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LANDSCAPE AND VISUAL ASSESSMENT

LAND EAST OF BEMERSLEY ROAD
BEMERSLEY GREEN
ENERCON E44 - WIND TURBINE

VOLUME 1

EXECUTIVE SUMMARY

The Landscape and Visual Impact Assessment (LVIA) has been prepared for the proposed single wind turbine, 45m to nacelle, 67m to blade tip, development at Land east of Bemersley Road, Bemersley Green, Biddulph, Stoke on Trent. It considers the potential effects of the single turbine for a period of 25 years upon:

- Individual landscape features and elements;
- Landscape character; and
- Visual amenity and the people who view the landscape.

The site lies within NCLA 64 Potteries and Churnet Valley, the single turbine would affect a very small section of the character area which already contains other large structures, turbines, pylons and telecom masts the impact would be **Slight, Adverse** and therefore **Not Significant**.

Within the 10km radius study area there are 13 Regional Landscape Character Areas, the ZTVs and site visits indicate visibility is generally restricted to within the Ancient Slope and Valley Farmlands and the Gritstone Uplands areas the assessments concludes that the Significance of effect would be **Moderate/Slight** to **Slight, Adverse** and therefore **Not Significant**.

The ZTVs indicate limited visibility across the study area, which is generally confined to within the Head of Trent valley and the ridges of higher ground within 5km of the proposed site, however the screening effect of the existing hedges and trees, buildings and settlements and the local landform results in a landscape with limited visibility towards the proposed turbine.

The sensitivity of the area is to wind energy development is **High**, the Magnitude of Change on the Landscape Character is considered to be **Low,** and therefore the Significance of the Impact is **Moderate/Slight, Adverse, Not Significant**.

Of the ten viewpoints and the 19 receptor groups assessed the visual impacts have been assessed as being generally between **Moderate to Moderate/Slight, Adverse** and **Not Significant** for most of the viewpoints.

The size of the proposed single turbine (45m to hub, 67m to blade tip) within a landscape with a number of comparable size structures, together with the limited size of the visual envelope and further fragmentation of the view within the area, results in a proposed scheme without many Significant Visual Impacts.

The proposed Bemersley Green turbine would theoretically be seen cumulatively in combination with the existing Hill Top telecommunications mast at Brown Edge and the proposed and consented small turbine at Sands Lane however in reality the landscape and visual cumulative assessment indicates that there would be no significant impacts that could not be mitigated or reversed. Where views are potentially available as illustrated on the ZTVs many are either screened or filtered by existing local landform and vegetation further reducing the impact of the proposed development.

The above assessment of the landscape and visual impacts and cumulative landscape and visual impacts indicate a general residual range from **Moderate** to **Moderate/Slight**, **Adverse** and therefore **Not Significant**. Having given careful consideration to the potential landscape and visual impacts/effects throughout the study area, it is considered that in Landscape and Visual terms the proposed Bemersley Green wind turbine development is acceptable.

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APPENDICES

Figure Table

1.0 INTRODUCTION

1.1 This Landscape and Visual Impact Assessment (LVIA) has been prepared by Chartered Members of the Landscape Institute, from One Associates Ltd., of the proposed single wind turbine development at Land east of Bemersley Road, Bemersley Green, Biddulph, Stoke on Trent.

1.2 The proposed wind turbine would have a maximum height to nacelle of 45 metres (agl) and a maximum height to blade tip of 67 metres (agl). The precise make and model of the turbine will only be determined at a later date, should planning permission be granted. However, there are a number of turbines available within the market place which would fit within the aforementioned parameters. For the purpose of this assessment, the effects of a single Enercon E44 turbine for a temporary period of 25 years upon;

- Individual landscape features and elements;
- Landscape character; and
- Visual amenity and the people who view the landscape.

See Figure 1: Proposed Turbine and Comparators

1.3 The report is structured as follows:

- 2.0 Outline of the Consultation Undertaken;
- 3.0 Outline of the Methodology Adopted for the Assessment;
- 4.0 Description of Baseline Conditions;
- 5.0 Summary of the Assessment of Effects on Landscape Features;
- 6.0 Summary of the Effects of the Assessment on Landscape Character and Landscape Designations;
- 7.0 Outline of the Assessment of Effects on Visual Amenity;
- 8.0 Summary of the Assessment of Cumulative Effects;
- 9.0 Summary and Conclusions.

1.4 All figures referenced in this chapter are included in Volume 2 of the Report.

1.5 There are a number of technical appendices to this chapter which are included at the back of the Report:

Appendix A: Landscape and Visual Impact Assessment Methodology

Appendix B: Review of Landscape Character Types and Landscape Designations within 10km of the Bemersley Green site. This contains, in tabulated form a review of all the landscape character types identified from relevant character assessments as well as all designated landscapes within the defined study area. The landscape character types and designated landscapes which were found to have potential to undergo a significant effect are assessed in full in Section 6.0 of this report.

Appendix C: Review of Principal Visual Receptors within 10km of the Bemersley Green site. This contains, in tabulated form a review of all the potential principal visual receptors of the proposed development.

The principal receptors which were found to have potential to undergo a significant effect are assessed in full in Section 7.0 of this report.

Appendix D: Glossary of terms throughout the Landscape and Visual Assessment.

Appendix E: Bibliography

2.0 OUTLINE OF THE CONSULTATION UNDERTAKEN

2.1 With regard to the Landscape and Visual assessment Pre-application Advice was received from Staffordshire Moorlands District Council March 2014 (Ref:ADS 14/000XX/PREAPP), see extract below:

Landscape

Landscape is considered a key determinant in relation to this application and is addressed more fully in the accompanying Environmental Impact Assessment Screening Opinion. It is likely that this proposal would be locally prominent and potentially dominant. In the near range it is likely that effects will be most significant from Marshes Hill Common and from Brown Edge. Potential closer impacts from the sensitive locations of the Knypersley Reservoir dam and perimeter path on the east bank, and from the Trent Head Valley bottom and from the two public footpaths passing east of the site (branching from one running north from the direction of Ridgeway Hall) should all be considered.

The visual impacts for the community of Ridgeway and Bemersley Road in particular need to be considered. Possible impacts for the communities of Knypersley and Brown lees to the north along with public rights of way in their vicinity and from Mow Cop, a National Trust site and visitor viewpoint also need to be addressed.

Public Rights of way

As referred to in forgoing section.

2.2 The EIA screening opinion also recommends:

1.2 Cumulative impact upon the landscape of this proposal along with other development needs to be considered, including inter-relationship with other tower structures such as telecommunications masts including one 1.7km to the east at Hill Top, Brown edge. A 15.4m hub/20.4m blade tip height turbine proposal at Sandy Lane, Brown Edge was allowed on appeal to the Planning Inspectorate following refusal by the Staffordshire Moorlands District Local Planning Authority in December 2011.

2.3 Following submission of the planning application for an EWT 500 turbine 50m hub, 78m blade tip and discussions with the planning department it was agreed to reduce the height of the turbine to an Enercon E44 turbine 45m hub, 67m blade tip.

3.0 OUTLINE OF THE METHODOLOGY ADOPTED FOR THE ASSESSMENT

3.1 The following is a summary of the methodology for the LVIA, presented in Appendix A

GUIDANCE DOCUMENTS

3.2 Guidance documents used in the assessment are set out in Appendix A. The LVIA has been undertaken in accordance with best practice, as outlined in:

- (The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, 2013), Landscape Institute and the Institute for Environmental Management and Assessment;

DISTINCTION BETWEEN LANDSCAPE AND VISUAL EFFECTS

3.3 In accordance with published guidance, landscape and visual impacts are assessed separately:

- Landscape impacts relate to the effects of the proposals on the physical and other characteristics of the landscape and its resulting character and quality.
- Visual impacts relate to the effects on views experienced by visual receptors (e.g. residents, footpath users, tourists etc.) and on the visual amenity experienced by those people.

DISTINCTION BETWEEN IMPACTS AND EFFECTS

3.4 The GLVIA distinguishes between the 'impact' defined as the action being taken and the 'effect' defined as the change resulting from that action.

TYPES OF IMPACT CONSIDERED IN THE LVIA

3.5 The LVIA assesses both the long term effects relating to the operational lifetime of the wind turbine development and also the short-term effects associated with its construction. Where appropriate, the LVIA also considers any residual effects following the wind turbines decommission and removal. The wind turbine will be a temporary feature and its effects entirely reversible upon decommissioning. However, in the interests of the production of a robust assessment no weight has been given to the temporal duration of the turbine or reversibility of effect in reaching the judgements set out in this document.

3.6 The LVIA not only assesses the impacts associated with the turbine but also any related impacts resulting from the control building, underground cabling, site tracks and access roads.

3.7 Consideration has been given to seasonal variations in the visibility of the wind farm. The LVIA has been carried out during August/October 2012 & March/August 2014.

3.8 The LPA has requested that the telecommunications mast at Hill Top, Brown Edge and the approved turbine at Sandy Lane, Brown Edge be considered as part of a cumulative assessment.

STUDY AREA

3.9 The study area for the assessment of visual impacts has been proposed as being 10km radius from the site.

3.10 Initially all landscape character areas/types within 10km of the site were considered in a filtering exercise set out and described in Appendix B, which was informed by initial baseline studies and site

visits which indicated that there was little potential in the surrounding landscape (beyond approximately 4-5km) from the site for a single turbine to have significant indirect effects on landscape character areas/types or a receptor's experience of that landscape character. Therefore a study area of approximately 10km from the site was used for a detailed assessment of effects on landscape character. Although the ZTVs indicate that there is wide spread visibility across the 10km study area in reality the visual envelope is a lot smaller due to the screening effect of the surrounding settlements, vegetation and infrastructure.

LANDSCAPE ASSESSMENT METHODOLOGY

3.11 The LVIA assesses how the proposed development would impact directly on any landscape features and resources (e.g. removal of trees, hedgerows).

3.12 It considers the impacts on landscape character at two levels.

- consideration is given to how the immediate landscape character surrounding the site (within approximately 1km of the turbine) is directly affected by the removal or alteration of existing features and the introduction of new features.
- the indirect impacts of the development on the wider landscape are discussed with reference to National Landscape Character Areas and Regional Landscape Character Types identified within relevant landscape character assessments and wind farm sensitivity studies.

3.13 The significance of effects on landscape features and character is determined by cross-referencing the sensitivity of the feature or landscape character with the magnitude of change using the methodology and criteria established in Appendix A.

VISUAL ASSESSMENT METHODOLOGY

3.14 Potential visual receptors of the scheme were initially identified by interpretation of digitally generated Zones of Theoretical Visibility (ZTVs) (see Appendix A for an explanation of ZTVs their production and limitations).

3.15 The assessment of visual effects was undertaken on the basis of viewpoint analysis as recommended by best practice guidelines. A selection of viewpoints is proposed to represent the range of views likely to be experienced of the development. All photography and survey work of the viewpoints etc. was undertaken only from publicly accessible road and footpaths.

3.16 The viewpoints were selected to represent a range of views and viewer types. The viewpoints cover a variety of different character types, are in different directions from the site and are at varying elevations. The viewpoints are located at a range of distances from the development to illustrate the varying magnitude of visual impacts with distance from the site.

3.17 For each of the viewpoints, a wireframe model was generated to help identify the scale, arrangement and visibility of the turbine (see Appendix A for a description of how the wireframe models were produced). The images were reviewed on site to assess how natural and built screening would affect visibility of the site.

3.18 A number of viewpoints within approximately 5km of the site were developed further into photomontages to help illustrate the predicted impact of the development (see Appendix A for a description of how the photomontages were generated and their limitations).

3.19 The viewpoints were used as the basis for determining the effects on visual receptors within the entire study area.

3.20 In parallel to the viewpoint analysis the ZTVs were used to identify potential visual receptors (e.g. residents, users of public rights of way, visitors to tourist attractions etc.) of the proposed development. A filtering process was undertaken to identify which of the visual receptors within the study area had the potential to experience significant visual effects. This filtering exercise is set out in Appendix C.

3.21 The significance of effects on visual receptors is determined by cross referencing the sensitivity of the receptor with the magnitude of impact using the criteria established in the Appendix A.

IMPACT SIGNIFICANCE

3.22 The ultimate purpose of the LVIA is to evaluate the significance of potential effects on the landscape and visual amenity surrounding the site.

3.23 The significance of the landscape and visual effects is determined by cross-referencing the sensitivity of the landscape or view with the magnitude of change. In determining the significance of residual effects all mitigation measures are taken into account.

3.24 Table A-6 in Appendix A demonstrates the general relationship between sensitivity and magnitude based on the specific criteria given in Appendix A. The significance of effects is described as Substantial, Substantial/Moderate, Moderate or Moderate/Slight, Slight, Slight/No Effect or No Effect.

3.25 Those effects identified as Substantial, Substantial/Moderate and in some cases Moderate significance may be regarded as 'Significant' effects when discussed in terms of the Town and Country Planning (England and Wales) (Environmental Impact Assessment) Regulations, 1999, are discussed further in this report. All other 'Non Significant' effects have been screened out and are discussed within the Appendix B & Appendix C.

RESIDUAL EFFECTS

3.26 Best practice in Environmental Impact Assessment (EIA) requires that the significance of potential effects be assessed, mitigation proposals identified and the residual effect (with mitigation in place) then re-assessed to demonstrate the effectiveness of the mitigation proposed. There are four general types of potential mitigation;

- avoidance;
- reduction;
- remediation; and
- compensation.

3.27 The mitigation for the proposed turbine has been included at the design stage with the choice of turbine, scale and location being chosen to be appropriate for the landscape setting and to limit landscape and visual impacts within the study area.

NATURE OF EFFECTS

3.28 There is a range of public opinion on whether the landscape and visual impacts of a wind farm proposal are positive (beneficial) or negative (adverse). Publications such as Public Attitudes to Windfarms, 2003 and other surveys demonstrate that wind farm developments generate a spectrum of public responses ranging from strongly adverse to strongly positive. This range of opinion from positive to negative is often referred to as the concept of "valency", which has been discussed and debated at numerous wind farm public inquiries.

3.29 Our approach is that the judgement should be reached through the process set out in the GLVIA, and should be based on the objective professional assessment of the baseline landscape, it's landscape character and visual resource of the relevant area together with the sensitivity of the landscape and visual receptors 'receiving' or experiencing the development. However, once an assessment has been made for all of the identified receptors, there is a requirement to consider what mitigation measures can be proposed to reduce or minimise the environmental or social impacts / effects on the identified receptors.

4.0 DESCRIPTION OF BASELINE CONDITIONS

4.1 This section of the report establishes the landscape and visual baseline conditions of the site and the surrounding area.

4.2 The baseline conditions are presented in four sections:

- A site specific landscape appraisal of the landscape characteristics of the site and immediately surrounding area including a description of the landscape features within the site boundary;
- A description of landscape character drawing upon a review of published landscape character assessments;
- A review of landscape designations; and
- A description of potential visual receptors.

SITE SPECIFIC LANDSCAPE APPRAISAL

4.3 This section provides an objective and factual site specific description of the landscape features and characteristics of the landscape within and immediately surrounding the assessment boundary. The landscape context within approximately 10km of the site is illustrated in Figure 2: Study Area 10km radius.

THE SITE

4.4 The Bemersley Green turbine site lies within the Potteries and Churnet Valley National Character Area, Grid Reference 388869,354524. It lies within farmland on the edge of the sprawling urban landscape of northern Stoke-on-Trent, approximately 2km to the south of Biddulph, 1.5km west of Brown Edge and 2km east of Oxford and Fegg Hayes and 1.5km north of Ball Green.

4.5 The site lies to the east of the Bemersley Road which connects Biddulph to Ball Green, and above the western edge of the Head of Trent valley immediately to the east.

4.6 The site for the proposed turbine consists of a square field of pasture bounded on all four sides with well-maintained hedgerows up to 1.5m with approximately 15 mature deciduous trees along the eastern boundary and one on the southern boundary. Access would be from the existing field access within the field to the south-west which fronts on to Bemersley Road, opposite the dozen or so residential properties south of Peck Mill Lane. See Figure 03 Site Layout.

LANDFORM AND TOPOGRAPHY

4.7 The site lies within the Potteries and Churnet Valley National Character Area in the Ancient Slope and Valley Farmlands character type. The general topography consists of an area of higher ground to the north and lower ground to the south which joins through a series of north to south orientated ridges and valleys, where the valleys are generally about 120-140m AOD and the ridges rise to between 200-300m AOD.

4.8 The proposed site lies on the ridge between the Head of Trent and Whitfield Valley on the relatively level area immediately to the west of steeper sides of the Head of Trent valley, approximately 1km from the head of the valley at Greenway Bank Country Park.

4.9 The western side of the valley is relatively steep rising from 155m to 223m AOD within a distance of 0.5km, the eastern valley side is less steep but rises up to 270m AOD within 1.5km of the valley bottom. See Figure 04 Topography

WATERCOURSE AND DRAINAGE

4.10 There are no watercourses or water bodies on or immediately adjacent to the proposed site. Within Dallows Wood to the north there is a pool and stream which flows eastward into the Head of Trent. To the north-west there are four man-made ponds on the eastern edge of Bemersley Green.

4.11 The site lies approximately 0.5km to the west of the Head of Trent watercourse and 0.75km south-west of Knypersley Reservoir at the head of the valley. The Head of Trent flows southward towards Stoke on Trent.

4.12 To the west of the site is Whitfield valley where a small stream flows southward, partially within a culvert under the reclaimed Whitfield spoil heap, before discharging into the Caldon Canal south of Milton.

VEGETATION

4.13 The site is a field of pasture, currently for grazing of livestock and horses. The general pattern of vegetation across the area of ridges is of small rectilinear shaped fields of pasture and occasional arable crops bounded generally with well-maintained thorn hedgerows, with occasional hedgerow trees and small copses of trees generally following the steeper ground and watercourses. On the steeper valley sides the field pattern becomes smaller and less formal the variations in topography dictating the shape, layout and use of the fields.

4.14 There are a number of areas of woodland consisting of primarily deciduous native trees. Within 200m to the north and east of the site are Dallows Wood and Rushymoor Wood both riparian woodland following the tributaries of the Head of Trent. Further to the north around Knypersley reservoir there are large areas of deciduous woodland; Planhollow, Knypersley, Hollin and Greenway Woods.

4.15 To the north and east of the village Brown Edge there is an area of heather moorland which stretches from the village along Sands Lane towards Hollin Wood.

BUILDING AND INFRASTRUCTURE

4.16 There are no buildings associated with the site.

4.17 The nearest buildings are to the west of Bemersley Road at the junction of Peck Mill Lane, where there are a mix of detached houses and bungalows and semi-detached houses some originated from 1900's others more modern constructions. The properties are constructed in a mix of materials predominantly red/brown brick with render and dark brown tiled roofs.

