SHAFTON ALC

Locating of a wind turbine within the proposed school site

Landscape and Visual Supporting Statement

June 2010

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1. LANDSCAPE AND VISUAL ASSESSMENT

1.1 Introduction

1.1.1 This landscape and visual statement assesses the potential landscape and visual implications of locating 1 no. 80kw, 33.9m high WES18 wind turbine within the site of the new Shafton ALC. The landscape and visual assessment is divided into the following sections;

- Introduction and methodology
- Assessment of existing views and extent of visibility of the site
- Proposed mitigation measures
- Predicted impacts on views, landscape an amenity.
- Visual impacts and conclusions.

1.2 Assessment Methodology

1.2.1 The format of this assessment is based on the principles described in The Countryside Agency and Scottish Natural Heritage's *Landscape Character Assessment Guidance for England and Scotland*, published 2002 (ref 1-1) and The Landscape Institute and Institute of Environmental Management and Assessment *Guidelines for Landscape and Visual Impact Assessment, Second Edition*, published 2002 (ref 1-2). The assessment is also in accordance with the requirements of the Town and Country Planning (Environmental Impact Assessment) Regulations 1999.

1.2.2 A desktop study was made of published information to establish the landscape context of the site and identify potential viewpoints which may be affected by the development. These viewpoints were discussed and agreed with Barnsley MBC prior to commencement of the study.

1.2.3 The application site and surrounding area was visited on 1st December 2009 and 22 January 2010. The weather conditions were good/moderate and visibility was clear on the visit.

1.3 Landscape and visual assessment

1.3.1 The **landscape impact assessment** describes the likely nature and scale of changes on individual landscape elements known as 'receptors' and the resultant effect on the landscape character due to the proposed development. The extent to which a landscape can accommodate change due to development varies according to a range of factors such as land use, the scale and pattern of the landscape, visual enclosure, and quality of view and the value of the landscape. Changes to the fabric and character of a particular landscape may affect the perceived value of that landscape, giving rise to changes in its quality. The scale or magnitude of landscape effects ranges from negligible, through to minor, moderate and major. Such changes are described as either adverse or beneficial.

1.3.2 The Countryside Agency's guidelines make a clear distinction between the characterisation process (in which the attributes of the landscape are described) and the judgment making process. This section of the assessment deals with the characterisation process and later sub-sections make judgments about the potential effects of the proposed development based upon the characterisation.

1.3.3 The Countryside Agency guidelines describe how **landscape character assessment** can be applied at different scales, from the national or European level, to the parish level. Assessments are ideally prepared at different scales that should fit together as a nested series or a hierarchy of landscape character types and/or areas, such that each level of assessment adds more detail to the one above. The three main levels identified by The Countryside Agency are: national and regional scale; local authority scale; and local scale. This assessment uses and presents a summary of the relevant published assessments at national and regional scale and local authority scales. These wider character assessments are then used to provide the context for the local scale landscape assessment for the application site.

1.3.4 The Countryside Agency's guidance recommends that the characterisation process should be based on an assessment of natural factors, cultural and social factors and aesthetic and perceptual factors. These factors have been examined for the site's surroundings, the existing site as it stands today and the site, as it would be, following completion of the development.

1.3.5 The **assessment of visual effects** describes the changes in the visual character of available views and in the visual amenity of local receptors arising from the development. The sensitivity of visual receptors and views will be dependent on the context of the view, the importance of the view and the nature of the receptor. The scale or magnitude of visual change is affected by scale, the degree of contrast, the permanence of the effect, angle of view, distance and the extent of change.

1.3.6 Principal viewpoints are selected on the basis of which points provide the clearest views of the site and are also the most accessible to the public.

