines.

The receptors are situated between 613m and 1412m away from the site.

All views are within the near/middle distance range for a VIA. Local topography cause line of sight views to be limited. The proposed turbine is only 25m in height. There are no significant views to be had beyond 1 to 1.5km.

All photographs were taken from publicly accessible viewpoints. Legally 3DVS cannot access the private land of individuals.

Near Distant Views (inside 1000m)

Location 1

Middle Distance Views (Between 1000m & 2500m).

Location 2

Location 3

Distant Views (Between 2500m & => 5000m.)

None

9. Predicted Visual Impacts.

A summary of the visual impacts from the above receptors, using the methodology described in Section 6 is summarised in Section 11. The receptor locations are shown in Part 2 of this report. (GIS Image & Shaded relief OS Map). Terrain Cross Profiles with a vertical exaggeration of approx X2 are also supplied in Part 2 of this report.

The description of the views and the potential impact on individual receptors is summarised as follows below:

Location 1

OSGB: SE18140 - 06500. Looking south/southeast to the site, 613m away. In this image the proposed turbine can be seen partially on the skyline. The turbine that is laid on the ground in this image is the one that the proposed turbine is replacing.

Location 2

OSGB: SE18271 – 07060 A wide view looking south to the site. The proposed turbine is marginally skyline. A number of telegraph lines and power lines are also see in the view. In the distance 2 large utility turbines can be seen.

Location 3

OSGB: SE19160 - 06624. A wide view looking southwest to the proposed site. The proposed turbine is marginally skyline; however in the broader landscape this will not have any harmful effect on the vicinity. There are no direct views to the site from the properties to the southeast.

10. Summary of Predicted Visual Impact.

Fundamental change at the site will result from the erection of the turbine as a new vertical structure in the landscape. Whilst the site sits in a broad landscape, with land gently sloping to the east with sharp drops to the west. The site is hidden from wider views because of the 'bowl' like effect of the local topography. Whilst locally the turbine may 'appear' to be marginally skyline, the angle of view from other positions will not be the case, e.g. from the east and west. There are other turbines in the vicinity.

11. Conclusion.

1. This is an application for a single wind turbine.
2. There are other existing turbines in the area.
3. Views are limited to near/middle distance views (less than 1500m) because of local terrain.
4. There are numerous power lines and poles within the survey area which will detract from the overall impact of this additional turbine.
5. Visual impact will be moderate slight.
6. Cumulative impact is classed as Combined.

It is felt that the erection of this turbine will not create any significant change in cumulative impact, as this is outweighed by the numerous other vertical structures nearby. This turbine replaces a damaged Proven Turbine.

Overall, Visual Impact is classed as SLIGHT/MODERATE.