Wind Turbine Landscape Sensitivity Study

For Staffordshire Moorlands District

Final report
Prepared for Staffordshire Moorlands District Council by LUC
January 2015

Project Title: An Assessment of the Landscape Sensitivity to Onshore Wind Energy Development in Staffordshire Moorlands District

Client: Staffordshire Moorlands District Council

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Executive Summary

Along with other local authorities, Staffordshire Moorlands District Council is obliged to address the requirements of the Planning Act 2008 in producing Development Plans that contribute to climate change adaptation/mitigation. More generally, the UK as a whole must address the Climate Change Act 2008 and the EU Renewable Energy Directive 2009 in terms of meeting carbon reduction- and renewable energy installation- targets. The Council must balance the need to support the transition to a low carbon future (a core planning principle of the National Planning Policy Framework (NPPF)) and the need for energy security (as recognised in the National Policy Statement for Renewable Energy Infrastructure) with the protection/enhancement of the District's distinctive and valued landscapes (also a core principle of the NPPF).

This *Wind Turbine Landscape Sensitivity Study* recognises that the varied landscapes of the District have a significant economic, social and community value, contributing to a sense of identity, well-being, enjoyment and inspiration. At the same time, there are parts of the District that have good conditions to produce wind energy, attracting applications for wind turbines which the council must carefully assess by balancing the above (and other) factors. More generally as wind turbine technology improves, more and more areas of the District may become viable for wind turbine installations.

The Council recognises these opportunities and understands the need to maximise renewable energy generation, which can also have environmental, economic, social and other benefits. However, the development of wind turbines within the district needs to be managed carefully to achieve the greatest contribution towards energy needs, while at the same time ensuring that the valued characteristics of the landscape are not unacceptably harmed. Current National and Local renewables policies direct that renewables proposals be approved if negative impacts - including upon landscape - are/can be made acceptable.

In order to help understand how best to design and site wind turbine proposals at the right scale and in the right places, this Wind Turbine Landscape Sensitivity Study includes an assessment of the sensitivity of the District's various landscapes to different scales of wind energy developments, both in terms of turbine size and number. It also includes general guidance for developers to follow when planning and designing schemes, as well as specific information tailored to each of the District's ten Landscape Character Types (LCTs) to reflect local variations in landscape character. The study will be used as a material consideration by the Council when assessing planning applications for wind turbines, and will also be available for applicants to review, helping them take account of landscape character in the siting and design of their schemes.

The Study provides detailed evidence to support policies contained within the adopted Core Strategy for the Staffordshire Moorlands (March 2014), particularly Policy SD2: *Renewable/Low Carbon Energy* and Policy DC3: *Landscape and Settlement Setting*.

The User Guide at Appendix 1 provides a helpful step-by-step guide to using the information contained in this report.

1 Introduction

Background

1.1 The Climate Change Act 2008 and EU Renewable Energy Directive 2009 place obligations on the UK to both reduce carbon emissions, and increase renewable energy capacity. The Staffordshire Moorlands, in common with the rest of the UK, is faced with a wide range of challenges arising from a changing climate. One of these challenges is to balance the need to support the transition to a low carbon future (a core planning principle of the National Planning Policy Framework (NPPF)[1]) and the need for energy security (as recognised in the National Policy Statement for Renewable Energy Infrastructure, EN-3[2]) with the management of the area's distinctive and valued landscapes.

National and local policy context

1.2 The NPPF states within its core planning principles that planning *should "take account of the different roles and character of different areas, promoting the vitality of our main urban areas, protecting the Green Belts around them, recognising the intrinsic character and beauty of the countryside and supporting thriving rural communities within it"*.

1.3 The NPPF calls for valued landscapes to be protected and enhanced (para 109), with the greatest weight being given to conserving landscape and scenic beauty in National Parks and Areas of Outstanding Natural Beauty (AONBs) (para 115). It also promotes good design and suggests (para 64) that *"permission should be refused for development of poor design that fails to take the opportunities available for improving the character and quality of an area and the way it functions".*

1.4 The NPPF (para 97) calls on local planning authorities to design their policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts. It requires local planning authorities to approve applications for renewable energy if its impacts are (or can be made) acceptable (para 98); and suggests that they take a positive approach by identifying suitable areas for renewable energy generation and its supporting infrastructure (para 97), making clear what criteria have determined their selection.

1.5 The Council recognises these opportunities and understands the need to maximise renewable energy generation (which can have environmental, economic, social and other benefits). However, the development of wind energy developments within the Staffordshire Moorlands needs to be managed carefully to achieve the greatest contribution towards energy needs, while at the same time ensuring that the valued characteristics of the landscape are not unacceptably harmed.