1.4 Significance Criteria

1.4.1 The potential significance of landscape and visual impact is determined by a combination of the magnitude of the potential impact and the sensitivity of the receptor to change. These two variables can be correlated as illustrated in Table 1.1, below. Thus, a landscape impact of low magnitude may nevertheless be assessed to have a moderate impact in a highly sensitive landscape such as an Area of Outstanding Natural Beauty (AONB) or a National Park. In general the following principles apply:

Table 1.1 - Principles of Assessing Significance of Landscape and Visual Impacts

Sensitivity of Receptor to change		Magnitude of Impact				Significance of Effect
		Negligible	Low	Medium	High	
	Very High	Negligible	Moderate	Moderate / Major	Major	
	High	Negligible	Minor/ Moderate	Moderate	Moderate / Major	
	Medium	Negligible	Minor	Minor / Moderate	Moderate	
	Low	Negligible	Negligible	Minor	Minor/ Moderate	

1.4.2 The above consideration of the sensitivity of the receptors with the magnitude of the potential impacts provides an overall assessment of the potential significance of impacts. However, this process is not a quantitative process; there is not an absolute scoring system. Instead, the correlation of the two factors, although reflecting recognised features and methods of working outlined in this report, is in the end a matter of professional judgment.

1.4.3 Table 1.2, below, provides a brief definition of the full range of significance criteria. It must be emphasised that both landscape and visual impacts can be either adverse or beneficial in nature:

Table 1.2: Significance Criteria for Landscape and Visual Impacts

Significance	Definition
Negligible	The proposed scheme is appropriate in its context. It may be difficult to differentiate from its surroundings and would affect very few or no receptors.
Minor	The proposed scheme would cause a barely perceptible impact, and would affect few receptors.
Moderate	The proposed scheme would cause a noticeable difference to the landscape, and would affect several receptors.
Major	The proposed scheme would completely change the character and/or appearance of the landscape for a long period of time or permanently. It would affect many receptors.

1.4.4 These ratings reflect the existing site condition, established use and existing planning consents, but also the nature and scale of the proposed development. The visual impacts arising form visual changes in the appearance of the landscape associated with the development and perceived by the visual receptor may be beneficial or adverse and are assigned a significance rating.

1.5 Determining Landscape Capacity and Sensitivity

1.5.1 Topic paper 6 of Landscape Character Assessment guidance for England and Wales seeks to define concepts of Capacity and Sensitivity. The following definitions are suggested:

- **Overall Landscape Sensitivity** refers primarily to the inherent sensitivity of the landscape itself, irrespective of the type of change that may be under consideration.
- **Landscape sensitivity to a specific type of change** is used where it is necessary to assess the sensitivity of the landscape to a particular change or development.
- **Landscape Capacity** describes the ability of a landscape to accommodate different amounts of change or development of a specific type.

1.5.2 Sensitivity is the degree to which a particular landscape type or area can accommodate change arising from a particular development, without detrimental effects on its character and will vary with:

- Existing land use;
- The pattern and scale of the landscape;
- Visual enclosure/openness of views, and distribution of visual receptors;
- The scope for mitigation, which would be in character with the existing landscape;
- The value placed on the landscape.

1.5.3 Overall landscape sensitivity to change will be judged using a three point verbal scale of high, medium or low. Judgements are then made of each of the constituent aspects of sensitivity and these assesments are tabulated to provide a profile of a particular landscape area. An overview is than taken of the distribution of the assessments of each aspect and this is used to make an informed judgement about the sensitivity of the landscape to accommodate the specific change.

Table 1.3: Principles of Assessing Landscape Sensitivity to Change

Landscape area	Landscape character sensitivity	Sensitivity of individual elements	Sensitivity of aesthetic aspects	Visual sensitivity	Landscape sensitivity	Value of Landscape	Landscape sensitivity to change
Area A	High	Medium	Medium	High	HIGH	Low	MEDIUM
Area B	Low	Medium	Low	Low	LOW	Low	LOW
Area C	High	High	High	Medium	HIGH	High	HIGH

1.6 Determining the Sensitivity of Visual Receptors

1.6.1 Principal viewpoints are selected on the basis of which points provide the clearest views of the site and are also the most accessible to the public. Secondary viewpoints represent views from areas which are not commonly used by the public, or which would provide less clear views of the proposed development. Secondary viewpoints also represent areas which may be perceived to be sensitive to the visual impact of the proposed development due to their nature or proximity, but which in reality have restricted views of the site.

1.6.2 Sensitivity of visual receptors is typically assessed by ascribing one of the following levels: very high, high, medium or low sensitivity to change. The sensitivity of visual receptors and views will depend on the context of the view, the importance of the view and the nature of the receptor.