4.18 To the northeast on the eastern side of Bemersley Road is the recently converted/modernised farm house, in brick and render with tiled roofs, set within extensive landscaped gardens. Further north is the centre of the hamlet of Bemersley Green which consists of approximately 20 residential properties set either side of Bemersley Road. The properties are a mix of detached and semi-detached houses generally with minimal front gardens but with large rear gardens.

4.19 Bemersley Road, a minor road linking Biddulph, Bemersley Green and Ball Green, is located to the west of the site from which access to the site will be obtained. To the north of the site is Green Park Bank and Judgefield Lane which connects Bemersley Green to Sand Lane and runs along the wall of the

Knypersley Reservoir in the valley bottom. To the west is Sand Lane which runs along the eastern valley side in to Brown Edge. Tongue Lane lies to the south of the site connecting Sand lane to the north of Brown Edge to Bemersley Lane.

4.20 To the west of the site near Outclough Farm is a National Grid substation with overhead lines on steel lattice towers radiate out to north, south and west.

HISTORICAL LANDSCAPE INTERPRETATION

4.21 Maps from the 1890s show that the area is very similar to the present day, with the road system around the site, the field system across the hillsides and valleys, and the areas of woodland, e.g. Daltons Wood, Rushymoor Wood etc. all established. The Knypersley Reservoir has been constructed at the head of the valley. Bemersley Farm and Ridgeway Halls are established although there are few other properties along Bemersley Road.

4.22 There were a number of collieries and villages established across the area at Whitfield, Brindley Ford, Outclough, Ridgeway and Bemersley Green and the Biddulph Valley railway line within the Whitfield Valley to the west. The collieries continue to expand through the first part of the 1900's.

WEATHER

4.23 The weather is an important factor affecting visual impact assessment. The Met Office[1] publish average statistics for weather patterns for the region, monthly and annual, for maximum and minimum temperatures, days of air frost, hours of sunshine, amount of rainfall - both generally and the number of days when rainfall is above 1mm. Rainfall above 1mm per day, which limits visibility, occurs on an average of 125 days in the year. There are on average 46 days when air frost occurs, with potentially hazy conditions for visibility. There are an average of 1364 hours of sunshine per annum and an average of 681mm rainfall per annum. There are on average potentially 171 days (46%) where visibility conditions are limited by atmospheric conditions.

LANDSCAPE CHARACTER

4.24 The following section describes the National and Local Character Areas and Types.

PUBLISHED LANDSCAPE CHARACTER DESCRIPTION

4.25 The following landscape character assessments and landscape capacity studies have been reviewed:

- Countryside Character, Volume 4 East Midlands: Countryside Commission/Natural England;
- Countryside Character, Volume 5 West Midlands: Countryside Commission/Natural England;
- Planning for Landscape Change: Supplementary Planning Guidance to the Staffordshire and Stoke on Trent Structure Plan 1996 – 2011 Volumes 1-3 and Appendix 1 maps and Plans.
- Cheshire Landscape Character Assessment Nov 2008, Cheshire County Council

4.26 Landscape Character Areas and Landscape Character Types can be drawn at national, regional, district or even smaller local scales.

[1] The data quoted is for the weather station at Penkridge and were obtained from The Met Office website: http://www.metoffice.gov.uk/climate/uk/averages/.

- Landscape Character Areas are discrete geographical areas of a particular landscape character type and can only occur at a single location.

- Landscape Character Types are tracts of landscape which have a generic unity of character due to the particular combinations of landform, land cover, pattern and elements. The same landscape character type can occur at several different locations throughout a study area. (Guidelines for Landscape Character Assessment, 2002).

NATIONAL LANDSCAPE CHARACTER AREAS

4.27 At a national level, the (former) Countryside Commission and English Nature have classified England into broadly homogenous landscape character areas referred to as National Character Areas (NCAs). The NCAs within the study area are illustrated in Figure 5: National Character Areas.

4.28 Within the 10km study area there are three NCA's, analysing the ZTVs and from site visits within the study area it is identified that the impact of the single turbine 67m high to blade tip on the Bemersley Green site could only give potential significant impacts within 67m of the site which restricts potential significant impacts to within the character area listed below:

Character area 64: Potteries and Churnet Valley

4.29 The key characteristics of the Potteries and Churnet Valley are:

- Strongly dissected hills and small plateaux, rising up to the Pennines and cut by major river valleys.
- Strong contrast between remote uplands, urban areas, sheltered wooded valleys and hillside pastures.
- Prominent Millstone Grit and Coal Measures ridges.
- Sprawling industrial towns of the Potteries forming a major conurbation.
- Extensive former industrial and extractive sites, many now reclaimed, intermixed with settlements and open land.
- Open moorland and rough grazing on higher ground.
- Rural settlement pattern of sheltered villages on low ground with hamlets, scattered farmsteads and cottages elsewhere.
- Brick and sandstone older buildings with tile and slate roofs.

REGIONAL LANDSCAPE CHARACTER TYPES

4.30 Within the 10km study area there are ten regional landscape types as designated by Staffordshire and Cheshire County Councils, however analysis of the ZTVs and from site visits within the study area it is identified that the impact of the single turbine 78m high to blade tip on the Bemersley Green site would only give potential significant impacts within two of these character areas, in addition to parts of the urban area. These are listed below and are illustrated in Figure 06, Regional Landscape Character Types and Areas.

LANDSCAPE CHARACTER TYPES

- Ancient Slope and Valley Farmlands

- Gritstone Uplands

ANCIENT SLOPE AND VALLEY FARMLANDS

4.31 The visual characteristics of the Ancient Slope and Valley Farmlands landscape character type are described below.

4.32 This is a strongly undulating or sloping landscape interrupted by localised smaller scale steep sided stream valleys. These provide a range of scales from small and intimate in the valley bottoms to the larger scale, with extensive views offered from the higher ground. The generally intact ancient field pattern, hedgerow trees, and ribbons of broadleaved woodland running up side valleys are all subordinate to the strong effects of localised landform, but they provide important structure to the landscape. The woodlands, both broadleaved and coniferous in nature, have a strong visual influence on the landscape as a result of their interlock and relative position on the surrounding higher ground.

4.33 The field pattern, predominantly irregular but with some geometrically planned areas, is deteriorating in places. There is some hedgerow removal, some general decline until only overgrown individual thorns remain, and some areas in which hedges are well trimmed but gappy, with extensive fencing. The size of fields varies from small to medium scale, with low intensity pastoral sheep and cattle farming predominating. Hedgerow trees of ash, oak and sycamore are never numerous enough to interrupt views through this enclosed landscape.

4.34 Settlement reflects its ancient character, with narrow winding lanes, often sunken in nature, linking small farms. Halls and associated parkland impart their particular character on specific areas. Throughout the area, the high population density in the form of scattered farms, spreading nearby settlements and early mining activities, increases the urbanised nature of this landscape. On the edge of the conurbation there are a number of detractors, such as old industrial developments linked with a canal, areas of old housing and factories, together with later developments such as ribbon housing development and sewage works.

4.35 In upland areas nearer to the moorland edge, field boundaries are of drystone walls giving a smoother, more cared for appearance to the landscape. In these areas, buildings are more generally of local stone and associated with groups of sycamore, giving a particularly strong local character.

GRITSTONE UPLANDS

4.36 The visual characteristics of the Gritstone Uplands landscape character type are described below.

4.37 This is an upland landscape with strongly undulating slopes, and many localised steep sided valleys rising to an upland plateau of generally open bleak character. The landform provides a range of scales from the small intimate scale of valley bottoms to a medium scale with extensive views offered from the higher ground.

4.38 The farmland is characterised by an apparent decline in farming fortunes, resulting in deteriorating and shabby hedgerows of individual overgrown thorn trees and universal fencing, with only the occasional well maintained hedgerow. Trees, particularly beech, ash and sycamore, are predominantly associated with individual buildings. In places field boundaries are of deteriorating drystone walls. The size of fields varies from small to medium in different parts of the landscape with low intensity pastoral sheep and cattle farming predominating. Small streams and their associated linear woodlands provide an important structural element to the landscape.

4.39 The landscape has a strong upland but urbanised character particular to its position between the conurbation and the upland, and reflecting historical land uses. The high population density in the form of numerous scattered farms, spreading nearby settlements and improved individual properties increases the urban nature of the landscape, with its upland feel reinforced by the use of stone as a

building material and uninterrupted views out to adjacent moorlands. Settlements are linked by a considerable network of small, steep, sunken winding lanes.

SENSITIVITY OF LANDSCAPE CHARACTER TO WIND FARM DEVELOPMENT

4.40 The turbine is sited within the Ancient Slope and Valley Farm Landscape character type. The adopted policy for this location is 'Landscape Maintenance' indicating a **High** quality landscape ranked at Four on a five point scale where five is the highest.

Table 4.0 Landscape Quality and Landscape Policy Objective, Planning For Landscape Change SPG.

Landscape Quality	Landscape Policy Objective
5 Very High Active landscape conservation.	Most of these landscapes owe much of their quality to the survival of semi-natural habitat that is not self - sustaining, or, as in the case of parklands, to past land use decisions that are no longer fully economic. Continuous practical activity is therefore required to conserve them, and they should be priority areas for the targeting of resources to that end.
4 High Landscape maintenance.	In most cases the existing economically-determined pattern of land use has resulted in these landscapes of high quality. There is therefore a lesser need for the targeting of landscape conservation resources to these areas. However, there is a danger that a change in the farming or land use pattern could have rapid and serious consequences for landscape quality. Such changes may already be underway, with their effects on the landscape currently not apparent. They could also be precipitated by future developments in national or international agricultural or forestry support policies, by the introduction of new technologies, or by novel misfortune with consequences similar to those of Dutch elm disease or BSE. There is a particular need for vigilance in these areas, and for a means of predicting and moderating the impact of changes in land use policy.
3 Moderate Landscape enhancement	These areas have suffered some erosion of strength of character and loss of condition of landscape elements. In some, but by no means all cases, this appears to be linked to a change in the farming pattern, from grassland to arable production. It may be that in time a new character will emerge from that change, but it is unlikely that the condition of traditional features such as small woodlands and hedges will improve without intervention. There is a particular need, therefore, to encourage relatively small-scale landscape conservation schemes such as hedgerow maintenance, habitat creation and tree and woodland planting, to stem the decline in landscape quality that will otherwise become more evident.
2 Low Landscape restoration.	A range of causes have contributed to the decline of these areas: in some it has been mineral working and industrial activity which has left dereliction in its wake; in others the problems are largely those of the urban fringe, and in the deeper countryside it has often been a change to intensive arable farming that has led to the loss of landscape elements that formerly contributed to character and quality. In each case, enough of that character survives to guide restoration efforts, which must be pursued with some commitment if the decline in these areas is to be halted and reversed.
1 Very Low Innovative landscape regeneration	In these areas the loss of character and the decline in condition, as a result of the processes noted above, is so advanced that restoration is no longer possible – either because there is virtually nothing to restore to, or because there is no practicable means of achieving that restoration – and a programme of regeneration to a new vision is required. These are therefore the most challenging of landscapes, both in terms of the difficulties that have to be overcome and of the investment that will be required to regenerate them.

4.41 To ensure consistency throughout the LVIA the five point scale used within the Staffordshire County Council document has been correlated with the scale used throughout the LVIA, see below.

Table 4.1 demonstrates the correlation between the Landscape Quality and Policy Objectives and the thresholds used in this LVIA.

Adopted SPG Landscape Quality Types	LVIA Sensitivity Rating
1 Very Low- Innovative Landscape regeneration	Very Low
2 Low – Landscape Restoration	Low
3 Moderate- Landscape Enhancement	Medium
4 High- Landscape Maintenance	High
5 Very High – Active Landscape Conservation	Very High

4.42 The sensitivity of landscape character has been described as very high, high, medium, low or very low.

Table 4.2 Sensitivity of Regional Landscape Character Areas to Wind Energy Development

Ref Code	Regional Character Type	Approximate distance to Site	Landscape Quality	LVIA Sensitivity
	Ancient Slope and Valley Farmlands	The site lies within this area	High - Landscape Maintenance	High
	Gritstone Uplands	2km to the east	Low – Landscape Restoration	Low

LANDSCAPE DESIGNATIONS

4.43 All landscape and other relevant designations are illustrated in Figure 07 Designated Landscapes.

4.44 There are no International or National designations World Heritage Site, National Park or Areas of Outstanding Natural Beauty covering the site or within the 10km study area.

4.45 The LVIA will consider the impact on the Staffordshire Green Belt and the Staffordshire Moorlands Special Landscape Area within which the proposed site lies.

4.46 Green Belt issues are dealt with in the Planning Report.

4.47 The Special Landscape Area – The following polies apply N8 in the Special Landscape Area permission will not be given for development which would materially detract from the high quality of the landscape because of its siting, scale, design and materials, and associated traffic generation. In areas where the Special Landscape overlaps the Green Belt there will be a presumption against most development in accordance with Policy N2, and N9 within the Special Landscape Area the Local Planning Authority will promote and require especially high standards of design for development.

VISUAL RECEPTORS

4.48 Due to the height of the turbine (45m to nacelle and 67m to tip of blade) and the variations in topography in the surrounding area, there is the potential for the development to be visible from an area extending beyond the 10km radius study area. However, following initial site visits and assessments, it was determined that there was little potential for the development to result in any significant visual effects at distances over 4-5km from the site. Areas with potential visibility of the proposed turbine are illustrated in Figure 8: Zone of Theoretical Visibility(ZTV) to Hub 45m, Figure 9: Zone of Theoretical Visibility (ZTV) 67m to blade tip, Figure 10: Cumulative Zone of Theoretical visibility 67m to blade tip &

existing wind turbines and Figure 11: ZTV 67m to blade tip showing National and Regional Landscape Character Areas/Types.

RESIDENTIAL RECEPTORS / PROPERTIES NEAR TO THE SITE

4.49 Residential Amenity Surveys are used to determine the significance of the visual impact to receptors at individual properties, and whether the potential impact would be assessed as being 'overbearing' or 'overwhelming' on that property.

4.50 A single turbine of the height of the one being proposed for the Bemersley Greensite (45m to Nacelle 67m to tip of blade) is unlikely to give rise to an 'overbearing' or 'overwhelming' effect at distances of more than 335m, (greater than 5x the height of the turbines) and where there is a clear and uninterrupted view of the turbine, unless the turbine were located on ground considerably elevated above the receptor.

4.51 The nearest properties with a potential view of the proposed development are in excess of 400m to the west at 507-509 Bemersley Road.

SETTLEMENTS

4.52 The ZTVs indicate that there would be potential visibility from the main settlement of Biddulph to the proposed turbine and that the smaller villages/settlements of Biddulph Moor, Brown Lees, Brindley Ford, Ball Green, Brown Edge, Norton Green/ Norton in the Moors, Baddeley Green would also have potential views. In reality there are limited potential views from within the surrounding settlements as they would be screened by adjacent buildings, localised landform and intervening vegetation within and around the periphery of the settlements. Site visits indicate Brindley Ford and Brown Edge would have potential views.

PUBLIC RIGHTS OF WAY (PROW)

4.53 There are a large number of public rights of way within the study area. The nearest paths to the proposed turbine are between:

- Bemersley Road and Knypersley Reservoir,
- Greenway Bank via Dallows Wod to Ridgeway Hall,
- Knypersley Reservoir and Tongue Lane,
- Greenway Bank to Childerplay Road.

ASSESSMENT VIEWPOINTS

4.54 The desk studies, site visits and interpretation of ZTVs enabled a number of representative viewpoints to be identified. These views were chosen as representative views and are not intended to cover every single view possible but are intended to be representative of a range of receptor types (e.g. residents, walkers, road users etc.) and also distances from the propose turbines.

4.55 Table 4. identifies the ten viewpoints that were chosen and indicates which of them are illustrated with wireline or photomontages. The locations of the viewpoints are illustrated in Figure 2: Study Area 10km radius.

Table 4.3: Assessment Viewpoints

View	Location	Receptors	OS Map Reference	Wireline Produced	Montage Produced
1	Mill Haves Road, Biddulph	Residents – **Very High** Footpath users - **High** Minor road users - **Medium**	388795, 356086	Yes	Yes
2	Lask Edge Road/Crowborough Road Junction	Minor road users - **Medium**	391554, 357173	Yes	Yes
3	Brown Edge Farm, Sands Lane	Footpath users - **High** Minor road users - **Medium**	390539, 354649	Yes	Yes
4	Church Road, Brown Edge	Residents - **Very High** Minor road users - **Medium** Recreation Ground users - **Medium**	390530, 353839	Yes	Yes
5	Bemersley Road/Heather View Junction, Ball Green	Residents - **Very High** Minor road users - **Medium**	389191, 352877	Yes	Yes
6	Bemersley Road	Minor road users - **Medium**	388716, 354043	Yes	Yes
7	Greenway Bank	Minor road users - **Medium**	388376, 354728	Yes	Yes
8	Greenway Bank, Knypersley Reservoir	Footpath users - **High** Minor road users - **Medium**	389588, 354890	Yes	Yes
9	Mow Cop Castle	Historic Features - **Very High** Footpath users - **High**	385755, 357326	Yes	Yes
10	Staffordshire Moorlands Walks	Footpath users - **High**	389616, 354043	Yes	Yes

5.0 SUMMARY OF THE ASSESSMENT OF EFFECTS ON LANDSCAPE FEATURES

CONSTRUCTION PHASE

5.1 A description of the main effects of landscape features is given below followed by a comment on the significance of the effect. All of the effects are direct in that specifically affect a particular feature with the Bemersley Green site.

5.2 Access to the site is from Bemersley Road via the existing field access which will require to be widened to take the larger construction vehicles, which will require the loss of approximately 10m of existing hedgerow. The proposed access track would follow the field boundary to the south of the hedgerow before crossing through to the field where the turbine is to be located. A further 10m of hedgerow would be removed. Post and rail fencing with new hedgerows and double farm gates would be constructed to replace the removed hedgerows. The access track would continue to the north of the hedgerow before turning through 90° to the turbine location.

5.3 The access track would be constructed in crushed stone. At the end of the track there will be a compound with a temporary turning point and area of hard standing for a crane. Additional trees and shrubs would be planted to reinforce the existing hedge.

5.4 The compound and access track and crane pads would require the temporary loss of existing hedge and the arable field. The sensitivity of the site to development is **High**, the Magnitude of Change on landscape features is considered to be **Low**, and therefore the Significance of Effect on any landscape features during the construction phase would be **Moderate/Slight, Adverse** and therefore **Not Significant**.

OPERATIONAL PHASE

5.5 The turbine is proposed within an open agricultural field, the new structures would not interfere with any existing features or require the loss of vegetation other than described above. The access track would remain in situ for the life time of the project, as would the crane pad. The construction compound would be removed. There would be a very low magnitude of change in the overall coverage of arable land within the character area

5.6 There will be **No Additional Effect** on any landscape features within the site over and above those described above under Construction Phase.