1.6 This is becoming increasingly important as multiple developments become operational within the district, as recognised by the Planning Practice Guidance for Renewable and Low Carbon Energy (July 2013), which notes that "*cumulative impacts require particular attention, especially the increasing impact that wind turbines can have on landscape and local amenity as the number of turbines and solar arrays in an area increases*".

1.7 The Planning Act 2008 requires that Local Development Frameworks (LDFs) contain policies (when taken as a whole) designed to *"..contribute to the mitigation of, and adaptation to, climate change".* The adopted Core Strategy for the Staffordshire Moorlands (March 2014) contains two policies which support the national planning policy framework:

[1] Department for Communities and Local Government (March 2012) *National Planning Policy Framework*.
[2] Department of Energy and Climate Change (July 2011) *National Policy Statement for Renewable Energy Infrastructure, EN-3*.

- **Policy SD2 Renewable/Low Carbon Energy:** states that any renewable energy schemes will be considered against the degree to which the scale and nature of a proposal impacts on the landscape, particularly having regard to the Landscape Character Assessment and impact on the Peak District National Park.
- **Policy DC3 Landscape and Settlement Setting:** states that development which would harm or be detrimental to the character of the local and wider landscape, or the setting of a settlement, should be resisted. In addition, this policy is supportive of development which respects and enhances local landscape character and settlement settings.

1.8 The evidence provided by this Landscape Sensitivity Assessment directly supports the above two policies.

Scope and purpose of study

1.9 The study is intended to provide clear up to date evidence specific to wind turbines to inform and support planning decisions on a consistent basis – helping to manage and prevent unacceptable landscape, visual and cumulative impacts associated with wind energy development. Additionally, it should guide and inform potential wind energy developers and assist on a day-to-day basis in the consideration of planning applications.

1.10 The study responds to the requirements of the NPPF and Planning Practice Guidance for Renewable and Low Carbon Energy by facilitating a positive approach to wind energy development that takes account of cumulative landscape and visual impacts and indicating areas that may be more or less sensitive – in landscape and visual terms – for wind energy development of different scales.

Limitations of the Landscape Sensitivity Assessment

1.11 While this Landscape Sensitivity Assessment provides a strategic-level assessment of the relative landscape sensitivities of different areas to wind energy development and guidance for accommodating such developments in the Staffordshire Moorlands landscape, it should not be interpreted as a definitive statement on the suitability of a certain location for a particular development. All developments will be assessed on their individual merits, against the Development Plan and all material planning considerations as required by planning law, and including reference to *Guidelines for Landscape and Visual Impact Assessment, 3rd edition* (GLVIA 3)[3]. It is also important to note that this assessment is unrelated to any Government targets for renewable energy development or studies of technical potential.

1.12 This Landscape Sensitivity Assessment is based on an assessment of landscape character using carefully defined criteria. As with all analyses based upon data and information which is to a greater or lesser extent subjective, some caution is required in its interpretation. This is particularly to avoid the suggestion that certain landscape features or qualities can be absolutely associated with certain sensitivities – the reality is that landscape sensitivity is the result of a complex interplay of often unequally weighted variables (or 'criteria'). We have sought to address this issue in our summary of overall landscape sensitivity given for each Landscape Character Type (LCT) in **Chapter 4** – which considers how the criteria-based assessments combine to give an overall sensitivity result for different scales of development within a LCT. Because of the complexity of the criteria, and their subtle interrelationships with each other, we have purposefully not used a numeric scoring system in expressing sensitivity. The assessments are based on professional judgement, taking account of the interplay between criteria, as well as those which might be more important [to landscape character] in a particular LCT. The method and assessment criteria used for this study is explained in more detail in **Chapter 3**. In summary this involves identifying the known key landscape characteristics for each LCT then making an assessment of the sensitivity of the particular LCT to wind turbines. From this it is then possible to compile a resulting landscape strategy and guidance for wind energy development for the LCT.

1.13 It is also worth noting that the assessment does not cover specific planning considerations such as: ecological issues associated with nature conservation designations or bird flight paths; specific cultural heritage/archaeological issues associated with individual designated heritage assets and

[3] http://www.landscapeinstitute.co.uk/knowledge/GLVIA.php

their settings[4]; residential visual amenity; economic impacts on tourism/recreation (or other commercial activities, although the sensitivity of a landscape's recreational and amenity value is considered); or technical issues, such as the fact that trees and woodland can create turbulence making siting of turbines more difficult. These are all issues that will need to be taken into account in site selection by developers, and subsequent assessment– e.g. through the Environmental Impact Assessment (EIA) process which is required for proposals more than of local significance.