1.6.3 Table 1.4 below provides a description of the criteria used to define the sensitivity of the visual receptors:

Table 1.4: Criteria for Assessing Sensitivity of Visual Receptors

Sensitivity	Definition of Visual Receptor
Very High	The principal views from residential buildings; beauty spots and picnic areas. Users of outdoor recreational facilities including strategic recreational footpaths, cycle routes or right of ways, whose attention may be focused on the landscape; important landscape features with physical. Cultural or historic attributes.
High	Other footpaths; secondary views from residential buildings' people travelling through or past the landscape roads, train lines or other transport routes.
Medium	People engaged in outdoor sports or recreation (other than appreciation of the landscape), commercial buildings or commercially engaged pedestrians, whose attention may be focused on their work or activity rather than the wider landscape
Low	Views from heavily industrialised areas

1.7 Determining Magnitude of Impacts on Landscape Character and Visual Receptors

1.7.1 Magnitude is determined by the distance from the viewer, the extent of change in the field of vision, the proportion or number of views affected and the duration of each from each viewpoint, or a sequence of viewpoints that may have transient views (e.g. along a road).

1.7.2 Generally, greater weight is given to visual impacts on public viewpoints than on private properties. Table 1.5 provides a description of the criteria used to assess the magnitude of impacts on landscape and visual receptors:

Table 1.5: Assessing Magnitude of Impacts on Landscape and Visual Receptors

Magnitude	Typical Criteria
High	Total loss of or major alteration to key elements/ features/ characteristics of the baseline i.e. pre-development landscape or view and/or introduction of elements considered to be totally uncharacteristic when set within the attributes of the receiving landscape.
Medium	Partial loss or alteration to one or more key elements/ features/ characteristics of the baseline i.e. pre-development landscape or view and/or introduction of elements that may be predominant but may not necessarily be considered to be substantially uncharacteristic when set within the attributes of the receiving landscape.
Low	Minor loss of or alteration to one or more key elements/ features/ characteristics of the baseline i.e. pre-development landscape or view and/or introduction of elements that may not be uncharacteristic when set within the attributes of the receiving landscape.
Negligible	Very minor loss or alteration to one or more key elements/ features/ characteristics of the baseline i.e. pre-development landscape or view and/or introduction of elements that are not uncharacteristic within the surrounding landscape – approximating the 'no change' situation.

1.8 Nature of the Development

1.8.1 The proposal is for the installation of 1 no. 80kw, 33.9m WES18 wind turbine to the south of the site. Information on the location of the wind turbine and further detail on its structure is shown on drawing BP4L_SHA_AWP_DR_94_BW_14 which is included within the application.

1.9 Baseline Conditions

1.9.1 The site is located to the east of the village of Cudworth and to the south of Shafton. The entire site area comprises of approximately 10.5ha which is currently being developed to form the new site for both Priory and Willowgarth Schools – Shafton ALC. The construction of the wind turbine is proposed to be located in a 0.1km area within the site, adjacent to the proposed playing fields for the school site, which will be formed and graded from existing levels. Engine Lane and the woodland belt along this route forms the boundary of the site to the east, along with Hazeldene Farm, existing pasture forms extends southwards from the southern boundary, further pasture forms the immediate boundary to the west with the residential area of Cudworth further to the west and the residential area of Shafton and associated road network forms the boundary to the north. The site topography generally falls from north to south west. There is a shallow valley along the west boundary of the site. Tree/hedge cover is evident along eastern boundary, along Engine Lane and an intermittent hedge is evident on the western boundary. There are also a number of individual trees within the site.

1.10 Landscape Character Designations

Broad Landscape Character

1.10.1 The study area lies within Character area 38 'Nottinghamshire, Derbyshire and Yorkshire Coalfield' as defined in The Countryside Commission's Countryside Character, 'The character of England's natural and man-made landscape', Volume 3: Yorkshire and The Humber (Ref. 1.3). The key characteristics of area 38 'Nottinghamshire, Derbyshire and Yorkshire Coalfield' are as follows:

- Widespread evidence of industrial activity including mine buildings, former spoil tips and iron and steel plants;
- Complex mix of built up areas, industrial land, dereliction and farmed open country;
- Many areas affected by urban fringe pressures creating fragmented and downgraded landscapes;
- Substantial areas of intact agricultural land in both arable and pastoral use;
- Small, fragmented remnants of pre-industrial landscape and semi-natural vegetation, including many areas of woodland, river valley habitats, subsidence flashes and other relict habitats;
- Ever-present urban influences from major cities, smaller industrial towns and mining villages;

- Widespread influence of transport routes, including canal, road (M1, M62) and rail, with ribbon developments emphasising the urban influence in the landscape;
- Rolling landforms with hills, escarpments and broad valleys;
- Local variation in landscape character reflecting variations in underlying geology;
- Strong cultural identity arising from history of coal mining and other heavy industry.