DECOMMISSIONING PHASE

5.7 There would be **No Additional Effects** on landscape features during the decommissioning phase.

5.8 The sensitivity of the site is to development is **High**, the Magnitude of Change on Landscape Features is considered to be **Very Low**, and therefore the Significance of the Impact is **Slight, Adverse** and therefore **Not Significant**.

CONCLUSION

5.9 There would be **No Significant** impacts on landscape features within or adjacent to the proposed site during construction, operation or decommissioning of the proposed turbine and associated works.

6.0 SUMMARY OF THE EFFECTS OF THE ASSESSMENT ON LANDSCAPE CHARACTER AND LANDSCAPE DESIGNATIONS

CONSTRUCTION PHASE EFFECTS ON IMMEDIATE LANDSCAPE CHARACTER (WITHIN APPROXIMATELY 1.5KM OF THE TURBINES)

6.1 There would be some temporary effects during construction in addition to those assessed as permanent effects described below. The additional effects are relatively minor in the context of the operational life of the wind turbine.

6.2 During the construction period, there would be vehicle movements associated with the construction of the crushed stone access track, turbine, crane pad and compound foundation and underground cable routes. The impact would result in excavation of soils, stockpiling and construction vehicle movement. These activities are not uncommon within this agricultural landscape.

6.3 The security fenced construction compound would result in a low magnitude of change and a temporary impact in the immediate landscape. There would be a crane required to construct the turbine which would be on site for a relatively short period of time and have a minimal impact.

6.4 The temporary impacts during the construction phase are considered to be **Very Low** magnitude and a slight additional effect over and above those described below for the Operational Phase.

OPERATIONAL PHASE EFFECTS ON IMMEDIATE LANDSCAPE CHARACTER (WITHIN APPROXIMATELY 1.5KM OF THE TURBINES)

6.5 As discussed above, there would be no significant effects of the proposed development on any landscape features; therefore any effects would be perceptual rather than physical.

6.6 The access track utilises the existing position of a gap within the hedgerow from which there would be constructed a crushed stone access track at a similar width and materials to other tracks in the area. It would therefore have a minimal impact on the landscape pattern.

6.7 The substation is a small structure which would be located adjacent to the turbine and have minimal impact on the surrounding landscape.

6.8 The wind turbine would appear as a tall manmade structure in a landscape where there is evidence of other precedent manmade industrial structures, overhead electric pylons of similar scale.

6.9 The sensitivity of the area is to wind energy development is **High**, the Magnitude of Change on the Immediate Landscape Character is considered to be **Medium**, and therefore the Significance of the Impact is **Moderate, Adverse** and therefore **Not Significant**.

DECOMMISSIONING PHASE EFFECTS ON IMMEDIATE LANDSCAPE CHARACTER (WITHIN APPROXIMATELY 1.5KM OF THE TURBINES)

6.10 None of the decommissioning works at ground level would be visible beyond the immediate surroundings of the application site. The only additional effect would arise during a short period when a crane would dismantle the turbine, and would be barely perceptible.

6.11 Therefore, there would be no additional effect on landscape character in the immediate landscape during the decommissioning phase.

CONSTRUCTION PHASE EFFECTS ON WIDER LANDSCAPE CHARACTER (1.5KM TO 10KM)

6.12 The construction works at ground level would not be potentially visible from the surrounding landscape in excess of 2km from the site, as they would be screened by the local landform and woodland within the landscape. There would be a crane required to construct the turbine which would be on site for a relatively short period of time (circa 2 weeks) and have a temporary and minimal impact at these distances.

6.13 Therefore, there would be no additional effect on landscape character in the wider landscape during the construction phase.

OPERATIONAL PHASE EFFECTS ON WIDER LANDSCAPE CHARACTER (1.5KM TO 10KM)

6.14 The effects on the wider landscape character are assessed with reference to the regional landscape character areas and types identified in Chapter 4.0. The effects on each character type/area are described below.

6.15 The magnitude of change to the landscape character in each regional character area as a result of the proposed Bemersley Green turbine has been determined using professional judgement based on the following factors:

- The percentage of the overall character area from where the turbine would be theoretically visible;
- The distance between the character area and the turbine;
- The likely prominence of the turbine in the view; and
- The extent to which the perceptual sense of scale, remoteness, visual composition and pattern would be affected by views of the turbine in the distance.

Natural England, Volume 5 West Midlands

NCA-64: Potteries and Churnett Valley	
Landscape Sensitivity	**Medium**
Operational Sites/ Baseline	
Assessment	Within the study area the ZTVs indicate visibility is restricted in the NCA to a north to south swathe confined to the Head of Trent valley and the two ridges of higher ground on either side. In reality the visual envelope is further restricted by the buildings/settlements across the area and from localised landform and vegetation within the valley bottom and along the valley sides. The NCA is approximately 40km east to west and up to 20km north to south and the proposed turbine would potentially impact on a small area to the north of the NCA around Biddulph. The effect of hedgerows, individual trees, shelterbelts and woodland, buildings and settlements would provide additional screening further limiting the extent of potential visibility.
Magnitude of change to the baseline	**Very Low**
Magnitude and Significance of effect	**Slight, Adverse – Not Significant**

Regional Landscape Character Types/Areas

RLCA: Ancient Slope and Valley landscape	
Landscape Sensitivity	**High**
Operational Sites/ Baseline	
Assessment	The ZTVs indicate that the proposed turbine would be potentially visible from Harriseahead to Stoke the west, Biddulph Moor to Endon to the east. In reality the sprawling nature of the settlements across the central section of the study area would screen and filter views towards the proposed turbine. The turbine would be visible in sequential views passing through the landscape; it would be potentially viewed together with a number of precedent large vertical structures within the landscape, the National Grid electricity substation near Outclough and radiating overhead lines, and the chimney at Chatterley Whitfield Enterprise Centre. There are also large areas of reclaimed/semi-reclaimed land and existing industrial estates within the area which form part of the base line environment from which the turbine would be viewed. Within the Head of Trent valley the turbine would be seen above the western ridge part of a continuum of industrial/environmental development/heritage together with the Knypersley Reservoir and Caldon Canal. Between 1.5-3km there is widespread urbanisation with the settlements of Biddulph, Brown Lees, Packmoor, Turnhurst, Great Chell, Chell Heath, Ball Green, Norton Green and Brown Edge limiting views towards the site. Where views are available the proposed turbine would form an important but not defining element in the view. Other than the impacts described above within 3km of the proposed turbine the remainder and majority of the character area would experience a minimal impact.
Magnitude of change to the baseline	**Low**
Magnitude and Significance of effect	**Moderate/Slight, Adverse – Not Significant**

RLCA: Gritstone Uplands	
Landscape Sensitivity	**Low**
Operational Sites/ Baseline	
Assessment	The character area lies between 1.6km and 7km from the proposed turbine, with the ZTVs indicating that the proposed turbine would be visible from the higher land to the east of the Head of Trent valley across the Gritstone Uplands. Views would be a down from the higher ground where the turbine would be seen against a background of a mosaic of urban settlements and fields of pasture. From the Uplands there are long distance views across Stoke on Trent to the hills in Wales. In the middle distance there are the settlements between Stoke and Biddulph with overhead lines on pylons, chimneys, large industrial units etc all visible, in amongst which the turbine would be sited.
Magnitude of change to the baseline	**Low**
Magnitude and Significance of effect	**Slight, Adverse – Not Significant**

Table 6.1: Landscape Character Areas/Types, Sensitivity, Magnitude of Change and Impact

Landscape Character Type	Sensitivity of Character Type/ Area	Magnitude of Change	Impact
National Landscape Character Areas: Natural England Volume 5 West Midlands			
64, Potteries and Churnet Valley	Medium	Very Low	Slight
Regional Landscape Character Types/ Areas: Staffordshire Landscape Character Assessment			
Ancient Slope and Valley Farmland	High	Low	Moderate/Slight
Gritstone Uplands	Low	Low	Slight

DECOMMISSIONING PHASE EFFECTS ON WIDER LANDSCAPE CHARACTER

6.16 Therefore, there would be **No Additional Effect** on landscape character in the wider landscape during the decommissioning phase.

EFFECTS ON LANDSCAPE DESIGNATIONS - CONSTRUCTION PHASE

6.17 The initial studies indicate that there are no International or National landscapes designations, (World Heritage Sites, Areas of Outstanding Natural Beauty, National Parks, Registered Parks and Gardens, etc.) covering or adjacent to the site.

6.18 The site lies within the Staffordshire Greenbelt and Staffordshire Moorlands Special Landscape Area (SMSLA) between Biddulph, Brown Edge and Ball Green. The western edge of the SMSLA is defined along Bemersley Road.

6.19 The construction works at ground level would not be generally visible from the surrounding landscape or road system, due to the screening effect of localised landform, vegetation etc., although there would be limited potential views from the higher ground across the valley to the east. Therefore the only additional effect would arise for a limited period when a crane is erecting the turbine. This would only be evident for a few days and in the context of the works would be barely perceptible.

6.20 The ZTVs and site visits indicate limited to no visibility

6.21 There would be no additional effect on Landscape Designations during the Construction phase.

EFFECTS ON LANDSCAPE DESIGNATIONS – OPERATIONAL PHASE

6.22 At ground level, the proposed development would have a limited footprint. The monopole supporting the turbine would be set on a concrete base (approximately 15m x 15m with much of it underground) and the monopole would be slender in form, being less than 3.6m in diameter at its base and tapering towards the turbine. The control cabinet would be set on another concrete pad close to the monopole. Above ground level the swept radius of 22m of the three turbine blades with an overall height to the tip of the blades of 67m would have some limited effect on reducing openness, however the site lies on the edge of the Green Belt and SMSLA and the harm to the would be limited.

6.23 The ZTVs indicate potential visibility is generally restricted to within 2km of the proposed turbine extending out to approximately 4km to the north-east towards Biddulph Moor. Within this area there

are the National Grid overhead electricity transmissions towers and lines and the telecommunications masts at Brown Edge and Lask Edge Road. The landform and vegetation patterns within the landscape screens, filters or fragments views in many locations towards the proposed turbine as well as within the landscape in general. In many parts of the ZTV indicated as having views to the proposed turbine, particularly within the valley, the defining character of the underlying landscape would not be altered materially by the addition of the proposed turbine.

6.24 There would be potential for views from elevated positions on the eastern side of the Head of Trent valley towards the proposed turbine from distances between 1-2.5km. These views would be broad panoramic views within which would be numerous settlements stretching from Biddulph and Mow Cop in the north to Stoke in the south, together with overhead lines, chimneys etc.

6.25 The Greenbelt and SMSLA have a **High** landscape sensitivity, the potential Magnitude of Change is both local **Low** and therefore the impact on the Greenbelt and SMSLA would be **Moderate/Slight, Adverse** and **Not Significant.**

EFFECTS ON LANDSCAPE DESIGNATIONS – DECOMMISSIONING PHASE

6.26 There would be no additional effect on landscape character in the wider landscape during the decommissioning phase.

CONCLUSION

6.27 There would be **No Significant** impacts on the landscape character of the site or immediate area, or within Character Areas or Types or within any designated landscape as a result of the construction, operation and decommissioning of the proposed turbine and associated works.

7.0 OUTLINE OF THE ASSESSMENT OF EFFECTS ON VISUAL AMENITY

EFFECTS ON ASSESSMENT VIEWPOINTS

7.1 For each of the representative viewpoints a short description is give of the baseline view followed by a description of the features of the development, which would be visible from that view point. This includes a description of the visibility of the turbine hub and blades. For each viewpoint there is a comment on how vegetation, buildings or topography would affect the actual visibility of the turbine. A comment on the significance of visual impacts is given for each view point. Any potential cumulative effects are also discussed for each viewpoint.

7.2 A summary of the sensitivity of the view point, magnitude of change in the view and significance of effect prior to and following potential proposed mitigation measures is given in Table 7.1. Where a view point represents more than one receptor group (e.g. residents and factory workers) the significance rating for both receptor group is carried forward to the table.

GENERAL GUIDANCE IN RELATION TO THE USE OF THE SUBMITTED PHOTOMONTAGES

7.3 It is acknowledged that while the computer generated photomontages have been prepared in accordance with the guidelines for best practice recommended by Scottish Natural Heritage and are as accurate as possible within the capabilities of the ReSoft software used, the images are perhaps best used in conjunction with a site inspection from the representative viewpoints.

REPRESENTATIVE VIEWPOINTS

Representative Viewpoint 1: Mill Haves Road, Biddulph
Viewpoint 1 is some 1.5km to the north of the proposed wind turbine at an elevation of approximately 215m AOD, OS Grid Ref:388795, 356086. This view is representative of the short/medium distance views from residents, footpath users and users of minor roads in the area. See Figure 12 Viewpoint 1 Mill Hayes Road, Biddulph and Figure 13 Wireline and photomontage, Mill Hayes Road, Biddulph.
Existing View:
The view is from the southern tip of Biddulph, on the minor Mill Hayes Road to the west of Garden End which are two semi-detached 1900s rendered houses with tiled roofs within gardens bounded with stone walls and with mature evergreen hedgerows. To the south of the property is a single track access to Knypersley End Farm. To the north of the view is a private housing estate which consists mainly of bungalows with limited views across to the south. There are school playing fields backing on to the road with 1.8m steel palisade fencing along the boundary. The view is across a field of pasture which rises gently to the south before falling into the valley beyond, the high ground within the field and the canopies of the mature deciduous trees following the watercourse forms the horizon. The field is bounded along the roadside with a dilapidated drystone wall backed up with post and barbed wire fencing. To the west is a hedgerow up to 2m high with trees. There are a number of mature oak trees along the roadside boundary, together with small smaller remnant hedgerow species. An overhead line on timber poles crosses the field east to west, and the telecom mast at Back Lane-Hilltop , Brown Edge is visible above the horizon. There are no other wind turbines visible from this location.
Predicted view with operational wind turbine
The wireline and photomontage indicate that the propose turbine would be visible above the short distance horizon, in reality the turbine would be partially screened by the canopies of the deciduous trees on the horizon with only the hub and blades generally visible.
Type and sensitivity of visual receptor
Residents – **Very High** Footpath users - **High** Minor road users - **Medium**
Magnitude of change to baseline view
Low
Assessed significance of visual impact
Residents – **Moderate, Adverse, Not Significant.** Footpath users - **Moderate/Slight, Adverse, Not Significant.** Road users – **Moderate/Slight, Adverse, Not Significant.**
Mitigation
Scale and location of the proposed single turbine.

Representative Viewpoint 2: Lask Edge Road/Crowborough Road Junction
The viewpoint is some 3.7km to the north of the proposed wind turbine at an elevation of approximately 322m AOD, OS Grid Ref 391554, 357173. This view is representative of the medium distance views from minor road users within the area. See Figure 14 Viewpoint 2 Lask Edge Road/Crowborough Road Junction and Figure 15 Wireline and photomontage, Lask Edge Road/Crowborough Road Junction.
Existing View:
The view is looking south-west from the area of high ground to the north-east at the junction of the minor Lask Edge Road and Crowborough Road. The view is over a field of pasture bounded with low drystone walls and post and wire fencing along the road edges, there are two parallel overhead lines on timber poles crossing the field from the valley to the west and Lask Edge Road to the east. The near horizon is formed by the canopies of the trees along the western boundary and the edge of the field of pasture and the as it falls down into the valley to the west. Beyond the near horizon there are views across the Head of Trent valley and the sprawling urban landscape and settlement between Biddulph and Stoke-on-Trent, where the overhead lines on pylons are visible radiating from the National Grid substation near Outclough Farm. The top of telecoms mast at Brown Edge is visible above the near horizon to the south-west. There are very long distance views to the west towards the hills and higher ground within Wales. To the east of Lask Edge Road there are fields of pasture bounded with hedgerows up to 3m high screening views to the north-east. There is a lattice steel telecom mast 200m north of the road junction. There are no other wind turbines visible from this location.
Predicted view with operational wind turbine
The wireline drawing and photomontage indicate that the proposed turbine would be visible above the short distance horizon within the valley to the south-west. In reality it would be generally be screened by the hedgerow along the field boundary, the turbine hub and blades not appearing in views as being any taller than the hedge. Where views are feasible the turbine hub and blades would appear above the distant skyline backgrounded against the sky.
Type and sensitivity of visual receptor
Minor road users - **Medium**
Magnitude of change to baseline view
Low
Assessed significance of visual impact
Minor road users - **Moderate/Slight, Adverse, Not Significant**.
Mitigation
Scale and location of the proposed single turbine.

Representative Viewpoint 3: Brown Edge Farm, Sands Lane
The viewpoint is some 1.67km to the east of the proposed wind turbine at an elevation of approximately 259m AOD, OS Grid Ref 390539, 354649. This view is representative of the short/ medium distance views experienced by footpath users of minor road users. See Figure 16 Viewpoint 3 Brown Edge Farm, Sands Lane and Figure 17 Wireline and photomontage, Brown Edge Farm, Sands Lane.
Existing View:
The view is looking from Sands Lane to the north of the Brown Edge Farm west across the Head of Trwent valley towards the proposed site. Sands Lane is located on the west facing side and below the ridge of Marshes Hill, to the west the rising ground screens views beyond the hillside which is made up of a mosaic of hummocks of grass, heather and shrub species. To the west there is low stone wall along the road side which is a retaining wall up to 2m high retaining Sands land and allowing panoramic views across the valley. The view is over fields of pasture with occasional arable fields, bounded with a mix of stone walls, post and wire fencing and generally hedgerows in a variety of conditions from well-maintained to dilapidated. There are numerous hedgerow trees and small area s of deciduous woodland following watercourses. The land falls gently into the valley and up the other side towards the A527 road between Biddulph and Stoke - on-Trent, where the sprawling urban settlements are visible. There are very long distant views across the landscape to the west towards the ills in Wales. The overhead head electricity lines on pylons are visible emanating from the National Grid substation near Outclough Farm. There are no other wind turbines visible within the view.
Predicted view with operational wind turbine
The wire line and photomontage indicates that the proposed turbine would be clearly visible on the ridge line on the opposite side of the valley. The upper section of the turbine, hub and blades would be seen above the distant horizon, backgrounded against the sky. The turbine would appear within a landscape containing other man-made features pylons and chimneys and whilst taller than the surrounding vegetation it does not appear out of scale within the topography and field pattern.
Type and sensitivity of visual receptor
Footpath users - **High** Minor road users - **Medium**
Magnitude of change to baseline view
Medium
Assessed significance of visual impact
Footpath users – **Moderate, Adverse, Not Significant** Minor road users – **Moderate, Adverse, Not Significant**
Mitigation
Scale and location of the proposed single turbine.