Structure of this report

1.14 The rest of this report is structured as follows:

- **Chapter 2** presents the landscape character and quality baseline for Staffordshire Moorlands, as well as information on levels of intervisibility across the District's landscapes;
- **Chapter 3** sets out the method used for assessing landscape sensitivity to wind energy development in this study;
- **Chapter 4** contains the individual landscape sensitivity assessments and guidance produced for each LCT found in the District;
- **Chapter 5** summarises the overall results of the landscape sensitivity assessment undertaken for the District and provides generic siting and design guidance for wind energy developments;
- **Appendix 1** presents a user guide to assist use of this report in designing and assessing proposals.
- **Appendix 2** is a bibliography of further references, including the main ones used for this study.

[4] For more information on considering the historic environment and setting of heritage assets, see the following English Heritage publications: *The Setting of Heritage Assets* (2011): http://www.english-heritage.org.uk/publications/setting-heritage-assets/ and *Wind Energy and the Historic Environment* (2005): http://www.english-heritage.org.uk/publications/wind-energy-and-the-historic-environment/

2 Understanding the baseline landscape

Study area

Core study area

2.1 The core study area for this Landscape Sensitivity Assessment is the Staffordshire Moorlands District, excluding the area within the Peak District National Park which is under the planning jurisdiction of the Peak District National Park Authority.

Outer study area (15km buffer zone)

2.2 The outer study area comprises a 15km buffer around the core study area, covering land within the following districts:

- Cheshire East
- Newcastle-under-Lyme
- City of Stoke on Trent
- Stafford
- East Staffordshire
- Derbyshire Dales
- High Peak

2.3 The outer study area was used to understand relationships between the district and its adjacent landscapes, as well as the landscape and visual impacts of existing or consented wind energy schemes outside the district boundary. The latter is discussed further in Chapter 3.

2.4 **Figure 2.1** provides a contextual overview of the study area (and the outer study area), showing its relationship with the National Park and the surrounding districts.

Landscape character baseline

2.5 The information contained in the Landscape and Settlement Character Assessment of the Staffordshire Moorlands (2008) and the Churnet Valley Landscape Character Assessment (2011) form the primary sources of landscape evidence used for this study[5]. The 2008 study divides the landscape into ten Landscape Character Types, which are mapped in **Figure 2.2**. For consistency, these form the spatial framework for this Landscape Sensitivity Assessment, numbered for ease of reference:

- LCT 1: Ancient Plateau Farmlands
- LCT 2: Ancient Slope and Valley Farmlands
- LCT 3: Dissected Sandstone Cloughs and Valleys
- LCT 4: Dissected Sandstone Highland Fringe
- LCT 5: Dissected Sandstone Uplands
- LCT 6: Gritstone Highland Fringe
- LCT 7: Gritstone Uplands

[5] It should be noted that the county-wide landscape character assessment for Staffordshire, on which the 2008 district assessment is based, is currently being updated. However, due to the timings of the two studies, it was agreed that the current adopted Landscape Character Assessment for the Staffordshire Moorlands would be used as the primary landscape baseline.

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Figure 2.1: Study Area Context

- Core study area (Staffordshire Moorlands District)
- Outer study area (15km buffer zone)
- District boundary
- Peak District National Park

Map Scale @ A3:1:260,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_008_Study_area_context_Rev1 28/11/2014

Source: SMDC, Natural England, LUC

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Figure 2.2: Landscape Character Framework

Churnet Valley Landscape Character Areas

1: Dissected Sandstone Cloughs and Valleys

- 1a: Alton and Oakamoor
- 1b: Consall and Froghall
- 1c: Cheddleton and Leek

2: Dissected Sandstone Uplands

- 2a: Alton
- 2b: Kingsley
- 2c: Rudyard

3: Dissected Sandstone Highland Fringe

4: Settled Plateau Farmlands

5: Ancient Slope and Valley Farmlands

- 5a: Wetley Rocks
- 5b: East Leek
- 5c: North Rudyard
- 5d: South Kingsley

6: Gritstone Highland Fringe

- Staffordshire Moorlands District Council area
- Peak District National Park

Landscape Character Types

- LCT 01: Ancient plateau farmlands
- LCT 02: Ancient slope and valley farmlands
- LCT 03: Dissected sandstone cloughs and valleys
- LCT 04: Dissected sandstone highland fringe
- LCT 05: Dissected sandstone uplands
- LCT 06: Gritstone highland fringe
- LCT 07: Gritstone uplands
- LCT 08: Limestone highland fringe
- LCT 09: Settled plateau farmland slopes
- LCT 10: Settled plateau farmlands