1.11 Landscape Designations

1.11.1 Having viewed the Magic website (Ref 1-5) it was found that, other than the site being located within greenbelt, there are no other national or local designations within 1.5km of the site.

1.12 Visual assessment ZVI

1.12.1 A visual assessment has been made of the three principle views in and out of the site to identify the extent of visual impact arising from the proposed siting of the wind turbine. In the following section there is a brief description of the existing visibility of the site in the context of the surrounding landscape and receptors.

ZVI TO THE WEST OF THE SITE

1.12.2 The extent of the ZVI from the settlement is largely defined by the residential properties within Cudworth located on the perimeter of the adjacent farmland. The buildings closest to the site restrict views from areas further to the west.

ZVI TO THE NORTH

1.12.3 Views from some properties within Cudworth are available towards the site although these are partially obscured by the existing trees and garden planting associated with the properties. There are only a few including with direct views and the majority of these are from second floor windows only. The highway, Engine Lane, and associated planting restricts views from further north and north east.

ZVI TO THE EAST

1.12.4 Views of the site from the east are heavily filtered by the existing vegetation along both sides of Engine Lane. To the west of Engine Lane there is a bank of woodland edge planting and to the east a large woodland block which effectively creates the visual barrier to the east.

ZVI TO THE SOUTH

1.12.5 The topography of the land drops southwards over adjacent farmland to business units further south. The significant change in level, and existing vegetation around the existing farmland form the visual barrier to the south.

RECEPTORS

1.12.6 The principle receptors, from where photomontages have been developed, are indicated in the table below.

Table 1.6: Significant Visual Receptors

Visual Receptor		Approx. Distance from site	Grid ref
Key Potential Visual Receptors			
1	Residential area to north of site	0km	N 10288 E 39305
2	Public footpath to west of site	0.1km	N 09909 E 39334
3	Station Road to east of the site	0km	N 09821 E 39894

1.13 Assessment of Impacts

IMPACTS ON LANDSCAPE CHARACTER

1.13.1 The introduction of the wind turbine at the Shafton site will have a **negligible impact** on both the broad and local landscape character of the area due to the the frequency of other vertical elements such as pylons and mature tree planting in the surrounding environment.

IMPACTS ON VISUAL RECEPTORS

1.13.2 The assessment of impacts of the locating of the wind turbine on visual receptors is summarised below and the significance of these impacts is detailed in Table 1.8. The impacts have been assessed taking into consideration the parallel construction operation of building the new school and associated grounds.

Residential area to north of the site

1.13.3 The construction of the wind turbine will be seen in conjunction with the development of the new school building and associated grounds for which construction traffic and use of more prominent structures, such as tower cranes, are a regular occurrence. At completion the wind turbine will be stood at a height of 33.9m to hub above the re-graded land. The photomontage from this viewpoint, drawing no. Shafton_V1 (Appendix 1), reflects this. The photomontage indicates that although the turbine is seen as a skyline feature it is also seen in the context of existing electricity pylons and the proposed building, resulting in an **adverse impact of moderate significance.** After a period of 15 years the woodland planting proposed to the northern boundary of the site will filter views of the wind turbine from this location reducing this to an **adverse impact of minor/moderate significance.**

Public footpath to west of the site

1.13.4 During the construction of the wind turbine vehicles will be seen trafficking the area to the south of the site but these will be no more evident than those vehicles used to re-grade the playing fields adjacent to where the wind turbine are to be located. The photomontage from this receptor, drawing no. Shafton_V2 (Appendix 1) shows that the wind turbine, although forming a skyline feature, will be seen in the context of existing electricity pylons, buildings and mature woodland planting resulting in an **adverse impact of moderate significance**. 15 years after the construction of the wind turbine it is anticipated that impact of the views of the wind turbine will reduce to an adverse **impact of minor/moderate significance.**