Representative Viewpoint 4: Church Road, Brown Edge
The viewpoint is some 1.8km to the east of the proposed wind turbine at an elevation of approximately 230m AOD, OS Grid Ref 390530, 353839. This view is representative of the short/medium distance views experienced by residents of Brown Edge, users of minor roads and of the recreation ground in the village. See Figure 18 Viewpoint 3 Church Road, Brown Edge and Figure 19 Wireline and photomontage, Church Road, Brown Edge.
Existing View:
The view is from within the village of Brown Edge on Church Lane a part of the village with open views across the Head of Trent valley to the west. To the east are two terraces of houses, the northern most is stone built with tiled rood the southern one rendered in white with a tiled roof, both orientated north to south with minimal gardens 2-3m wide, behind stone retaining walls and wrought iron railings. To the south is Lingfield Avenue an estate comprising of detached bungalows stepping down the hillside with the rear gardens facing north, to the north Rose Cottage set within a mature garden. The view to the west is across a field of pasture and a recreation ground which slope gently down to the west and are separated by a well maintained hedgerow. Along the roadside is a timber post and rail fence, 1.0m high, there are overhead lines on timber poles along the footpath and within the western edge of the fields. Across the valley the land gently undulates and the field pattern is clearly visible with small rectangular fields bounded with hedgerows with hedgerow trees. To the west there are settlements visible along the ridge line stretching to the south, with chimneys and overhead lines visible above the general roofscape. There are no other wind turbines visible within the view.
Predicted view with operational wind turbine
The wire line and photomontage indicates the turbine would be clearly visible across the valley on the ridge line with most of the turbine visible, only the lower section screened by the trees surrounding the site. The proposed turbine would be seen within a landscape with a number of vertical elements in and around the village, street lighting columns, overhead lines on timber poles, trees etc and within a landscape containing overhead lines on pylons. The proposed trine would be seen beneath the wires of the overhead line along the road verge and within the field.
Type and sensitivity of visual receptor
Residents - **Very High** Minor road users - **Medium** Recreation Ground Users - **Medium**
Magnitude of change to baseline view
Medium
Assessed significance of visual impact
Residents – **Substantial/Moderate, Adverse, Significant** Minor road users – **Moderate, Adverse, Not Significant** Recreation ground users – **Moderate, Adverse, Not Significant**
Mitigation
There are limited properties along Church Road which would experience direct views across the valley towards the proposed turbine. Mitigation planting could be incorporated in the form of a hedgerow and trees along the field of pasture and Church Lane and/or planting trees along the upper section of the existing hedgerow between the pasture and the recreation ground which would screen or filter views towards the proposed turbine, potentially reducing the impact from **Substantial/Moderate** down to **Moderate** and therefore **Not Significant**.

Representative Viewpoint 5: Bemersley Road/Heather View Junction, Ball Green
The viewpoint is some 1.7km to the south of the proposed wind turbine at an elevation of approximately 188m AOD, OS Grid Ref 389191, 352877. This view is representative of the short/medium distance views from residents and minor road users in the area. See Figure 20 Viewpoint 5 Bemersley Road/Heather Road junction and Figure 21 Wireline and photomontage, Bemersley Road/Heather Road junction.
Existing View:
The view is looking north from the northern area of Ball Green from the junction of Bemersley Road and Heather View. Top the west is a dense screen of mature garden vegetation screening the large private houses. To the east along the road boundary is the well maintained evergreen hedgerows of the relatively modern housing development of Heather View and Farm Lee, consisting of a mix of red brick and tiled roofed, detached houses and bungalows set within maturing gardens. The road side hedgerow to the west of the road is a mixed species hedgerow maintained at about 3m high screening views towards the agricultural field beyond. To the east of the road the hedgerows are maintained at about 1.2m high allowing views across the landscape of pasture and arable crops. The view is looking north along the road corridor framed by the development and vegetation on either side. There are street lighting columns and overhead lines on timber poles within the road verge. At the end of the vista the fields can be seen over the low hedgerow within the field is a steel lattice tower supporting a National Grid overhead line. There are no other turbines within the view.
Predicted view with operational wind turbine
The wireline drawing and photomontage indicates that the proposed turbine would be screened by the existing hedgerow to the west of the road. There would be potential views from some of the properties within Heather Road and Farm Lee however the majority of properties within Ball Green would not have views towards the turbine.
Type and sensitivity of visual receptor
Residents - **Very High** Minor road users - **Medium**
Magnitude of change to baseline view
Low
Assessed significance of visual impact
Residents – **Moderate, Adverse, Not Significant** Minor road users – **Moderate/Slight, Adverse, Not Significant.**
Mitigation
Scale and location of the proposed single turbine.

Representative Viewpoint 6: Bemersley Road
The viewpoint is some 0.5km to the south of the proposed wind turbine at an elevation of approximately 207m AOD, OS Grid Ref 388716, 354043. This view is representative of the short distance views from minor road users in the area. See Figure 22 Viewpoint 6 Bemersley Road and Figure 23 Wireline and photomontage, Bemersley Road.
Existing View:
The view is from the field entrance to a large field of pasture, bounded by gappy but generally well-maintained hedgerows and post and wire fences, recently divided into paddocks using post and wire fencing for the grazing of horses. The field gently slopes up to the east where the field boundary hedge creates the horizon beyond which the views are screened by the landform and vegetation, including a number of hedgerow trees. Along the road corridor to the west the hedgerow is generally intact and well-maintained with street lighting on the roadside verge. There are views across the landscape where the overhead lines and pylons stand above the mature deciduous trees.
Predicted view with operational wind turbine
The wireline and photomontage indicates that the proposed turbine would be clearly visible above the hedge and trees along the eastern field boundary.
Type and sensitivity of visual receptor
Minor road users - **Medium**
Magnitude of change to baseline view
Medium
Assessed significance of visual impact
Minor road users – **Moderate, Adverse, Not Significant**.
Mitigation
Scale and location of the proposed single turbine.

Representative Viewpoint 7: Greenway Bank
The viewpoint is some 0.5km to the south of the proposed wind turbine at an elevation of approximately 215m AOD, OS Grid Ref 388376, 354728. This view is representative of the short distance views from residents and minor road users in the area. See Figure 24 Viewpoint 7 Greenway Bank and Figure 25 Wireline and photomontage, Greenway Bank.
Existing View:
The view is from within the small settlement of Bemersley Green at the junction of Bemersley Road and Green Bank. The view is looking south-east across the triangular shaped road junction a low drystone wall across field fields of pasture sloping down from the south towards Green Bank. The view is contained by the landform and surrounding vegetation. To the south are the residential properties of Bemersley Green, generally consisting of red/brown brick two storey semi-detached houses with tiled roofs, orientated north to south along the road. The rear gardens have a mix of fences, mature hedgerows and trees along their boundaries generally screening views. To the south of the field of pasture there is an area of steeply sloping ground, under rough grassland which forms part of the earthworks containing a fishing pond, beyond which are further fields of pasture. The trees within the eastern field boundary screen and filter views There are no other wind turbines within the view.
Predicted view with operational wind turbine
The wireline and photomontage indicates the proposed turbine would stand on the ridge/horizon and be clearly visible within the view.
Type and sensitivity of visual receptor
Residents – **Very High** Minor road users - **Medium**
Magnitude of change to baseline view
High
Assessed significance of visual impact
Residents – **Substantial, Adverse, Significant** Minor road users – **Moderate, Adverse, Not Significant.**
Mitigation
Mitigation planting could be provided along the roadside field boundary as a hedge and hedgerow trees which would screen and filter views of the proposed turbine. Additional planting could be implemented around the lakes to the south of the residential properties. There are few residential properties which would have clear unobstructed views of the proposed turbine as garden vegetation etc screen the views in to the landscape, additional planting could be agreed where required with the property owners reducing any impact from **Substantial** down to **Moderate** and there **Not Significant.**

Representative Viewpoint 8: Greenway Bank, Knypersley Reservoir
The viewpoint is some 0.8km to the north-east of the proposed wind turbine at an elevation of approximately 174m AOD, OS Grid Ref 389588, 354890. This view is representative of the short distance views from footpath and minor road users in the area. See Figure 26: Viewpoint 8 Greenway Bank, Knypersley Reservoir and Figure 27: Viewpoint 8 Greenway Bank, Knypersley Reservoir.
Existing View:
The view is looking south-west from the road across the dam on Knypersley Reservoir elevated above the valley floor. There are irregular shaped fields of pasture on the western valley side, bounded with well maintained, occasionally gappy hedgerows which contain mature hedgerow trees. Dallows Wood, a mature, mixed deciduous wood, occupies the central part of the hillside sweeping up to the horizon. There are a number of deciduous trees within the valley near to the foot of the dam which filter views from the road into the valley floor. The overhead electricity line on steel lattice towers is visible crossing the valley to the south, to the north of Ball Green and south of Ridgeway which is visible on the ridge to the south-west. The telecom mast at Brown Edge is visible on the eastern valley side. There are no other wind turbines within the view.
Predicted view with operational wind turbine
The wind turbine would be visible on the western horizon, above the trees within Dallows Wood. Although taller than the surrounding trees the turbine appears in scale within the valley landscape
Type and sensitivity of visual receptor
Footpath users - **High** Minor road users - **Medium**
Magnitude of change to baseline view
Medium
Assessed significance of visual impact
Footpath users – **Moderate , Adverse Not Significant** Minor road users – **Moderate, Adverse, Not Significant**
Mitigation
Scale and location of the proposed single turbine

Representative Viewpoint 9: Mow Cop Castle
The viewpoint is some 4.19km to the north-west of the proposed wind turbine at an elevation of approximately 321m AOD, OS Grid Ref 385755, 357326. This view is representative of the medium to long distance views from footpath and historic feature Mow Cop Castle. See Figure 28: Viewpoint 9 Mow Cop Castle and Figure 29: Viewpoint 9 Wireline and photomontage, Mow Cop Castle.
Existing View:
Mow Cop Castle is a folly of ruined castle built in 1754 which stands on an elevated, rocky outcrop approximately 4.2km to the north-west of the proposed turbine. The view is a broad panorama across a shallow valley with the ribbon development of Harriseahead stretching from the foot of the hill at Mow Cop away into the distance to the south. Outside of the ribbon of development there is a medium sized field system of roughly rectangular fields of pasture bounded with a mix of dry stone walls and hedgerows with occasional hedgerow trees. There are a series of north to south orientated valleys and ridges with settlements and occasional areas of woodland stretched out along the ridges. In the background the horizon is formed by the elevated plateau to the east of the site. There are a number of overhead electricity lines, chimneys and the telecom mast at Brown Edge visible within the view. There are no other wind turbines visible.
Predicted view with operational wind turbine
The proposed turbine would be visible in the middle distance backgrounded by the elevated land to the east of the Head of Trent Valley
Type and sensitivity of visual receptor
Historic Features - **Very High** Footpath users - **High**
Magnitude of change to baseline view
Low
Assessed significance of visual impact
Historic features – **Moderate, Adverse, Not Significant** Footpath users – **Moderate/Slight, Adverse, Not Significant**
Mitigation
Scale and location of the proposed single turbine.

Representative Viewpoint 10: Staffordshire Moorlands Walks
The viewpoint is some 0.89km to the south-east of the proposed wind turbine at an elevation of approximately 152m AOD, OS Grid Ref 389616, 354043. This view is representative of the short distance views from footpath users in the area. See Figure 30: Viewpoint 10, Staffordshire Moorlands Walks and Figure 31: Viewpoint 10 Wire line and Photomontage, StaffordshireMoorlandsWalks.
Existing View:
The view is looking north-west from the Moorlands Walk footpath as it crosses Tongue Lane within the Head of Trent valley. The western side of the valley is made up of irregular shaped fields of pasture, predominantly wet pasture in the valley bottom, divided by gappy, poorly maintained hedgerows with occasional hedgerow trees. The Moorlands Walk footpath lies on the eastern side of the watercourse where trees along the banks of the river filter and screen views to the west; the view is taken from the western side which offers clearer views to the western horizon. Dallows Wood is visible stretching from the upper horizon into the valley screening views to the north. There are no other turbines visible in the view.
Predicted view with operational wind turbine
The proposed turbine would be visible on the western horizon standing above the surround hedgerows and trees. Although the turbine is clearly taller than the surrounding vegetation, the trees on the valley sides provide a sense of scale as well as occasional screening and filtering of views.
Type and sensitivity of visual receptor
Footpath users - **High**
Magnitude of change to baseline view
Medium
Assessed significance of visual impact
Footpath users - **Moderate, Adverse, Not Significant**
Mitigation
Scale and location of the proposed single turbine.

EFFECTS ON VISUAL RECEPTOR GROUPS

7.4 From site surveys and the analysis of the assessment viewpoints it is possible to draw some conclusions about the significance of effects on different receptor groups at different distances from the proposed development

VISUAL EFFECTS ON SETTLEMENTS WITHIN 10KM OF THE TURBINES

7.5 Views from within most settlements are generally confined by buildings wall, fences and vegetation contained within and on the outskirts of the developed area. The settlements of Biddulph, Biddulph Moor, Brown Lees, Ball Green, Norton Green/ Norton in the Moors and Baddeley Green area located within 3km around the proposed turbine, and where views are restricted by buildings and mature shrubs and trees along the edges of the settlements. Where views are feasible out in to the landscape they are framed and filtered or contain screening elements, trees and blocks of woodland, although there are occasional views towards the ridge where the site is located the turbine would appear as a minor feature in the overall landscape.

7.6 The village of Brindley Ford lies 0.9km to the west of the site, along the A527 Outclough Road. It is an old mining village which has been extensively remodelled with modern residential streets and estates.

There are some potential views from within the village up to the ridge to the east upon which the turbine would be located, however most views are confined within the village by the surrounding buildings and mature vegetation.

7.7 Brown Edge lies approximately 1.8km to the east of the proposed site with a number of properties located along the west facing edge of the village having views across the valley towards the proposed turbine. The modern estate of primarily bungalows between Church Road and Sytch Road would have very limited views across the valley towards the proposed turbine.

VISUAL EFFECTS ON RESIDENTIAL RECEPTORS

7.8 There are no residential properties within 335m of the proposed turbine, therefore the impact of the turbine would not be overbearing or overwhelming on any property. The nearest properties with potential views of the proposed development are along Bemersley Road to the south of Peck Mill Lane. From the north at Peck Mill Lane, there are two detached houses and two bungalows within mature private gardens, further south there are three pairs of semi-detached houses fronting on to the road.

7.9 No 509 Bemersley Road is a double fronted, red brick and render house dating from 1911, with views from ground floor over the garden hedge and clear views from bedroom windows across the road, hedgerows and fields towards the proposed turbine. No 507 is a brown brick bungalow with views across the road and hedgerow towards the proposed turbine. Potential views from both properties could be screened or filtered with the planting of hedgerow trees along the roadside hedgerow and potentially maintaining the hedge at up to 4m high.

7.10 The two storey property at the rear of No 507 has very limited views towards the proposed turbine, screened by the bungalow and the mature trees along the roadside.

7.11 The bungalow south of No507 is enclosed by a 4m high evergreen hedge along Bemersley Road and has no views towards the east and proposed turbine.

7.12 Views from the three pairs of semi-detached houses would be filtered and screened by the hedgerow and mature trees along Bemersley Road.

7.13 The views from the affected properties along Bemersley Road towards the proposed turbine could be mitigated by the planting of trees within the hedgerow to the east of the road and changing the maintenance regime, maintaining the hedge at 4m.

RECREATIONAL LONG DISTANCE WALKING/CYCLING ROUTES

7.14 A section of the Staffordshire Moorlands Walk, Brown Edge Green Vale walk, is routed through the study area from Brown Edge north along the ridge, dropping in to the valley towards Knypersley Reservoir before turning south along the valley floor towards Norton Green and Stockton Brook before heading north back towards Brown Edge. . Site visits indicate the potential views towards the proposed turbine would be limited due to the screening effects of the intervening landform, vegetation and settlements. Where views are feasible, generally from the opposite side of the valley to the proposed site, the turbine would appear as a new large feature on the ridge of the valley.

7.15 Views from the path within the valley bottom, which is predominantly located to the east of the river, are generally limited by the landform, hedgerows and trees within the landscape and along the course of the river and woodland which screen and filter views. There are clear views from the road across the reservoir, See Viewpoint 8 Greenway Bank, Knypersley Reservoir and intermittent views from the path within the valley, See Viewpoint 10 Staffordshire Moorlands Walk

7.16 The National Grid overhead electricity line and pylons crosses the western valley side in to the bottom of the valley near Woodhouse Lane following the Head of Trent southwards through Norton Green and on towards Milton and Stoke on Trent. Views towards the proposed turbine from the section of the footpath south of Woodhouse Road would have the overhead lines as the dominant elements within the view.

7.17 To the north of Knypersley Reservoir the Staffordshire Moorlands Walk rises from the valley floor up on to the eastern and western valley sides. There would be intermittent views from the eastern valley sides across the reservoir towards the proposed turbine. Views would be screened from where the path meets the houses near to Park Lane, Rock End. Views from the western valley sides are limited by intervening vegetation between Knypersley and Greenway Bank Country Park.

7.18 The general magnitude of change on the footpath within the study area would be Medium, the Significance of Effect Moderate, Adverse and Not Significant.

PUBLIC RIGHTS OF WAY (PROW)

7.19 Within the 10km study area there are numerous PROWs (footpaths and bridleways). Generally, where footpaths are located within approximately 1.5km of the proposed turbine and experience a clear uninterrupted view of the proposed turbine users could experience a major change to the view which would have a defining influence on the overall view.

7.20 To the east of the site there are footpaths between Ridgeway Hall and Dallows Wood and Knypersley reservoir which pass within 200m of the proposed turbine and would experience a Very High magnitude of change along the paths to the west of Dallows Wood and Rushymoor Wood where the turbine would dominate the view. To the east of the woods, with in the valley bottom the impact would reduce to be a major change which has a defining influence on the view. The overall effect would be Substantial, Adverse and therefore Significant.

7.21 The footpath between Bemersley Road and Knypersley Reservoir would experience a High magnitude of change for most of its length, notably on the top of the valley and upper sides, until it reaches the valley floor where views would be screened or filtered by the existing mature vegetation.

7.22 The footpath between Greenway Bank via Dallows Wood to Ridgeway Hall would be screened by the hedgerow and trees and Dallows Wood to the north of the turbine. There would be clear views towards the turbine as it emerges from the wood and is routed to the south-west towards Ridgeway.

7.23 The footpath between Greenway Bank to Childerplay Road would be partially screened by the mounded landform within the site. Where there are views the turbine would be seen on the horizon backgrounded against the sky.