Map Scale @ A3:1:120,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_009_Landscape_character_framework_Rev1 28/11/2014

Source: Staffordshire Moorlands District Council, OS, Natural England, LUC

- LCT 8: Limestone Highland Fringe
- LCT 9: Settled Plateau Farmland Slopes
- LCT 10: Settled Plateau Farmlands

2.6 Whilst it was an optional output of the study to consider creating sub-divisions or amalgamations of the existing LCTs, in practice it has been found no such changes were needed, with the character units as currently defined serving appropriately and effectively as classifications of the landscape of the Staffordshire Moorlands (and, critically, fit for the purposes of this study). This is a preferable outcome, particularly to ensure consistency with other studies that use the existing Landscape Character Assessment boundaries and information.

2.7 The information contained within the LCT descriptions demonstrates the diversity of landscapes found within Staffordshire Moorlands District and variations in the key characteristics which have an influence on the landscapes' sensitivity to wind energy developments. This is summarised below to give a flavour of key variations in landscape character, and the main influences which contribute to these.

Key variations and influences on landscape character

2.8 Landform ranges across the Staffordshire Moorlands from large scale uplands, through areas of highland fringe, moorland and plateau to much smaller scale and intimate landscapes found within incised valleys and cloughs. Patterns of landcover reflect these topographic differences and the associated history of land management, settlement and enclosure. Larger scale fields, enclosed within stone walls and post and wire fences in some of the more elevated parts of the district contrast with ancient, finer grain fields with hedges, trees and farm woodlands in some of the lowland, valley landscapes. Elsewhere more extensive areas of conifer and broadleaf woodland clothe valley slopes, while historic parklands, such as at Biddulph Grange, are identified as key characteristics in several areas.

2.9 Patterns of settlement and man-made influence vary considerably too. In some landscapes the historic pattern of villages, farms, sunken lanes, fields and woodlands are a defining feature. In other areas, it is more recent influences including mineral working (sandstone, gritstone, limestone), pylons, roads, traffic and proximity to larger urban and suburban areas that have a greater influence on the landscape, altering and in some cases weakening its character (e.g. LCT 1: Ancient Plateau Farmland). To a large extent, patterns of movement reflect some of these influences, with busy road corridors such as the A52, A53 and A521 influencing the character and sensitivity of several landscape character types.

2.10 The prominence and sensitivity of skylines reflects the underlying topography, patterns of land cover and the character of viewpoints and visual receptors. In areas such as the LCT 6: Gritstone Highland Fringe, the large-scale landform gives rise to prominent skylines and panoramic views. In other areas (e.g. LCT 3: Dissected Sandstone Cloughs and Valleys), the combination of intimate valley landform, woodland cover and contained, sunken lanes and banked hedgerows means that skylines are less prominent and sensitive features.

2.11 As the previous paragraph implies, the presence of key views, vistas and landmark features on skylines varies, with some areas benefitting from long views from or to more elevated areas (e.g. LCT 4: Dissected Sandstone Highland Fringe), or vistas along valleys, and others have more contained and internalised patterns of visibility (e.g. LCT 9: Settled Plateau Farmland Slopes). This is also reflected in different patterns of intervisibility with adjacent landscapes, which is particularly important to consider in the case of views to/from the Peak District National Park. Key patterns of intervisibility are explored further from paragraph 2.20 below.

2.12 Further variety is provided in the landscape owing to tracts of semi-natural habitat, which in many places make an important contribution to landscape character. These include acidic, neutral, calcareous and unimproved grasslands, lowland and upland heath, peat bogs, broadleaf and wet woodlands, hedges, rivers and other waterbodies. In many areas, the landscape itself is an important part of the District's cultural heritage, with field patterns, farms, villages and sunken lanes all contributing to landscape character and specific features such as historic parklands and houses or canals making a significant local contribution. In other areas, the landscape is less obviously historic or ancient in character.

2.13 While few areas within the Staffordshire Moorlands are truly remote, tranquil or wild, there are some important differences in landscape character, with some upland and upland fringe areas feeling more remote than areas closer to large settlements where a combination of commuter housing, horseyculture, busy roads and other urban infrastructure creates a very different character. These varieties are expressed at the LCT level, and in turn considered carefully in the Landscape Sensitivity Assessments (undertaken for each individual LCT, as explained in the next chapter).