Engine Lane to the east of the site

1.13.5 During the construction of the wind turbine filtered and oblique views of vehicles will be seen trafficking the area to the south of the site but again, these will be no more evident than those vehicles used to re-grade the playing fields adjacent to where the wind turbine is to be located. The photomontage from this receptor, drawing no. Shafton_V2 (Appendix 1) shows that the wind turbine will be hard to distinguish through the existing vegetation, with only the hub being visible, resulting in an **adverse impact of minor/moderate significance**. It is also worth noting that the photographs were taken in winter when most trees had lost their leaves. In summer when trees are in full leaf it is likely that views towards the wind turbine will be almost totally obscured. 15 years after the construction of the wind turbine it is anticipated that views of the wind turbine will be totally obscured, even in winter, as the existing planting along Engine Lane matures resulting in an **impact of negligible significance.**

Table 1.8 Significance of Impact on Receptors

Visual Receptor		Sensitivity of viewpoint	Magnitude of the impact during construction	Significance	Magnitude of the impact on completion	Significance	Magnitude of the impact after 15 years	Significance
Key Visual Receptors								
1	Residential area to north of the site	High	Medium	Moderate Adverse	Medium	Moderate Adverse	Low	Minor/Moderate Adverse
2	Public footpath to west of the site	High	Medium	Moderate Adverse	Medium	Moderate Adverse	Low	Minor/Moderate Adverse
2	Engine Lane to east of the site	High	Low	Minor/Moderate Adverse	Low	Minor/Moderate Adverse	Negligible	Negligible

1.14 Conclusion

1.14.1 It is evident that the wind turbine will be visible from the receptors during construction and completion phases resulting in impacts which are of moderate adverse significance. This significance takes into consideration the few direct views available from properties and vantage points along the public right of way, but it is worth noting that from the majority of properties and other locations on the public right of way the views are filtered or in some instances, totally obscured by existing vegetation and buildings. It is also important to note that the wind turbine will not be seen in isolation but in the same context as the proposed school building and associated infrastructure, massing and scale. In the cases of the receptors to the north and west, these impacts will reduce to minor/moderate adverse when the proposed

woodland planting around the perimeter of the site becomes established and further filters views of the turbine. The views of the turbine from Engine Lane will be seen in the immediate context of an existing electricity pylon and existing vegetation, the latter of which will screen any views of the turbine after 15yrs resulting in an impact of negligible significance.

1.15 References

1-1 Countryside Agency and Scottish National Heritage (2002); Landscape Character Assessment Guidance for England and Scotland.

1-2 The Landscape Institute and Institute of Environmental Management and Assessment, Second Edition (2002); Guidelines for Landscape and Visual Impact Assessment.

1-3 Countryside Commission (1998); Countryside Character. The Character of England's natural and man-made landscape, Volume 3: Yorkshire and the Humber.

1-4 ECUS and Land Use Consultants (2001); Barnsley Borough Landscape Character Assessment

1-5 www.magic.gov.uk – Multi Agency Graphic Information for the Countryside

APPENDICES

APPENDIX 1

Photomontages



Before (90 degree view)



After (wireframe)



After (solid render)



Viewpoint Location

Viewpoint Parameters:

Grid reference: **N10288, E39305**

Elevation: **72m**

EPS (Estimated Position Error): **3m**

Tripod height: **1.75m**

Date and time of photography: **14:10PM Wednesday 20/1/2010**

Turbine: **1 no. wind turbine 33.9m high to hub**

Note: Photographs were taken using a 35mm Digital SLR, which is equivalent to 50mm SLR.