VISUAL EFFECTS ON MAJOR ROADS /RAILWAYS

7.24 The ZTVs indicate that there would be potential views from the A527 Tunstall Road/Biddulph Road, between Biddulph to Great Chell. Travelling south from Biddulph there are residential properties along the eastern road side which screens views to the east and the proposed site. Views open up adjacent to Mill Hayes Sports Ground although the avenue of roadside trees filters views out of the road corridor. Thereafter views become further restricted, filtered and screened through the village of Brindley Ford and south along a tree and hedge line country road. Overall there are very limited views from the road towards the proposed wind turbine which would have an overall effect of Slight, Adverse and therefore Not Significant.

LOCAL MINOR ROADS

7.25 The ZTVs indicate that there would be views from a number of minor roads across the study area.

7.26 Bemersley Road from the A53 in the north to Ball Green south of the site, passes within 400m of the proposed turbine and from which access would be taken to constructed and maintain the turbine. To the north of Bemersley Green there would be intermittent views towards the proposed turbine, through the roadside hedges and trees. From Bemersley Green to Ridgeway Hall there would be potential views across hedgerows and fields towards the turbine which would lie within 400m of the road. From Ridgeway Hall to Ball Green there would be potential views from stretches of the road, occasionally seen with the overhead electricity lines and pylons within the view, other areas would be screened by roadside buildings, hedgerows and trees.

7.27 Sands Lane, between Brown Edge and Rock End is located on the eastern side of the Head of Trent valley and follows the ridge of higher ground at a level slightly above the proposed level of the turbine. There are potential views across the valley towards the turbine which would lie approximately 1.6km to the west, on the opposite ridge.

7.28 From Greenway Bank which connects Bemersley Green to Sands Lane across the valley there would be very limited views as the lane is narrow and has generally intact hedgerows along the roadsides, with numerous mature trees which generally screen views out of the lane across the valley landscape. Where views are available the turbine would generally be partially screened or filtered by the intervening vegetation. There would be potential views from the lane as it crosses the reservoir, where the turbine would be visible above the woodland and individual trees. On the eastern bank there are mature hedgerows and trees generally screening views across the valley. Overall there are limited views from the road towards the proposed wind turbine which would have an overall effect of Moderate/Slight, Adverse and therefore Not Significant.

7.29 From the minor road Tongue Lane, there are very limited views as the lane is very narrow and has mature hedgerows and trees along both sides restricting views out in to the valley landscape. Where there are gaps in the hedgerows and there are few trees there would be potential views towards the proposed turbine where it would be visible above the woodland and individual trees. Overall there are limited views from the road towards the proposed wind turbine which would have an overall effect of Moderate/Slight, Adverse and therefore Not Significant.

7.30 There are occasional views from Woodhouse Lane, which connects Bemersley Road to Brown Edge and lies within 1.6km to the south of the proposed turbine. Most of the Lane would be screened from views by localised landform, hedgerows and trees however where there are gaps in the hedgerows there would be potential views towards the proposed turbine where it would be visible above the woodland and individual trees. Overall there are limited views from the road towards the proposed wind turbine which would have an overall effect of Moderate/Slight, Adverse and therefore Not Significant.

GREENWAY BANK COUNTRY PARK

7.31 The ZTVs indicate that there is some potential visibility within the country park; however the areas of woodland around the serpentine lake and reservoir greatly reduce the extent of visibility. There would be limited views of the turbine from a limited number of positions around the eastern shore of the reservoir and across the road. Overall there are limited views from the Country Park towards the proposed wind turbine which would have an overall effect of Moderate, Adverse and therefore Not Significant.

CONCLUSION

7.32 The size of the proposed single turbine (45m to hub, 67 to blade tip) within a landscape with a limited size of the visual envelope and further fragmentation of the view within the area with numerous screening elements, landform, hedges, shelter belts, woodland, individual trees, infrastructure, settlements and individual buildings, results in a proposed scheme without many Significant Visual Impacts.

Table 7.1: Visual Receptors viewpoints, Sensitivity, Magnitude of Change, Impact, Mitigation, Residual Impact and Significance

Viewpoint		Sensitivity of Receptors	Magnitude of Change	Visual Impact/ Effect	Significance
1	Mill Haves Road, Biddulph	Residents – **Very High** Footpath users - **High** Minor road users - **Medium**	**Low**	Residents – **Moderate, Adverse** Footpath users – **Moderate/Slight, Adverse** Minor road users – **Moderate/Slight, Adverse**	**Not Significant** **Not Significant** **Not Significant**
2	Lask Edge Road/Crowborough Road Junction	Minor road users - **Medium**	**Low**	Minor road users – **Moderate/Slight, Adverse**	**Not Significant**
3	Brown Edge Farm, Sands Lane	Footpath users - **High** Minor road users - **Medium**	**Medium**	Footpath users – **Moderate, Adverse** Minor road users – **Moderate, Adverse**	**Not Significant** **Not Significant**
4	Church Road, Brown Edge	Residents - **Very High** Minor road users - **Medium** Recreation ground users - **Medium**	**Medium**	Residents – **Substantial/Moderate, Adverse** Minor road users – **Moderate, Adverse** Recreation ground users – **Moderate, Adverse**	**Significant** **Not Significant** **Not Significant**
5	Bemersley Road/Heather View Junction, Ball Green	Residents - **Very High** Minor road users - **Medium**	**Low**	Residents – **Moderate, Adverse** Minor road users – **Moderate/Slight, Adverse**	**Not Significant** **Not Significant**
6	Bemersley Road	Minor road users - **Medium**	**Medium**	Minor road users – **Moderate, Adverse**	**Not Significant**
7	Greenway Bank	Residents – **Very High** Minor road users - **Medium**	**High**	Residents – **Substantial, Adverse** Minor road users – **Moderate, Adverse**	**Significant** **Not Significant**
8	Greenway Bank, Knypersley Reservoir	Footpath users - **High** Minor road users - **Medium**	**Medium**	Footpath users – **Moderate, Adverse** Minor road users – **Moderate, Adverse**	**Not Significant** **Not Significant**
9	Mow Cop Castle	Historic Features - **Very High** Footpath users - **High**	**Low**	Historic Features – **Moderate, Adverse** Footpath users – **Moderate/Slight, Adverse**	**Not Significant** **Not Significant**
10	Staffordshire Moorlands Walks	Footpath users - **High**	**Medium**	Footpath users – **Moderate/Slight, Adverse**	**Not Significant**

Table 7.2: Receptors, Sensitivity, Magnitude of Change, Impact, Mitigation, Residual Impact and Significance

Receptor	Sensitivity of Receptors	Magnitude of Change	Visual Impact/ Effect	Mitigation	Residual Effect	Significance
Settlement						
Brindley Ford	High	Very Low	Slight	N/A	-	**Not Significant**
Brown Edge	High	Low	Moderate/Slight	N/A	-	**Not Significant**
Major Roads						
A527 Biddulph to Great Chell	Low	Low	Slight	N/A	-	**Not Significant**
Minor/ Local Roads						
Bemersley Road from the A53 to Ball Green	Medium	Moderate	Moderate	N/A	-	**Not Significant**
Sands Lane, Brown edge to Rock End	Medium	Moderate	Moderate	N/A	-	**Not Significant**
Greenway Bank Bemersley Green to Sands Lane	Medium	Low	Moderate/Slight	N/A	-	**Not Significant**
Tongue Lane, Bemersley Road to Sands Lane.	Medium	Low	Moderate/Slight	N/A	-	**Not Significant**
Woodhouse Lane Bemersley Road to Brown Edge	Medium	Low	Moderate/Slight	N/A	-	**Not Significant**
Railway Lines						
None					-	
Principal Long Distance Trails/ Cycleways						
Staffordshire Moorlands Walks	High	Medium	Moderate	N/A	-	**Not Significant**
Country Parks						
Greenway Bank	Very High	Low	Moderate	N/A	-	**Not Significant**

8.0 SUMMARY OF THE ASSESSMENT OF CUMULATIVE EFFECTS

8.1 The LVIA assesses the cumulative effects (simultaneous, successive, sequential and perceptual) caused by the development of the site in conjunction with other operational, approved or submitted sites within the planning system.

8.2 Within 10km of the Bemersley Green site there are no other existing wind energy developments, however there is one site with planning consent and an existing telecommunications mast:

- Sands Lane wind turbine 15.4m hub, 20.4m to blade tip at Sands Lane, Brown Edge 1.6km to the north-east,
- Brown Edge telecommunications mast 50m at Hill Top, Brown Edge 1.7km to the east of the proposed site

8.3 The cumulative impacts of the above proposed sites have been assessed with the proposed turbine at Bemersley Green. The zones of theoretical visibility for the existing and proposed sites are illustrated on Figure 10: Cumulative Zone of Theoretical visibility 67m to blade tip & existing wind turbines. The drawing illustrates the areas where the Sands Lane turbines and Brown Edge Telecom mast and the proposed Bemersley Green turbine are potentially visible, where the other sites would be visible and not the Bemersley Green site and the additional areas where combinations of the three sites would be visible.

Table 8.1: Wind Farm Sites within a 10km Radius from the Proposal

Site	Distance and direction from site	Developer	Number of Turbines	Turbine Tip Height
Operational Wind Farms/Structures				
Brown Edge Telecommunication Mast	1.85km east	-	1	50m
Consented Sites				
Sands Lane	1.7km north-east	Private	1	20.4m

8.4 Initial baseline studies and site visits indicated that there was little potential in the surrounding landscape beyond approximately 4-5km from the site for a single turbine to have significant indirect effects on a landscape character areas/types or a receptor's experience of landscape character.

8.5 The ZTVs and cumulative ZTVs for the Bemersley Green turbine indicate the potential visibility is limited primarily to within the Head of Trent valley and the ridges and valleys on either side, between the settlements of Biddulph and Biddulph Moor to the north, Bucknall in the south, Brown Edge to the east and Kidsgrove to the west, confined within the Potteries and Churnet Valley NCA. The impacts are confined to within the Ancient Slope and Valley Farmland character type and Gritstone Uplands to the east and north-west of Biddulph. In reality the screening effects from settlements, buildings, localised landform and vegetation would significantly reduce the potential extent of visibility within the area.

8.6 Within the surrounding settlements of Baddeley Green Biddulph, Biddulph Moor, Brindley Ford, Brown Edge, Brown Lees, Ball Green, and Norton Green/ Norton in the Moors there are limited opportunities from within the towns for views out to the surrounding landscape. Views are screened by buildings, walls, fences and vegetation within the towns and woodland, hedges etc. in the surrounding landscape greatly reducing the area of potential visibility, restricting views to the edges of the settlements facing the proposed site.

CUMULATIVE EFFECTS ON LANDSCAPE CHARACTER

8.7 It is accepted that where more than one wind farm is visible at any given location in the landscape, there will be a greater cumulative effect on the landscape character than if only one were present. The following section determines whether any combination of wind farm/telecom mast within 10km of the Bemersley Green site would result in any greater significance of effect on the National Landscape Character Areas and Local Character Types than has been already identified in the main assessment.

NCA 64: Potteries and Churnett Valley	
Landscape Sensitivity	**Medium**
Operational Sites/ Baseline	
Cumulative visibility of Bemersley Green with the Hill Top Telecom Mast	The NCA is approximately 40km east to west and up to 20km north to south and the proposed turbine would potentially impact on a small area to the north of the NCA around Biddulph. There is the potential for of simultaneous or successive medium and long distant views of the proposed Bemersley Green turbine with the existing Hill Top Telecom Mast within Brown Edge, from the open landscape on the ridges of higher ground above the settled valleys. Very limited visibility to the south and west of the NCA. There would be a limited impact on the NCA of the addition of the Bemersley Green turbine to the existing baseline.
Magnitude of cumulative change to the baseline	**Very Low**
Magnitude and Significance of cumulative effect	**Slight, Adverse, Not Significant**
Consented Sites	
Cumulative visibility of Bemersley Green with Sands Lane turbine	Very limited opportunities for the proposed Bemersley Green and the Sands Lane turbine to be viewed cumulatively within the NCA, being restricted generally to within the Head of Trent valley, in reality views would be generally screened by intervening landform, buildings and vegetation. There would be a limited impact on the NCA of the addition to the existing baseline of the Bemersley Green turbine with the proposed Sands Lane turbine.
Magnitude of cumulative change to the baseline	**Very Low**
Magnitude and Significance of cumulative effect	**Slight, Adverse, Not Significant**

LCA: Ancient Slope and Valley Farmlands	
Landscape Sensitivity	**Medium**
Operational Sites/ Baseline	
Cumulative visibility of Bemersley Green with the Hill Top Telecom Mast	Very limited opportunity of simultaneous or successive views of Bemersley Green turbine with the Hill Top Telecom mast restricted to within the Head of Trent valley and the two ridges of high ground to the east and west of Biddulph. Very limited visibility elsewhere within the LCA.
Magnitude of cumulative change to the baseline	**Low**
Magnitude and Significance of cumulative effect	**Moderate/Slight, Adverse, Not Significant**
Consented Sites	
Cumulative visibility of Bemersley Green with Sands Lane turbine	Very limited opportunity of simultaneous or successive views of Bemersley Green turbine with the Sands Lane turbine confined to within the Head of Trent valley and the two ridges of high ground to the east and west of Biddulph, in reality views would be generally screened by intervening landform, buildings and vegetation. Very limited visibility elsewhere within the LCA.
Magnitude of cumulative change to the baseline	**Low**
Magnitude and Significance of cumulative effect	**Moderate/Slight, Adverse, Not Significant**

LCA: Gritstone Uplands	
Landscape Sensitivity	**Medium**
Operational Sites/ Baseline	
Cumulative visibility of Bemersley Greenwith the Hill Top Telecom Mast	Very limited opportunity of simultaneous or successive views of Bemersley Green turbine with the Hill Top Telecom mast restricted to small linear area along the ridge line to the east of Biddulph Moor and a small area to the west of Biddulph. In reality most views would be screened by the localised form and vegetation. Very limited visibility elsewhere within the LCA.
Magnitude of cumulative change to the baseline	**Low**
Magnitude and Significance of cumulative effect	**Moderate/Slight, Adverse, Not Significant**
Consented Sites	
Cumulative visibility of Bemersley Green with Sands Lane turbine	Very limited opportunity of simultaneous or successive views of Bemersley Green turbine with the Sands Lane turbine restricted to small linear area along the ridge line to the east of Biddulph Moor. In reality most views would be screened by the localised landform and vegetation. Very limited visibility elsewhere within the LCA.
Magnitude of cumulative change to the baseline	**Low**
Magnitude and Significance of cumulative effect	**Moderate/Slight, Adverse, Not Significant**

8.8 The above assessment identifies the potential landscape effects for the proposed turbine at Bemersley Green in relation to the existing baseline including the hill Top Telecom mast and the proposed Sands Lane turbine. The principle effects are summarised below.

8.9 The proposed wind turbine at Bemersley Green together with the existing Hill Top telecom mast are located on the north-western most section of the Potteries and Churnet Valley NCA between the towns of Biddulph and Stoke on Trent. The character area is approximately 40km wide and 20 km long the potential visual envelope of the proposed turbine is approximately 2.5km radius, which would be further reduced by the screening effect of settlements and mature vegetation.

8.10 Cumulative impacts are primarily confined to a relatively small area small area approximately 2.5km radius, within the Head of Trent valley between Biddulph to the north, Ball Green, Norton Green and Brown Edge to the south, the ridge to the east of Marshes Hill and the suburbs of Packmore and Brown Lees to the west. Within this visual envelope the Sands Lane turbine would be visible from the ridges of the western and eastern valley sides, with very limited views from within the valley. All areas of visibility indicated on the ZTVs would be further reduced by the screening effects from hedgerows, trees, individual buildings and localised landform.

8.11 The Hill Top Telecom mast at Brown Edge is potentially visible within the Head of Trent valley and along the two ridges of higher ground to the east and west of Biddulph and from the higher ground to the east and south-east.

8.12 The assessment indicates that there would be little Significance to the cumulative impact on the either National Landscape Character Areas from an individual turbine at Bemersley Green being added to a landscape with the existing Hill Top Telecom mast approximately 2km to the east.

8.13 The addition of the proposed Sands Lane turbine together with the single Bemersley Green turbine to the existing baseline would not have a significant cumulative impact on the National or Regional Character areas or types.

8.14 There would be limited opportunities to see the Bemersley Green development simultaneously within the same view with the Hill Top Telecom mast and where this is feasible the significance of the developments on the landscape character would be Moderate to Slight and Not Significant.

8.15 There is very limited potential for Bemersley Green to be seen simultaneously or successively with the single turbine proposed at Sands Lane from within the national and regional character areas and types.

8.16 The cumulative visual effects have been assessed from each of the selected viewpoints, which represent cumulative effects on multiple receptors, residential settlements, transport routes, recreational routes and designated areas of landscape near to each viewpoint, in order to present a fair and reasonable appraisal.

