

Visual Impact Assessment.

1. Introduction

3DVS have undertaken this VIA study on behalf of *Newgen*, which is intended to form part of an application for the determination of the erection of one Endurance wind turbine on land adjacent to Scout Bridge Farm, Penistone. The report identifies the visual impact of this turbine through photography.

2. Site Context.

Grid Reference	
Lat/Lon:	53 32.377 – 001 38.351
OSGB:	SE24010 - 04836
Landscape Description & Use	Agricultural
Green Belt	Yes
National Park	No
A.O.N.B	No
Planning Authority	Barnsley MBC
Distance from site to nearest residential property owned by customer.	308m
Distance to nearest property not owned by customer.	358m east
Distance from nearest commercial property.	444m south.
Centres of residence	Penistone, Ingbirchworth, Thurlstone, Upper Denby. There is also Scout Dike Outdoor Education Centre 387m to the east.
Public Highways	A628, B6462, A629
Public Footpaths/Bridleways	Penistone 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.

The site falls in an area of Green Belt. The land is agricultural on gently sloping hillsides. There are number of reservoirs in the area. The area is of 'Borough Landscape Value' (Policy GS13). There are local nature reserves nearby. The area contains no SSSI but there are local conservation sites nearby. There are a number of other turbines in the area, including Royd Moor/Spicer Hill Windfarm which includes the recently built 2.5mW turbines.

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

The assessment of the visual impacts were conducted in accordance with current guidance, 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, Green Belt, 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.

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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	High	High	Significant
	Middle Distance Views.			
	Location 5 Location 6	Low Low	Low Low	Slight Slight
	Far distant views.			
	Location 2 Location 3 Location 4	Low Low Low	Low Low Low	Medium Medium Slight

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 +/- 1m.
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 6 were taken using a digital camera with a 50mm lens. The images are comparable to those observed by the human 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 6 were taken from publicly accessible viewpoints, to illustrate the site on completion.

7. Visual Baseline Conditions.

A visual analysis was undertaken in October when weather conditions and visibility were considered to be acceptable.

8. Visual Receptors.

A total of 6 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 turbine.

The receptors are situated between 358m and 2619m away from the site. All photographs were taken from publicly accessible viewpoints.

Near Distant Views (inside 1000m)

Location 1

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

Location 5

Location 6

Distant Views (Between 2500m & 5000m.)

Location 2

Location 3

Location 4

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

Representative view from Penistone Boundary Walk, Scout Dike Recreation area and the edge of the Scout Dike Outdoor Education Centre. The turbine will be clearly visible to walkers along the portion of the Penistone Boundary Walk which passes by. There will also be significant views to the site from the Outdoor Education Centre. The recreation area at Scout Dike Reservoir will have broken views towards the site due to local tree cover and changes in elevation.

Location 2

A distant panoramic view from Upper Denby looking southeast to the site demonstrating the openness of the landscape. The proposed turbine is masked by a small area of woodland. Visual impact to this area will be slight.

Location 3

Representative view for properties on the south-eastern edge of Upper Denby. As in location 2 the turbine is almost totally masked by the small woodland area.

Location 4.

Elevated view from the 'Viewpoint' at the top of Royd Moor. The site is seen as a distant isolated vertical structure within the landscape. Visual impact slight.

Location 5

Gadding Moor Rd. The site is 2.19km to the southwest and is seen as a thin vertical structure against background woodland. Within this photomontage the Wind Farm at Spicer Hill/Royd Moor can be clearly seen. The distance from this viewpoint to the Windfarm is 4.8km.

Cumulative impact of the proposed turbine with the wind farm is seen as in combination, there will be no significant increase in visual harm to the area around this viewpoint, because of the distance to the Windfarm (4.8km) there is no issues of scale.

Location 6

Halifax Road.

A wide panoramic view looking west/northwest to the site. This photomontage shows a number of other VISIBLE wind turbines including the 13 turbines and the newly built 2.5mW turbines at Spicer Hill – Royd Moor; it does not include the as yet unbuilt 2.5mW turbines at Broadstone Edge. Only the very upper parts of the proposed turbine will be seen from this point.

The mean distance from the proposed site to the other turbines west of the site is 4km. Cumulative impact is classed as in combination. Because of the proposed sites position in the landscape there will be no increase in visual harm to the landscape.

10. Summary of Predicted Visual Impact and Conclusion

Fundamental change at the site will result from the erection of the turbine as a new vertical structure in the landscape. There are a number of other wind turbines in the area including the commercial wind farm at Royd Moor/Spicer Hill which is to the west of the proposed site.

There will be significant visual impact from the proposed site to the Penistone Boundary Walk and to the Outdoor centre.

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No views could be established from Penistone, Thurlstone or Millhouse Green due to changes in the landscape. There are limited views from Upper Denby. Views from the A629 (both directions will vary and be transient).

Cumulative impact is classed as in combination from locations 5 and 6; all other locations will be 'in sequence'. Whilst there are a number of other turbines in the area because of separation distances, impact and harm to the area will not be increased significantly by this proposal.