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PROJECT
Barnsley Schools BSF

DRAWING TITLE
Photomontage Location - Shafton_V1_Rev B

DRAWING No.	SCALE (A3)	DATE	DRAWN	CHKD
Shafton_V1	NTS	08/07/10	KA	JM

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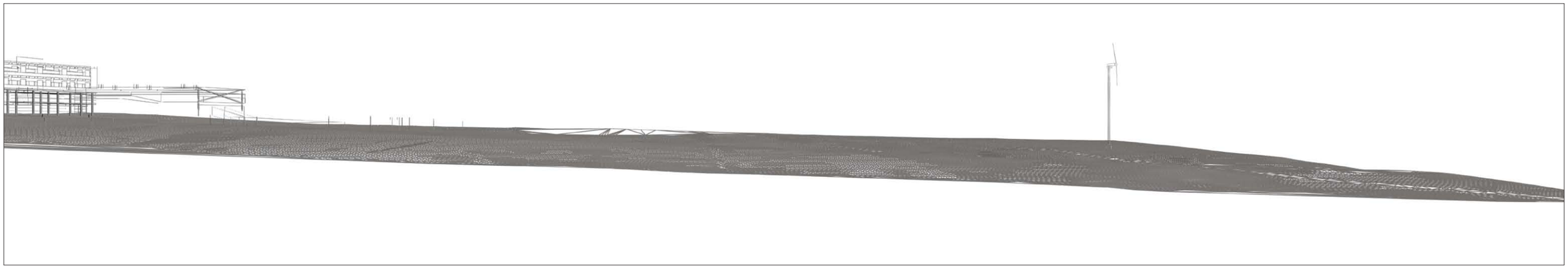
Before (90 degree view)



After (wireframe)



After (solid render)



Viewpoint Location

Viewpoint Parameters:

Grid reference: **N09909, E39334**

Elevation: **56m**

EPS (Estimated Position Error): **3m**

Tripod height: **1.75m**

Date and time of photography: **14:25PM Wednesday 20/1/2010**

Turbine: **1 no. wind turbine 33.9m high to hub**

Note: Photographs were taken using a 35mm Digital SLR, which is equivalent to 50mm SLR.

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PROJECT				
Barnsley Schools BSF				
DRAWING TITLE				
Photomontage Location - Shafton_V2_Rev B				
DRAWING No.	SCALE (A3)	DATE	DRAWN	CHKD
Shafton_V2	NTS	08/07/10	KA	JM

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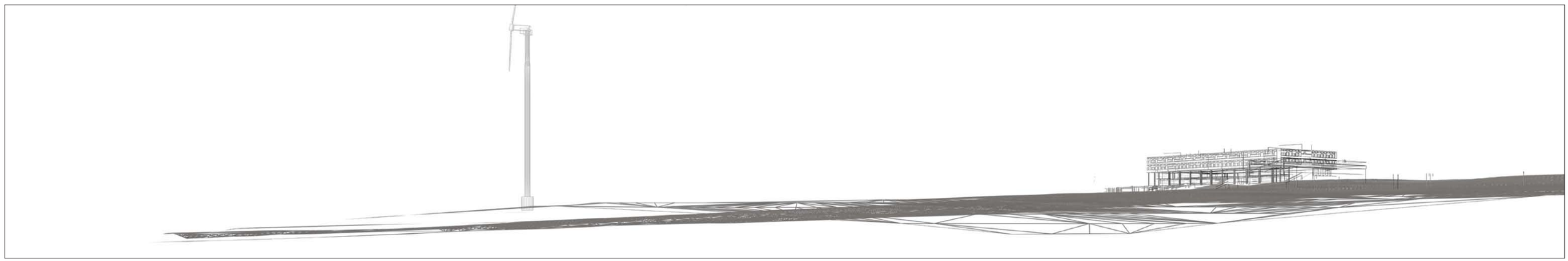
Before (90 degree view)



After (wireframe)



After (solid render)



Viewpoint Location

Viewpoint Parameters:

Grid reference: **N09821, E39894**

Elevation: **58m**

EPS (Estimated Position Error): **3m**

Tripod height: **1.75m**

Date and time of photography: **14:25PM Wednesday 20/1/2010**

Turbine: **1 no. wind turbine 33.9m high to hub**

Note: Photographs were taken using a 35mm Digital SLR, which is equivalent to 50mm SLR.

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PROJECT: Barnsley Schools BSF				
DRAWING TITLE: Photomontage Location - Shafton_V3_Rev B				
DRAWING No.	SCALE (A3)	DATE	DRAWN	CHKD
Shafton_V3	NTS	08/07/10	KA	JM

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