8.17 The assessments involved predictions relating as to the, successive and sequential views.

Viewpoint	Type and Assessment of Views	
1: Mill Haves Road, Biddulph	**Simultaneous:**	There are no simultaneous views available.
	Successive:	The upper section of the Telecom mast is visible in views to the south-east above the hedgerow and middle distance trees. The Sands Lane turbine would be screened by the landform and vegetation. **Predicted magnitude of change to baseline view** **Low** **Type and sensitivity of visual receptor(s)** Residents – **Very High**. Footpath users – **High** Minor road users – **Medium** **Assessed significance of visual impact** Residents – **Moderate, Adverse, Not Significant.** Footpath users – **Moderate/Slight, Adverse, Not Significant.** Minor road users – **Moderate/Slight, Adverse, Not Significant.**
	Sequential:	N/A

Viewpoint	Type and Assessment of Views	
2: Lask Edge Road/Crowborough Road Junction	**Simultaneous:**	There are no simultaneous views available.
	Successive:	The top of the proposed turbine would be potentially visible above the near horizon within gaps in the hedgerow. The top of the telecom mast at Brown Edge is visible in views to the south-west. The Sands Lane turbine would be screened by the landform and vegetation. **Predicted magnitude of change to baseline view** **Very Low** **Type and sensitivity of visual receptor(s)** Minor road users – **Medium** sensitivity **Assessed significance of visual impact** Minor road users – **Moderate/Slight, Adverse, Not Significant.**
	Sequential:	N/A

Viewpoint	Type and Assessment of Views	
3: Brown Edge Farm, Sands Lane	**Simultaneous:**	There are no simultaneous views available.
	Successive:	The Sands Lane turbine would be screened by the landform and vegetation of Marshes Hill to the north. The existing telecom mast would visible on the hillside 90° to the south. **Predicted magnitude of change to baseline view** **Medium** **Type and sensitivity of visual receptor(s)** Footpath users – **High.** Minor road users – **Medium.** **Assessed significance of visual impact** Footpath users – **Moderate, Adverse, Not Significant.** Minor road users –**Moderate, Adverse, Not Significant.**
	Sequential:	N/A

Viewpoint	Type and Assessment of Views	
4: Church Road, Brown Edge	**Simultaneous:**	There are no views toward the Sands Lane turbine or the Hill Top telecommunications mast from the view point.
	Successive:	As above.
	Sequential:	N/A

Viewpoint	Type and Assessment of Views	
5: Bemersley Road/Heather View Junction, Ball Green	**Simultaneous:**	There are no views toward the Sands Lane turbine or the Hill Top telecommunications mast from the view point.
	Successive:	As above
	Sequential:	Moving north from the village the turbine at Bemersley Green would be visible to the north and the Telecom mast at Hill Top, Brown Edge to the east. Both would be potentially visible and seen through the overhead electricity line and pylons to the north and east of the village. **Predicted magnitude of change to baseline view.** **Low** **Type and sensitivity of visual receptor(s)** Residents – **Very High** Minor road users – **Medium** **Assessed significance of visual impact** Residents – **Moderate, Adverse, Not Significant** Minor road users – **Moderate/Slight, Adverse, Not Significant**

Viewpoint	Type and Assessment of Views	
6: Bemersley Road	**Simultaneous:**	There would be no views to the Hill Top mast or Sands Lane turbine.
	Successive:	There are potential views towards the telecom mast 2km to the east across the valley of the Head of Trent, however the Sands Lane turbine would not be seen from this location, screened by the landform and vegetation. **Predicted magnitude of change to baseline view.** **Medium** **Type and sensitivity of visual receptor(s)** Minor road users – **Medium** **Assessed significance of visual impact** Minor road users – **Moderate**, **Adverse, Not Significant**
	Sequential:	

Viewpoint	Type and Assessment of Views	
7: Greenway Bank	**Simultaneous:**	There would be no views to the Hill Top mast or the Sands Lane turbine from this view point.
	Successive:	N/A
	Sequential:	N/A

Viewpoint	Type and Assessment of Views	
8: Greenway Bank, Knypersley Reservoir	**Simultaneous:**	There would be no views to the Hill Top mast or the Sands Lane turbine from this view point.
	Successive:	N/A
	Sequential:	N/A

Viewpoint	Type and Assessment of Views	
9: Mow Cop Castle	**Simultaneous:**	The proposed turbine would be visible with the Hill Top telecommunications mast 4.2km and 5.8km respectively to the east. **Predicted magnitude of change to baseline view:** **Low** **Type and sensitivity of visual receptor(s)** Historic Features - **Very High** Footpath users - **High** **Assess significance of visual impact:** Historic Features – **Moderate, Adverse, Not Significant** Footpaths – **Moderate/Slight, Adverse, Not Significant**
	Successive:	N/A
	Sequential:	N/A

Viewpoint	Type and Assessment of Views	
10: Staffordshire Moorlands Walks	**Simultaneous:**	There would be no views to the Hill Top mast or the Sands Lane turbine from the view point, screened by local landform/ vegetation.
	Successive:	N/A
	Sequential:	N/A

8.18 Of the ten visual receptor viewpoints and the 19 receptor groups studied for the landscape and visual appraisal of the single turbine proposal the assessment indicates that the potential of Bemersley Green turbine when added to a base line containing the existing Hill Top telecommunications mast and the proposed Sands Lane turbine would not give rise to any significant cumulative impacts.

8.19 The ZTVs may indicate theoretical cumulative views from some of the viewpoints however the table below is based on site assessments and represents a more realistic viewpoint assessment.

Table 8.2: Cumulative views together with the proposed Bemersley Green Turbine

Ref	Viewpoint	Sands Lane	Hill Top Mast
1	Mill Haves Road, Biddulph	N/A	Suc
2	Lask Edge Road/Crowborough Road Junction	N/A	Suc
3	Brown Edge Farm, Sands Lane	N/A	Suc
4	Church Road, Brown Edge	N/A	N/A
5	Bemersley Road/Heather View Junction, Ball Green	N/A	N/A
6	Bemersley Road	N/A	Suc
7	Greenway Bank	N/A	N/A
8	Greenway Bank, Knypersley Reservoir	N/A	N/A
9	Mow Cop Castle	N/A	Sim
10	Staffordshire Moorlands Walks	N/A	N/A

Simultaneous = Sim, Successive = Suc, Sequential = Seq, N/A = No views

CONCLUSION

8.20 Where views are available from within the study area the proposed Bemersley Green turbine would be generally only be seen simultaneously with the existing Hill Top telecommunications mast from the ridges and higher ground to the west through to the north and from the south-east of the study area.

8.21 The size of the Sands Lane turbine (20.4m to blade tip) restricts the areas from where it is visible to within the Head of Trent Valley and the ridges along the valley sides, visibility being further restricted by local landform and vegetation.

8.22 The ZTVs indicate patchy visibility within the study area; assessments made during site visits indicate that there is limited potential in views in excess of 4-5km for there to be a significant cumulative impact.

8.23 There would be very limited potential for views of the Bemersley Green and the consented Sands Lane wind turbine.

8.24 There would be no sense that journeys through the landscape would be dominated by the existing mast or, consented and proposed wind turbines.

8.25 The landscape and visual cumulative assessment indicates that there would be no significant impacts from including the Bemersley Green turbine to the existing or proposed baseline landscape if the turbine received planning approval.

9.0 SUMMARY AND CONCLUSIONS

9.1 The Landscape and Visual Impact Assessment (LVIA) has been prepared for the proposed single Enercon E44 wind turbine, 45m to nacelle, 67m to blade tip, development at land east of Bemersley Road, Bemersley Green, Biddulph, Stoke on Trent. It considers the potential effects of the single turbine for a period of 25 years upon:

- Individual landscape features and elements;
- Landscape character; and
- Visual amenity and the people who view the landscape.

9.2 The site lies within NCLA 64 Potteries and Churnet Valley, the single turbine would affect a very small section of the character area which already contains other large structures, turbines, pylons and telecom masts the impact would be **Slight, Adverse** and therefore **Not Significant**.

9.3 Within the 10km radius study area there are 13 Regional Landscape Character Areas, the ZTVs and site visits indicate visibility is generally restricted to within the Ancient Slope and Valley Farmlands and the Gritstone Uplands areas the assessments concludes that the Significance of effect would be **Moderate/Slight** to **Slight, Adverse** and therefore **Not Significant**.

9.4 The ZTVs indicate limited visibility across the study area, which is generally confined to within the Head of Trent valley and the ridges of higher ground within 5km of the proposed site, however the screening effect of the existing hedges and trees, buildings and settlements and the local landform results in a landscape with limited visibility towards the proposed turbine.

9.5 The sensitivity of the area is to wind energy development is **High**, the Magnitude of Change on the Landscape Character is considered to be **Low,** and therefore the Significance of the Impact is **Moderate/Slight, Adverse, Not Significant**.

9.6 Of the ten viewpoints and the 19 receptor groups assessed the visual impacts have been assessed as being generally between **Moderate to Moderate/Slight, Adverse** and **Not Significant** for most of the viewpoints.

9.7 The size of the proposed single turbine (45m to hub, 67m to blade tip) within a landscape with a number of comparable size structures, together with the limited size of the visual envelope and further fragmentation of the view within the area, results in a proposed scheme without many Significant Visual Impacts.

9.8 The proposed Bemersley Green turbine would theoretically be seen cumulatively in combination with the existing Hill Top telecommunications mast at Brown Edge and the proposed and consented small turbine at Sands Lane however in reality the landscape and visual cumulative assessment indicates that there would be no significant impacts that could not be mitigated or reversed. Where views are potentially available as illustrated on the ZTVs many are either screened or filtered by existing local landform and vegetation further reducing the impact of the proposed development.

9.9 The above assessment of the landscape and visual impacts and cumulative landscape and visual impacts indicate a general residual range from **Moderate** to **Moderate/Slight**, **Adverse** and therefore **Not Significant**. Having given careful consideration to the potential landscape and visual impacts/effects throughout the study area, it is considered that in Landscape and Visual terms the proposed Bemersley Greenwind turbine development is acceptable.

APPENDICES

Appendix A: Landscape and Visual Impact Assessment Methodology

Appendix B: Review of Landscape Character Types and Landscape Designations within 10km of the Bemersley Green site

Appendix C: Review of Principal Visual Receptors within 10km of the Bemersley Green site

Appendix D: Glossary

Appendix E: Bibliography

Appendix A LANDSCAPE AND VISUAL IMPACT ASSESSMENT METHODOLOGY

1.0 INTRODUCTION

1.1 This Appendix describes in detail the methodology that has been used to undertake the Landscape and Visual Impact Assessment (LVIA) presented in the Report.

1.2 The structure of the appendix is as follows:

- Section 2.0 identifies the published guidance documents used in the assessment;
- Section 3.0 explains the difference between landscape and visual effects;
- Section 4.0 describes the different types of effect considered in the assessment;
- Section 5.0 defines the study area used in the assessment;
- Section 6.0 describes the methodology used for the assessment of effects on landscape features and landscape character;
- Section 7.0 describes the methodology used for the assessment of effects on visual receptors;
- Section 8.0 states the criteria that have been used for determining the sensitivity of landscape and visual receptors and the magnitude of change on those receptors;
- Section 9.0 explains how levels of significance have been derived using the combination of sensitivity and magnitude; and
- Section 10.0 explains the nature of effects on landscape and visual resources.

2.0 PUBLISHED GUIDANCE DOCUMENTS

2.1 The LVIA has been undertaken in accordance with best practice, as outlined in published guidance:

- (The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, 2013)Landscape Institute and the Institute for Environmental Management and Assessment
- (Guidelines for Landscape Character Assessment, 2002) Countryside Agency and Scottish Natural Heritage (SNH);
- (Guidelines for Environmental Impact Assessment, 2004) Institute for Environmental Management and Assessment.

2.2 Consideration has also been given to the following documents:

- (Visual Representation of Windfarms - Good Practice Guidance, March 2006), SNH commissioned report no. FO3 AA 308/2.
- (Guidelines on the Environmental Impacts of Wind farms and Small Scale Hydroelectric Schemes, 2001) SNH;
- Countryside Character, Volume 4 East Midlands: Countryside Commission/Natural England;
- Countryside Character, Volume 5 West Midlands: Countryside Commission/Natural England;

- Planning for Landscape Change: Supplementary Planning Guidance to the Staffordshire and Stoke on Trent Structure Plan 1996 – 2011 Volumes 1-3 and Appendix 1 maps and Plans.
- Cheshire Landscape Character Assessment Nov 2008, Cheshire County Council

3.0 DISTINCTION BETWEEN LANDSCAPE AND VISUAL EFFECTS

3.1 In accordance with published guidance, landscape and visual impacts are assessed separately although the procedure for assessing each is similar. A clear distinction has been drawn between landscape and visual impacts as described below:

- Landscape impacts relate to the effects of the proposals on the physical and other characteristics of the landscape and its resulting character and quality.
- Visual impacts relate to the effects on views experienced by visual receptors (e.g. residents, footpath users) and on the visual amenity experienced by those people.

4.0 TYPES OF IMPACT CONSIDERED IN THE LVIA

4.1 The LVIA assesses the long term effects relating to the operational life of the wind turbine development and also the short-term effects associated with its construction and decommission. Where appropriate, the LVIA also considers any residual effects once the wind turbine development has been removed.

4.2 The LVIA assesses both the impacts associated with the turbine and any related impacts resulting from the ancillary equipment, substation, underground cabling, site tracks and access roads, etc.

4.3 Consideration has been given to seasonal variations in the visibility of the wind turbines.

4.4 The LVIA assesses the cumulative effects (simultaneous, successive, sequential and perceptual) caused by the development of the site in conjunction with other constructed or proposed sites within the planning system within the 5km radius of the study area.

5.0 STUDY AREA

5.1 The study area for the visual assessment was taken to be a 10km radius from the site. SNH Guidance[2] which recommends a 20km radius study area for turbines up to 71m to blade tip. Having undertaken independent site visits as part of this assessment, One Associates conclude that a 10km study area was adequate for the proposed development was adequate as significant landscape and visual effects beyond this distance were unlikely.

5.2 The initial study area used for the consideration of effects on landscape character was taken as 10km radius from the site. All landscape character area/types within 10km of the site were initially considered in a filtering exercise set out and described in Appendix B. At any given location within a landscape a visual receptor's response to landscape character is influenced by the physical and perceptual characteristics of their surroundings. These landscape components in the immediate surroundings of any given location have a much stronger influence on the sense of landscape character than distant features. Baseline studies and site visits indicated that there was little potential in the surrounding landscape (beyond approximately 10km) from the site for a distant turbine to have indirect

[2] Guidance for the Assessment of Cumulative Landscape and Visual Impacts Arising from Windfarm Developments (3rd Draft), (2004)

significant effects on a receptor's experience of landscape character. Therefore a study area of 10km from the site was used for a detailed assessment of effects on landscape character.

6.0 Overview of Methodology for Assessment of Effects on Landscape Features and Landscape Character

6.1 A baseline landscape assessment was carried out to determine the current features and character of the landscape within and surrounding the site.

6.2 The baseline landscape assessment involved firstly a review of desk material including:

- Ordnance Survey maps at 1:50 000, 1:25 000 and 1:10 000 scales;
- Aerial photographs of the site and surrounding area;
- Ecological survey plans;
- Cultural heritage survey plans;
- Relevant planning policy;
- National and regional scale landscape character assessments;

6.3 Field visits were conducted in a variety of weather conditions during August 2012 to July 2014. Allowances have been made for winter conditions when vegetation would not be in full leaf, regarded as the worst case scenario.

6.4 The baseline assessment identified the existing landscape features on the site, and in the immediate vicinity, and how these elements combine to give the area a sense of landscape character.

6.5 Plans, sections and construction details of the proposed scheme were used to determine the impacts of the scheme on landscape features and character.

6.6 The LVIA firstly assesses how the proposed development would impact directly on any landscape features and resources (e.g. removal of trees).

6.7 The LVIA then considers impacts on landscape character on two levels.

- consideration is given to how the immediate landscape character surrounding the site (within approximately 1.5km of the turbine) is directly affected due to the removal or alteration of existing features and the introduction of new features.
- the indirect impacts of the development on the wider landscape are discussed with reference to regional landscape character areas or types identified within relevant landscape character assessments and wind farm capacity studies.

6.8 The significance of effects on landscape features and character is determined by cross referencing the sensitivity of the feature or landscape character with the magnitude of impact using the criteria established in the following sections of this appendix.

7.0 Overview of Methodology for Assessment of Effects on Visual Receptors

7.1 Potential visual receptors of the scheme were initially identified by site visits and interpretation of digitally generated Zones of Theoretical Visibility (ZTVs) (see 7.11- 7.17for an explanation of ZTVs and how they were produced).

7.2 The assessment of visual effects was undertaken on the basis of viewpoint analysis as recommended by best practice guidelines[3]. A selection of viewpoints was agreed with the LPA to represent the range of views likely to be experienced of the development.

7.3 The viewpoints were selected to represent a range of views and viewer types. The viewpoints cover a variety of different character types, are in different directions from the site and are at varying elevations. The viewpoints are located at a range of distances from the development to illustrate the varying magnitude of visual impacts with distance from the site.

7.4 All of the representative viewpoints were photographed at 1.5m above ground level. However, where relevant, assumed views from upper floors of buildings were considered in the assessment.

7.5 For each of the viewpoints, a wireframe model was generated to help identify the scale, arrangement and visibility of the turbines (see 7.18– 7.24 for a description of how the wireframe models were produced). The images were reviewed on site to assess how natural and built screening would affect visibility of the site.

7.6 Viewpoints within 5km of the site were developed further into photomontages to help illustrate the predicted impact of the development (see 7.25-7.32 for a description of how the photomontages were generated and their limitations).

7.7 Each of the representative viewpoints was visited on a number of occasions to appreciate the sensitivity of views, and the entire extent of the study area was visited to appreciate visibility of the development as receptors move through the landscape.

7.8 The viewpoints were used as the basis for determining the effects on visual receptors within the entire study area.

7.9 In parallel to the viewpoint analysis the ZTVs were analysed to identify potential visual receptors (e.g. residents, users of public rights of way, etc) of the proposed development. A filtering process was undertaken to identify which of the visual receptors within the study area had the potential to experience significant visual effects. This filtering exercise is set out in Appendix C.

7.10 The significance of effects on visual receptors is determined by cross referencing the sensitivity of the receptor with the magnitude of impact using the criteria established in the following sections of this appendix.

ZONES OF THEORETICAL VISIBILITY (ZTVS)

7.11 Zone of Theoretical Visibility (ZTV) illustrates the geographical extents over which a feature or features (a wind turbine) would theoretically be visible within a defined study area.

7.12 It should be noted that the ZTVs have been generated assuming a 'bare ground' terrain model. This means that it is generated from topographical landform data only and does not take any account of vegetation or the built environment, which may screen views of the development. It is, as such, a 'worst case' Zone of Visual Influence and overemphasises the actual visibility of the scheme. In reality trees, hedgerows and buildings may restrict views of the development from many of the areas rendered as lying within the ZTV.

7.13 An assumption of the ZTVs is that climatic visibility is 100% (i.e. visibility is not impeded by moisture or atmospheric pollution in the air). In reality, such atmospheric conditions are relatively rare.

[3] Visual Representation of Windfarms – Good Practice Guidance, (March 2006), SNH commissioned report no. FO3 AA 308/2

Mist, fog, rain and snow are all common weather occurrences, which would regularly reduce visibility of the development with increasing distance from the site.

7.14 The ZTVs were generated using Resoft Wind Farm release 4.2. The programme used digital 3D height data (OS Landform Profile) to generate a terrain model. The programme then renders the model using a square grid to illustrate whether the turbine would be visible in each 10m x 10m square on the grid for a specified distance in every direction from the site. Digital ZTVs have been prepared to illustrate the theoretical visibility of the turbine for a radius of 10km plus around the site.

7.15 Two sets of ZTVs have been produced, one shows visibility of the turbine at hub height overlaid on 1:25,000 scale OS map at A3 size, the second shows visibility of the turbine to blade tip when one blade is at its highest possible position, again overlaid on 1:25,000 scale OS map at A3 size.

7.16 It should be noted that the ZTVs simply illustrate theoretical visibility and do not imply or assign any level of significance to those areas identified as being within the ZTV. The ZTVs are a tool to assist the Landscape Architect to identify where the site would potentially be visible from. Professional judgement has been used to evaluate the significance of effects.

7.17 For a discussion of the limitations of ZTVs please refer to (Visual Representation of Windfarms - Good Practice Guidance, March 2006) (SNH commissioned report FO3 AA 308/2).

WIREFRAME VISUALISATIONS

7.18 A wireframe (or wireline) visualisation is a computer generated 3D outline of a particular structure (a wind turbine) placed on top of a 3D ground terrain model, also represented by a wireframe. No rendering is given to any of the surfaces. The actual dimensions of the proposed turbine were used to build a model of the structure and this was placed in position over a ground terrain model generated from Ordnance Survey Landform Profile height data.

7.19 The coordinates of the viewpoints were taken using a Global Positioning System (GPS) in the field. These coordinates were used to set up viewpoints in the model from which to view the turbines. The wireframes were generated using Resoft Wind Farm Release 4.2.

7.20 The wireframe images are generated on a bare ground model and therefore do not take account of any vegetation or the built environment between the viewpoint and the development and as such represent a worst case view.

7.21 The wireframes are presented to scale above a baseline photograph to illustrate the actual view from each viewpoint. The wireframe images only illustrate the predicted scale and location of the turbines. It should be noted that no wireframe image can claim to be 100% accurate as there are a number of technical limitations to the process and model.

7.22 The wireframes are a tool to assist the Landscape Architect in their assessment of effects. The assessment of visual effects in this chapter does not rely on the accuracy of the wireframe images but professional judgement to evaluate the significance of effects.

7.23 Each of the wireframes and corresponding photographs should be viewed from a distance of approximately 300 – 433mm to gain an accurate impression of what the development will look like.

7.24 For a detailed discussion regarding the limitations of wirelines, please refer to (Visual Representation of Windfarms - Good Practice Guidance, March 2006) (SNH commissioned report FO3 AA 308/2).

PHOTOMONTAGES

7.25 A photomontage is the superimposition of a rendered, photorealistic, computer generated model of a structure or structures (a wind turbine) on to a baseline photograph.

7.26 Photographs were taken using a Nikon D90 digital SLR camera using a high quality Nikon DX lens accurately calibrated to provide the equivalent of a 50mm lens on a traditional SLR camera. All pictures were taken using a levelled tripod and using a high quality setting of 8.2 megapixel resolution. Each of the viewpoints presented in the ES is made up of 3 photographs which have been stitched together using Adobe Photoshop software and cropped to give the equivalent of a 90 degree angle of view in the horizontal field. During the stitching process none of the photographs were distorted in terms of scaling.

7.27 At the time the photographs were taken, co-ordinates of the viewpoints were recorded using a GPS. Photographs were taken at 1.5m above ground level (approx eye level).

7.28 A 3D wireframe model was generated of the turbine. Resoft Wind farm release 4.2 software was used to generate the 3D model of the turbines. The model of the structures was rendered and lighting was set appropriate to the date, time and orientation on which the photograph was taken. A digital ground terrain model was generated in Resoft Wind farm release 4.2 and the development was overlaid on top of it. Using world coordinates in the computer modelling programme the photographic viewpoints were replicated such that a view was set up looking at the structures from exactly the same location as where the baseline photograph was taken from.

7.29 The view from the model was then superimposed over the original photograph and edited as necessary in Adobe Photoshop to give a final photomontage. Several known landmarks in the far distance of the baseline photographs were recorded on site using a GPS and used to check that the positioning and scale of the structures was correct.

7.30 The photomontages have been produced according to best practice and whilst every effort has been made to ensure the accuracy of the photomontages, no photomontage could ever claim to be 100% accurate as there are a number of technical limitations in the model relating to the accuracy of information available from Ordnance Survey and from the GPS, as detailed in (Visual Representation of Windfarms - Good Practice Guidance, March 2006) (SNH report FO3 AA 308/2).

7.31 The photomontages are a tool to assist the Landscape Architect in their assessment of effects. The assessment of visual effects in this chapter does not rely on the accuracy of the photomontages. Professional judgement has been used to evaluate the significance of effects.

7.32 Each of the photomontages should be viewed from a distance of approximately 300-433mm to give an accurate representation of what the development will look like.

8.0 ASSESSMENT CRITERIA

8.1 The ultimate purpose of the LVIA is to evaluate the likely significance of landscape and visual effects within the study area to assist the determining authority in considering the acceptability of the scheme.

8.2 The significance of effects is ascertained by cross referencing the sensitivity of the baseline landscape or visual receptor and the magnitude of change as a result of the development, in accordance with the GLVIA.

SENSITIVITY OF LANDSCAPE FEATURES

8.3 The sensitivity of an individual landscape feature reflects factors such as its quality, value, contribution to landscape character and the degree to which the particular element can be replaced.

8.4 'Quality' refers to a landscape feature's (hedge, woodland, footpath etc) condition in terms of its general level of intactness.

8.5 Value' refers to any specific cultural or historic associations (village green, structure, specific tree etc). Often highly valued landscape features are designated (eg Tree Preservation Orders, historic hedgerows, listed structures).

8.6 Landscape features which contribute to a landscape with a strong sense of character are generally regarded to be of a higher sensitivity.

8.7 A landscape feature which can be replaced easily or can be mitigated for generally has a lower sensitivity than a feature which cannot be replaced.

8.8 Taking the above factors into account it should therefore be noted that a particular feature may be more sensitive in one location than in another. Where individual landscape features are affected, professional judgement has been used as far as possible to give an objective evaluation of its sensitivity. Justification is given for this evaluation where necessary.

8.9 The sensitivity of landscape features is described as very high, high, medium, low or very low.

SENSITIVITY OF LANDSCAPE CHARACTER

8.10 The sensitivity of landscape character is an expression of a landscape's ability to accommodate change, in this case the development of a wind turbine. It varies depending on the existing land use, pattern and scale of the landscape, the degree of openness, scope for mitigation in keeping with the existing landscape character, condition, value placed on the landscape and any designations that may apply.

8.11 Landscape character is considered at two levels.

8.12 Firstly impacts on landscape character are considered at the local level based on a site specific analysis of the character immediately surrounding the site (within approximately 1.5km of the site).

8.13 Secondly impacts on landscape character are considered at the wider landscape level by reference to the regional landscape character areas within 10km of the site. Based on early analysis of the landscape character within the study area (as presented in Appendix B), it was concluded that there would be no significant effects on landscape character beyond this distance. At any point beyond this distance, it is considered that the visual influence of a single turbine would be experienced in the context of any number of prominent man made features and therefore the impact of the turbine would in no instance result in any greater than a slight effect on landscape character.

8.14 For the immediate landscape character, a site-specific appraisal has been undertaken of the landscape within and immediately surrounding the site and an evaluation is made in the baseline section of the LVIA regarding its sensitivity to wind energy development.

8.15 The Staffordshire County Council Supplementary Planning Guidance: Planning for Landscape Change adopted May 2001 states a five scale table for landscape Quality and Landscape Policy Objectives see table 4.0 below.

Table 4.0 Landscape Quality and Landscape Policy Objective, Planning For Landscape Change SPG.

Landscape Quality	Landscape Policy Objective
5 Very High Active landscape conservation.	Most of these landscapes owe much of their quality to the survival of semi-natural habitat that is not self - sustaining, or, as in the case of parklands, to past land use decisions that are no longer fully economic. Continuous practical activity is therefore required to conserve them, and they should be priority areas for the targeting of resources to that end.
4 High Landscape maintenance.	In most cases the existing economically-determined pattern of land use has resulted in these landscapes of high quality. There is therefore a lesser need for the targeting of landscape conservation resources to these areas. However, there is a danger that a change in the farming or land use pattern could have rapid and serious consequences for landscape quality. Such changes may already be underway, with their effects on the landscape currently not apparent. They could also be precipitated by future developments in national or international agricultural or forestry support policies, by the introduction of new technologies, or by novel misfortune with consequences similar to those of Dutch elm disease or BSE. There is a particular need for vigilance in these areas, and for a means of predicting and moderating the impact of changes in land use policy.
3 Moderate Landscape enhancement	These areas have suffered some erosion of strength of character and loss of condition of landscape elements. In some, but by no means all cases, this appears to be linked to a change in the farming pattern, from grassland to arable production. It may be that in time a new character will emerge from that change, but it is unlikely that the condition of traditional features such as small woodlands and hedges will improve without intervention. There is a particular need, therefore, to encourage relatively small-scale landscape conservation schemes such as hedgerow maintenance, habitat creation and tree and woodland planting, to stem the decline in landscape quality that will otherwise become more evident.
2 Low Landscape restoration.	A range of causes have contributed to the decline of these areas: in some it has been mineral working and industrial activity which has left dereliction in its wake; in others the problems are largely those of the urban fringe, and in the deeper countryside it has often been a change to intensive arable farming that has led to the loss of landscape elements that formerly contributed to character and quality. In each case, enough of that character survives to guide restoration efforts, which must be pursued with some commitment if the decline in these areas is to be halted and reversed.
1 Very Low Innovative landscape regeneration	In these areas the loss of character and the decline in condition, as a result of the processes noted above, is so advanced that restoration is no longer possible – either because there is virtually nothing to restore to, or because there is no practicable means of achieving that restoration – and a programme of regeneration to a new vision is required. These are therefore the most challenging of landscapes, both in terms of the difficulties that have to be overcome and of the investment that will be required to regenerate them.

8.16 The turbine is sited within the Ancient Slope and Valley Farm Landscape character type. The adopted policy for this location is 'Landscape Maintenance' indicating a **High** quality landscape ranked at **Four** on a five point scale where five is the highest.

8.17 To ensure consistency throughout the LVIA the five point scale used within the Staffordshire County Council document has been correlated with the scale used throughout the LVIA, see below.

Table 4.1 demonstrates the correlation between the Landscape Quality and Policy Objectives and the thresholds used in this LVIA.

Adopted SPG Landscape Quality Types	LVIA Sensitivity Rating
1 Very Low- Innovative Landscape regeneration	Very Low
2 Low – Landscape Restoration	Low
3 Moderate- Landscape Enhancement	Medium
4 High- Landscape Maintenance	High
5 Very High – Active Landscape Conservation	Very High

8.18 The sensitivity of landscape character has been described as very high, high, medium, low or very low.

SENSITIVITY OF VISUAL RECEPTORS

8.19 The sensitivity of a visual receptor to a wind farm depends on a number of factors such as the occupation of the viewer, their viewing expectations, duration of view and the angle or direction in which they would see the site. The following criteria are provided for guidance only:

Table A-1: Sensitivity of the Visual Receptor

Sensitivity of the Visual receptor	Criteria
Very High	Residents with views of the site, people at recognised vantage points, people at tourist attractions with a specific focus on the view, visitors to historic features/estates where the setting is important to an appreciation and understanding of the property/history.
High	Residents, users of long distance trails (e.g. Pennine Way) and public rights of way, caravan parks and campsites, tourist attractions with opportunities for views of the landscape (but not specifically requiring an appreciation of the landscape), slow paced recreational activities which derive part of their pleasure from an appreciation of setting (e.g. golf).
Medium	Users of minor road users and commercial railways travelling through or past the affected landscape, recreational activities not specifically focused on the landscape (e.g. football), hotel users.
Low	People at their place of work (e.g. offices), shoppers, users of trunk/major roads.
Very Low	Industrial and commercial activities, military facilities.

8.20 It should be noted that the selected viewpoints are inherently more sensitive than the average visual receptor in the study area. When selecting representative viewpoints, there was a strong bias towards identifying the most sensitive visual receptors as the focus of the study is primarily where impacts were likely to be most significant.

MAGNITUDE OF IMPACTS ON LANDSCAPE FEATURES

8.21 Professional judgement has been used to determine the magnitude of direct physical impacts on individual existing landscape features using the following criteria as guidance only:

Table A-2: Magnitude of Change on Landscape Features

Magnitude of Change on Landscape Features	Criteria
Very High	Total loss or alteration to an existing landscape feature.
High	Major loss or major alteration to an existing landscape feature.
Medium	Some loss or some alteration to part of an existing landscape feature.
Low	Minor loss or alteration to part of an existing landscape feature.
Very Low	No loss or negligible alteration to existing landscape features.

MAGNITUDE OF IMPACTS ON THE IMMEDIATE LANDSCAPE CHARACTER

8.22 The magnitude of impacts on immediate landscape character is influenced by a number of factors including: the extent to which existing landscape features are lost or altered, the introduction of new features and the resulting alteration to the scale, landform, land cover and pattern of the landscape. Professional judgement has been used to determine the magnitude using the following criteria as guidance only:

Table A-3: Magnitude of Change on the Immediate Landscape Character

Magnitude of Change on the Immediate Landscape Character	Criteria
Very High	Total loss or alteration to existing landscape features; Introduction of dominant new features into the landscape which prevents and appreciation of the underlying landform, land cover and pattern of the landscape.
High	A major loss or alteration to existing landscape features; Introduction of major new features into the landscape; or A major change to the scale, landform, land cover and pattern of the landscape.
Medium	Some notable loss or alteration to existing landscape features; Introduction of some notable new features into the landscape; or Some notable change to the scale, landform, land cover and pattern of the landscape.
Low	Minor loss or alteration to existing landscape features; Introduction of minor new features into the landscape; or Minor alteration to the scale, landform, land cover and pattern of the landscape.
Very Low	No notable loss or alteration to existing landscape features; No notable introduction of new features into the landscape; and Negligible change to the scale, landform, land cover and pattern of the landscape.

MAGNITUDE OF IMPACTS ON THE WIDER LANDSCAPE CHARACTER

8.23 The magnitude of impacts on the wider landscape is discussed using the landscape character areas/types taken from the relevant landscape character assessment and identified in the baseline section of the assessment. The magnitude of the impacts reflects the extent to which aspects of the development are visible within the landscape character area and how this affects the overall appreciation of scale, remoteness, visual composition, pattern and landform. The extent to which distant turbines would affect appreciation of these factors depends on how prominent they would appear from the character area.

8.24 Professional judgement has been used to determine the magnitude using the following criteria as guidance only:

Table A-4: Magnitude of Change on the Wider Landscape Character

Magnitude of Change on the Wider Landscape Character	Criteria
Very High	Presence of the site prevents any appreciation of the baseline landscape.
High	Presence of the site fundamentally alters the appreciation of scale, remoteness, visual composition, pattern or landform.
Medium	Presence of the site notably alters the appreciation of scale, remoteness, visual composition, pattern or landform slightly.
Low	Presence of the site marginally alters the appreciation of scale, remoteness, visual composition, pattern or landform.
Very Low	Site not visible or barely visible from the landscape character area.

MAGNITUDE OF VISUAL IMPACTS

8.25 Visual impacts are caused by the introduction of new elements into the views of a landscape or the removal of elements in the existing view.

8.26 Clearly justified professional judgement has been used to determine the magnitude of impacts using the following criteria as guidance only:

Table A-5: Magnitude of Visual Impacts

Magnitude of Visual Impacts	Criteria
Very High	A change in the view that has a dominating or overbearing influence on the overall view. Within 5 x the 'tip of blade' height of proposed turbine (in this case, within 335m).
High	A major change in the view that has a defining influence on the overall view. Between 5 x and 20 x the height of proposed turbine (in this case, between 335m and 1.34km).
Medium	Some change in the view that is clearly visible in the view and forms an important but not defining element in the view. Between 20 x and 50 x height of proposed turbine (in this case, between 1.34km and 3.35km).
Low	Some change in the view that is not prominent but visible to some visual receptors. Between 50 x and 100 x height of proposed turbine (in this case, between 3.35km to 6.7km).
Very Low	No change or negligible change in views. From more than 6.7km of the proposed turbine.

8.27 Using these criteria, determining levels of magnitude clearly depends on how prominent the development would be in the landscape. For clarification, the term 'prominent' relates to how noticeable the features of the development would be. This is affected by proximity of the viewpoint to the development and other modifying factors including: the focus of the view, visual screening and the nature and scale of other landscape features within the view. Rather than specifying distances at which the turbines will be dominant, prominent or incidental to the view etc, the relative prominence of the

turbines in each view is described in detail for each viewpoint taking all the variables into consideration. This approach is supported by best practice guidelines[4].

9.0 IMPACT SIGNIFICANCE

9.1 The ultimate purpose of the LVIA is to evaluate the significance of the residual effects on the landscape and visual amenity surrounding the site.

9.2 The significance of the landscape and visual effects is determined by cross-referencing the sensitivity of the landscape or view with the magnitude of change. In determining the significance of residual effects all mitigation measures are taken into account.

9.3 Table A-6 demonstrates the general relationship between sensitivity and magnitude based on the specific criteria given above but is given for illustrative purposes only. Professional judgement is used at all times to determine the overall significance of effects. The significance of effects is described as Substantial, Substantial/Moderate, Moderate or Moderate/Slight, Slight, Slight/No Effect or No Effect.

9.4 Those effects identified as Substantial, Substantial/Moderate and in some cases Moderate significance may be regarded as significant effects when discussed in terms of the (Town and Country Planning (England and Wales) (Environmental Impact Assessment) Regulations, 1999).

Table A-6: Significance of Landscape and Visual Effects

		Magnitude of Change				
		Very High	**High**	**Medium**	**Low**	**Very Low**
Landscape and Visual Sensitivity	**Very High**	Substantial	Substantial	Substantial/ Moderate	Moderate	Moderate/ Slight
	High	Substantial	Substantial	Moderate	Moderate/ Slight	Slight
	Medium	Substantial/ Moderate	Moderate	Moderate	Moderate/ Slight	Slight
	Low	Moderate	Moderate/ Slight	Moderate/ Slight	Slight	Slight/ No Effect
	Very Low	Moderate/ Slight	Slight	Slight	Slight/ No Effect	No Effect

Significant
Potentially Significant
Not Significant

10.0 NATURE OF EFFECTS

10.1 There is a range of public opinion on whether the landscape and visual impacts of wind turbine proposals are positive (beneficial) or negative (adverse). Publications such as ' (Public Attitudes to Windfarms, 2003)' Scottish Executive and other surveys demonstrate that wind farm developments generate a spectrum of public responses ranging from strongly adverse to strongly positive. This range of

[4] University of Newcastle (2002) Visual Assessment of Wind farms Best Practice. Scottish Natural Heritage Commissioned Report F01AA303A.

opinion is often referred to as the concept of "valency", which has been discussed and debated at numerous wind farm public inquiries.

10.2 Whilst no individual's attitudes and reactions towards wind farms should be simply dismissed, a more dispassionate judgement must be made by landscape architects in the preparation of a LVIA. The judgement should be reached through the process set out in the GLVIA, and should be based on the objective professional assessment of the baseline landscape, it's landscape character and visual resource of the relevant area together with the sensitivity of the landscape and visual receptors 'receiving' or experiencing the development. However, once an assessment has been made for all of the identified receptors, there is a requirement to consider what mitigation measures can be proposed to reduce or minimise the impacts / effects on the identified receptors. If the impact has been reduced or minimised by the proposed mitigation measures, it is stated in the report. If it cannot be reduced, it is the responsibility of the determining authority to determine that the level of impact /effect is acceptable or not.

10.3 The assessment provided within this report therefore follows the approach recommended in GLVIA, which is important within the iterative project design process in order to locate, scale, design the layout and mitigate the effects of the development proposal, as well as to demonstrate how environmental and social impacts have been minimised, as recommended in (Planning Policy Statement 22: Renewable Energy, 2004)

11.0 RESIDENTIAL AMENITY SURVEYS

11.1 The Landscape and Visual Impact Assessment has been prepared in response to the EIA Regulations which require 'significant' effects to be identified, (although an EIA is not required for this scheme). This legislation notes that there may be significant impacts arising from a proposed development that are acceptable and it is common to all wind farm developments, including Bemersley Green that a number of significant effects on views and visual amenity would be identified from some properties in close proximity to the development.

11.2 An assessment of the potential effects on 'living conditions' goes beyond the assessment of effects on views and visual amenity as carried out in the LVIA and is required in order to understand if any of the effects on views or visual amenity have the potential to affect living conditions such that living at that property will become unpleasant or undesirable. It should also be noted that living conditions are influenced by factors other than visual amenity such as noise, shadow flicker, etc., however, this report only addresses the visual amenity aspect of living conditions

11.3 There is no published guidance that sets out the criteria for establishing whether or not the visual presence of a wind farm impacts unacceptably on living conditions. This issue of is one that has been considered at a number of public inquiries, principally in England. Therefore this report has had regard to these inquiries in order to define its purpose and to guide its approach to the topic.

11.4 Several Planning Inspectors have clarified that where turbines have an unacceptable effect on residential visual amenity this may be a material consideration in determining the application. At the Inquiry for the Npower Renewables Limited 10 turbine wind farm at Bradwell-on-Sea in Essex, the Planning Inspector concluded that:

11.5 "It is a well-established planning principle that there is no right to retain unchanged a view from private property. However it can be in the public interest to safeguard the outlook from such a property in respect of unacceptably overbearing or dominating development" (Appeal ref: APP/X1545/A/06/2023805).

11.6 At the Inquiry for the Sixpenny Wood Limited 10 turbine wind farm at Sixpenny Wood, East Riding of Yorkshire, the Planning Inspector concluded that:

11.7 "There is no right to a view per se, and any assessment of visual intrusion leading to a finding of material harm must therefore involve extra factors such as undue obtrusiveness, or an overbearing impact, leading to a diminution of conditions at the relevant property to an unacceptable degree." (Appeal ref: APP/E2001/A/09/2101851).

11.8 At the Inquiry for North Tawton (Den Brook 1) (Agricultural land to the south east of North Tawton and South West of Bow, centred on Grid Ref: E269130, N100120), Decision 12 February 2007; Appeal ref: APP/Q/153/A/08/2017162) Paragraph 21 of the North Tawton (Den Brook 1) decision states:

11.9 ".... it may be the case that development is proposed of such a scale and design or proximity that it would be so visually intrusive as to turn an otherwise satisfactory dwelling into one that is an unsatisfactory place in which to live. That would compromise the aim of ensuring that everyone has the opportunity of a decent home (paragraph 23 (vii) of Planning Policy Statement 1 – "Delivering Sustainable Development"). From the standpoint of those affected, this is a different test than simply judging whether the view would be significantly affected or not, because (as with non-visual impacts, such as noise and un-neighbourliness in general) it is the resulting adequacy of living conditions within dwellings and their gardens that is determinative, not the view in itself. In essence, being able to see the turbines is one thing but not, in itself, sufficient to demonstrate unacceptable harm in a land use planning context. Indeed, to adopt visibility alone as the decisive criterion would potentially represent an arbitrary and unduly stringent restraint on development of many kinds in many locations."

11.10 At the Inquiry for the Enifer Downs Wind Farm (Land west of Enifer Downs Farm and east of Archers Court Road and Little Pineham Farm, Langdon; Appeal ref: APP/X22201/A/08/2071880), Inspector David Lavender in Paragraph 66 of the decision notice states:

11.11 "... when turbines are present in such number, size and proximity that they represent an unpleasantly overwhelming and unavoidable presence in main views from a house or garden, there is every likelihood that the property concerned would become widely regarded as an unattractive and thus unsatisfactory (but not necessarily uninhabitable) place in which to live."

11.12 It was following the above Appeal Decision at Enifer Downs Farm, Langdon, Kent that when considering the impact on wind turbines on residential amenity has become known informally as the 'Lavender Test', as the inspector succinctly explained his reasoning and understanding of the position with regard to impacts on residential properties.

11.13 Building on the Enifer Downs decision the inspector at the Public Inquiry for Land north of Burnthouse Farm, Burnthouse Sidings APP/D05/A/10/2123739 further defines the threshold for determining unacceptable effects at paragraph 120 in which he states:

11.14 'There needs to be a degree of harm over and above an identified substantial adverse effect to take a case into the category of refusal in the public interest. Changing the outlook from a property is not sufficient'.

11.15 The inspector considered that the visual component of residential amenity should be assessed 'in the round' taking into account the following factors:

- Distance from turbines;
- The orientation, size and layout of the dwelling;
- Internal circulation;

- Division between primary and secondary rooms, garden and other amenity space;
- Arc of view occupied by the wind farm; and
- The availability of screening.

11.16 It is clear from the above inspectors decisions endorsed by the Secretary of State, that the impact on a particular residential property could be regarded as 'Significant' and yet not regarded as being 'unpleasantly overwhelming' and therefore acceptable. Therefore the purpose of a Residential Amenity Survey is to determine which, if any properties would be regarded as having an impact greater than Significant which would make the living conditions 'unpleasantly overwhelming and unavoidable' rendering the property an 'unattractive and thus unsatisfactory (but not necessarily uninhabitable) place in which to live'.

11.17 There are two distinct parts to the 'Lavender Test' which required to be considered for the Blakeley Hill Farm development. Firstly, are the turbines present in such number, size and proximity to a residential property and secondly do they represent an unpleasantly overwhelming and overbearing presence in main views from a house or garden.

11.18 Turbine numbers – the Bemersley Green scheme is for a single turbine and as such occupies a very limited horizontal angle of view. At 600m the turbine would occupy 0.25° of the horizontal view and the blades up to 3.19°.

11.19 Turbine Size- the proposed single turbine is 45m to hub and 67m to blade tip in the vertical position, one of the smallest 'commercial' wind turbines similar in scale to hub as a National Grid electricity pylon.

11.20 Within the LVIA Appendix A Table A-5: Magnitude of Visual Impacts the impacts are divided in to five categories/zones Very High, High, Medium, Low, Very Low which are calculated as a multiplier x the tip of blade e.g. Very High 5x the 'tip of blade' height of the proposed turbine (in this case 390m) which is described as a change in the view that has a dominating or overbearing influence on the overall view. Similarly a High Magnitude of Change is between 5x and 20x the 'tip of blade' height of the proposed turbine (in this case 335m to 1.34km) and described as a major change in the view that has a defining influence on the overall view.

Turbine Proximity the nearest properties to the proposed turbine without a financial interest are in excess of 400m away from the proposed turbine at Bemersley Road. Whilst the single turbine could be regarded as a major change within the view and therefore Significant it could not be described as being overbearing[5] or overwhelming on the residential amenity of these properties. Therefore we regard a Residential Amenity Survey as not being required as part of this assessment.

[5] Planning Inspectorate Glossary - Overbearing a term used to describe the impact of a development or building on its surroundings, particularly a neighbouring property, in terms of scale, massing and general dominating effect.

Appendix B REVIEW OF LANDSCAPE CHARACTER TYPES AND LANDSCAPE DESIGNATIONS WITHIN 10KM OF BEMERSLEY GREEN

1.0 INTRODUCTION

1.1 This Appendix provides a review of all landscape character types and landscape designations within 10km of the proposed Bemersley Green wind turbine development.

1.2 The purpose of this review is to identify which of the landscape character types and designated landscapes within 10km of the site have the potential to experience significant landscape effects (either directly or indirectly) as a result of the proposed development. It is as such a filtering exercise to identify which character types and designated landscapes warrant detailed discussion in the assessment.

1.3 The landscape character types within the study area are illustrated in Figure 5 and Figure 6, and are also listed in Table B-1 below. Those which warrant further discussion in the assessment are shaded grey.

1.4 The designated landscapes within the study area are illustrated in Figure 7, and are also listed in Table B-2. Again those which warrant further discussion in the assessment are shaded grey.

1.5 In order to assist with the filtering process the landscape character types have been overlaid on top of the ZTV to blade tip in Figure 12.

Table B-1: Review of Effects on Landscape Character Types within 10km of the proposed turbine

Landscape Character Type	Comments	Further Assessment Required?
National Landscape Character Areas (Natural England, Volume 5 North West)		
53:South West Peak	ZTVs indicate limited visibility in excess of 8km from the site.	No
61: Shropshire, Cheshire and Staffordshire Plain	ZTVs indicate No potential visibility across the area.	No
64: Potteries and Churnet Valley	The site lies within this character area.	Yes
Regional Landscape Character Types/ Areas (Staffordshire and Stoke on Trent Landscape Character Assessment)		
Ancient Slope and Valley Farmlands	The site lies within this character area. ZTVs indicate potential visibility in some areas.	Yes
Gritstone Uplands	ZTVs indicate potential visibility in some areas.	Yes
Dissected Sandstone Uplands	ZTVs indicate No potential visibility across the area.	No
Dissected Sandstone Cloughs and Valleys	ZTVs indicate No potential visibility across the area.	No
Ancient Plateau Farmlands	ZTVs indicate limited potential visibility across some of the area.	No
Gritstone Highland Fringe	ZTVs indicate limited potential visibility across some of the area.	No

Settled Plateau Farmlands	ZTVs indicate limited potential visibility across some of the area.	No
Ancient Clay Farmland	ZTVs indicate limited potential visibility across some of the area.	No
Coalfield Farmland	ZTVs indicate limited potential visibility across some of the area.	No
(Cheshire Landscape Character Assessment)		
Upland Footslopes	ZTVs indicate very minimal potential visibility across the area.	No
Mossland	ZTVs indicate No potential visibility across the area.	No
Higher Farms and Woods	ZTVs indicate No potential visibility across the area.	No
Lower Farms and Woods	ZTVs indicate No potential visibility across the area.	No

Table B-2: Review of Effects on Designated Landscapes within 10km of the proposed turbine

Designated Area	Comments	Further Assessment Required?
International Landscape Designations		
World Heritage Sites	None	No
National Landscape Designations		
National Parks	None	No
Area of Outstanding Natural Beauty	None	No
Regional Landscape Designations		
Staffordshire Green Belt	The ZTVs indicate visibility within the Greenbelt between Newchapel/Trubshaw and Endon	Yes
Staffordshire Moorlands Special Landscape Area	The ZTVs indicate visibility within the area to the east of the site.	Yes
Conservation Areas		
Bagnall	The ZTVs indicate limited visibility which in reality would be further reduced by intervening buildings and vegetation	No
Biddulph Grange	The ZTVs indicate limited/patchy visibility which in reality would be further reduced by intervening buildings and vegetation	No
Caldon Canal	The ZTVs indicate patchy visibility which in reality would be further reduced by intervening buildings and vegetation	No
Endon	The ZTVs indicate no views	No
Horton	The ZTVs indicate no views	No
Stanley	The ZTVs indicate limited visibility which in reality would be further reduced by buildings and vegetation	No
Registered Parks and Gardens		
Biddulph Grange	ZTVs indicate patchy potential visibility to the proposed turbine, which in reality would be further reduced by intervening trees and settlement and at 7km would be extremely limited.	No
Burselm Park	ZTVs indicate no visibility to the proposed turbine.	No
Rode Hall	ZTVs indicate no visibility to the proposed turbine.	No
Victoria Park, Tunstall	ZTVs indicate no visibility to the proposed turbine.	No

Country Parks		
Deep Hayes	ZTVs indicate no visibility to the proposed turbine.	No
Greenway Bank	ZTVs indicate visibility to the proposed turbine.	Yes
National Trails		
Staffordshire Moorlands Walks	ZTVs indicate potential visibility to the proposed turbine.	Yes

N.B. Impacts on the setting of Registered Parks and Gardens, Conservation Areas, Listed Buildings and Scheduled Ancient Monuments are also discussed in the Cultural Heritage.

Appendix C REVIEW OF PRINCIPAL VISUAL RECEPTORS WITHIN 10KM OF BEMERSLEY GREEN

1.0 INTRODUCTION

1.1 The purpose of this review is to identify which of the visual receptors within 10km of the Bemersley Green site have the potential to experience significant visual effects as a result of the proposed wind turbine development.

1.2 The filtering exercise is used to identify which visual receptors warrant detailed discussion in the assessment has been undertaken by desk top study and site visits

1.3 The principal visual receptors within the study area are illustrated in Figure 2: Study Area 10km radius and are also listed in Table C-1 below. Those which warrant further discussion in the assessment are shaded grey.

Table C-1: Review of Principal Visual Receptors

Visual Receptor	Comments	Further Assessment Required?
Principal Settlements		
Biddulph	The ZTV indicates there is limited visibility of the turbine from the south of the town in reality most views would be screened by intervening buildings and vegetation. See Viewpoint 1	No
Biddulph Moor	The ZTV indicates there is visibility of the turbine, in reality views are generally screened by intervening buildings and vegetation..	No
Brown Lees	The ZTV indicates there is visibility of the turbine; in reality views are generally screened.	No
Brindley Ford	The ZTV indicates there is visibility of the turbine.	Yes
Ball Green	The ZTV indicates there is visibility of the turbine; in reality views are generally screened. See Viewpoint 5.	No
Brown Edge	The ZTV indicates there is visibility of the turbine. See Viewpoint 4.	Yes
Norton Green/ Norton in the Moors	The ZTV indicates there is visibility of the turbine, in reality the orientation of the properties restricts and filters views out of the settlements.	No
Baddeley Green	The ZTV indicates there is visibility of the turbine; in reality views are generally screened.	No
Principal Roads		
A527 Biddulph to Great Chell	The ZTV indicates there is potential visibility of the turbine.	Yes, due to proximity and potential visibility

A53 Stoke to Endon	The ZTV indicates there is potential visibility of the turbine, however views are generally screened by buildings and vegetation.	No
Local Minor Roads		
Bemersley Road from the A53 to Ball Green	The ZTVs indicates there is visibility of the turbine	Yes
Sands Lane Brown edge to Rock End	The ZTVs indicates there is visibility of the turbine.	Yes
Greenway Bank Bemersley Green to Sands Lane	The ZTVs indicates there is visibility of the turbine.	Yes
Tongue Lane Bemersley Road to Sands Lane.	The ZTVs indicates there is visibility of the turbine.	Yes
Woodhouse Lane Bemersley Road to Brown Edge	The ZTVs indicates there is visibility of the turbine.	Yes
Railway Lines		
Stoke on Trent to Manchester line	The ZTVs indicates there is very limited visibility of the turbine.	No
Principal Long Distance Trails/ Cycleways		
Staffordshire Moorlands Walks	The ZTVs indicate there are potential views along the route within the study area.	Yes
Tourist Attractions		
None	N/A	N/A
Important Vantage Points		
None	N/A	N/A

Appendix D GLOSSARY

Aesthetic Factors	The key aspects of the landscape which contribute to its composition such as: scale enclosure diversity texture form line colour balance movement pattern
Analysis (Landscape)	The process of breaking the landscape down into its component parts to understand how it is made up.
Assessment (Landscape)	The umbrella term for description, analysis and classification of landscape
Baseline	The landscape character and visual amenity of the study area as it exists at the commencement of the assessment process – i.e. prior to any development proposal.
Biodiversity	The concept of variety in all species of plants and animals through which nature finds its balance.
Classification	A process of sorting the landscape into different types using selected criteria but without attaching relative values to the different kinds of landscape
Compensation	The measures taken to offset or compensate for residual adverse effects that cannot be mitigated, or for which mitigation cannot entirely eliminate adverse effects.
Constraints Map	Map showing the location of important resources and receptors that may form constraints to development.
Countryside	The rural environment and its associated communities (including the coast).
Cultural and Social Factors	The elements of the landscape which are the result of human activity – e.g..: land use and management; character of settlements and buildings; and pattern and type of fields and enclosure;
Landscape	Human perception of the land conditioned by knowledge and identity with a place.
Landscape Dynamics	The forces of change which are inherent within the landscape due to prevailing cultural and social factors, such as: existing management regimes; existing planning policy/development plan considerations; local, regional or national trends for change.
Landscape Capacity	The degree to which a particular landscape character type or area is able to accommodate change without fundamentally altering its character. Capacity is likely to vary according to the type and nature of change being proposed.
Landscape Character	The distinct recognisable pattern of elements that occurs consistently in a particular type of landscape, and how this is perceived by people. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement. It creates the particular sense of place of different areas of landscape.

Landscape Character Type	A landscape type will have broadly similar patterns of geology, landform, soils, vegetation, land use, settlement and filed pattern discernible in maps and field survey records.
Landscape Effects	The consequences of change in the elements, characteristics, qualities and overall character of the landscape as a result of development. These effects can be positive, neutral or negative.
Landscape Evaluation	The process of attaching value (non-monetary) to a particular landscape, usually by the previously agreed criteria, including consultation, for a particular purpose (for example, designation or in the context of assessment).
Landscape Fabric	Combination of aesthetic, cultural, social and natural characteristics.
Landscape Feature	A prominent eye-catching element, for example, wooded hilltop or church spire.
Landscape Quality(or condition)	An evaluation based on judgements about the physical state of the landscape, and its intactness, from visual, functional, and ecological perspectives. It also reflects the state or repair of individual features and elements which make up the character in any one place.
Preference	The liking by people for one particular landscape element, characteristic or feature over another.
Quality	See Landscape quality
Receptor	Physical landscape resource, special interest or viewer group that will experience an effect.
Regulatory Authority	The planning or other authority responsible for planning consents or project authorisation (synonymous with determining authority or competent authority).
Screening	The formal process of ascertaining from the regulatory authority whether a given proposal requires an Environmental Impact Assessment in accordance with Government Regulations.
Scoping	The process of identifying the likely significant effects of a development on the environment.
Sense of Place (genius loci)	The essential character and spirit of an area: genius loci literally means ‘spirit of the place’.
Sensitive/sensitivity	See Landscape sensitivity
Sieve Mapping.	Technique for mapping environmental constraints, working from a series of overlays, sieving out less important factors
Significant	An effect on landscape character or visual amenity which is considered to be significant in terms of the prevailing EIA Regulations.
Sustainability	The principle that the environment should be protected in such a condition and to such a degree that ensures new development meets the needs of the present without compromising the ability of future generations to meet their own needs.
Threshold	A specified level of grading effects, for example, of magnitude, sensitivity or significance.
Viewpoint	A location chosen through application of a robust set of criteria to provide a representative view of a proposed development for one or more types of receptor (e.g. a landscape character type; residential settlement; recreational

Appendix E BIBLIOGRAPHY

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