Landscape quality baseline

The Peak District National Park

2.14 The Peak District National Park lies immediately adjacent to the core study area to the east, as shown in **Figure 2.1**. Although the sensitivity assessment does not cover land within the Park, consideration has been made in terms of the potential impacts of wind energy development in adjacent areas on the special qualities of the protected landscape. For example, large scale development close to the National Park could be intrusive in views if poorly sited and designed, and may affect the natural beauty of the Park and the special qualities noted in the bullet points below.

2.15 These would need to be taken account of in siting any development close to the protected landscape.

2.16 The 'special qualities' of the Peak District National Park[6] define what is distinctive and significant about the Peak District compared with other parts of the country. Those that are relevant to this sensitivity assessment include:

- A sense of wildness and remoteness;
- Opportunities to experience tranquillity and quiet enjoyment; and
- The flow of landscape character across and beyond the National Park boundary.

2.17 Those LCTs with land abutting the National Park, or that form part of its setting, take account of these statutory special qualities in their assessments.

2.18 The study has also referred to the information contained in the Peak District Landscape Character Assessment (2009)[7], particularly for those Landscape Character Areas and types that lie adjacent to the district boundary (the White Peak and South West Peak character areas).

Historic Environment Conservation Zones

2.19 The Staffordshire Moorlands Historic Environment Character Assessment[8] identifies 11 Historic Environment Conservation Zones (HECZs) in the district, based around three historic towns and 12 historic villages. These are illustrated in **Figure 2.3.** One of the strands of the assessment, most relevant when considering landscape sensitivity to development, is levels of 'historical value'. This is defined as '*the extent to which the heritage assets are legible within the landscape and how they interact...'.* The assessment of historic value assigns a score of High, Medium or Low within each HECZ (also shown in Figure 2.3), indicating the likely significance and sensitivities of the historic environment within each zone. The scores are defined as follows:

- **High value** – The legible heritage assets either dominate or significantly contribute to the historic character of each zone.
- **Medium value** – Legible heritage assets are present within the zone, but are not necessarily predominant or have undergone some form of alteration.

[6] http://www.peakdistrict.gov.uk/microsites/npmp/about-the-national-park/national-park-special-qualilties

[7] http://www.peakdistrict.gov.uk/looking-after/strategies-and-policies/landscape-strategy

[8]

- **Low value** – There are no or very few known legible heritage assets and their associations are not clearly understood.

2.20 The information from this assessment has been used by this study to help understand the sensitivity of the historic landscape to wind energy developments. This is explained further in **Chapter 3**.

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Figure 2.3: Historic Environment Conservation Zones

Staffordshire Moorlands District Council area

Landscape Character Types

- LCT 01: Ancient plateau farmlands
- LCT 02: Ancient slope and valley farmlands
- LCT 03: Dissected sandstone cloughs and valleys
- LCT 04: Dissected sandstone highland fringe
- LCT 05: Dissected sandstone uplands
- LCT 06: Gritstone highland fringe
- LCT 07: Gritstone uplands
- LCT 08: Limestone highland fringe
- LCT 09: Settled plateau farmland slopes
- LCT 10: Settled plateau farmlands

Historical Value

- High
- Medium
- Low

Map Scale @ A3:1:120,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_010_Hist_env_cons_zones_Rev1 28/11/2014

Source: Staffordshire Moorlands District Council, OS, Natural England, LUC

Baseline levels of intervisibility

2.21 As stated above, many parts of the district are strongly intervisible with each other, as well as with adjacent landscapes, including the Peak District National Park. The presence of prominent, elevated ridgelines are often key features of landscape character (e.g. Congleton Edge, Lask Edge, Mooridge and Mow Cop) and therefore particularly important to consider in a wind energy landscape sensitivity assessment.

2.22 **Figures 2.4-2.7** illustrate levels of theoretical intervisibility for the core study area of Staffordshire Moorlands District. **Please note that the intervisibility mapping is based on a 'bare ground' topographical model, which takes no account of the screening effect of buildings, vegetation and small localised variations in topography. The maps therefore indicate theoretical visibility only.**

2.23 The analysis comprises a GIS-based calculation of the number of 'source points' which are theoretically visible to viewers within the core study area. The viewshed is calculated from a viewer height of two metres above ground level.

2.24 The 'source points' are arranged in a 500m grid covering the whole of the core study area, considering relative levels of visibility, based on those points, for the following scenarios:

- Figure 2.4: **Ground level (0m)** scenario
- Figure 2.5: A scenario for **turbines of 30m height to blade tip** (representing the top end of our Category A turbine band, as explained in the next chapter)
- Figure 2.6: A scenario for **turbines of 50m height to blade tip** (top end of Category B)
- Figure 2.7: A scenario for **turbines of 80m height to blade tip** (top end of Category C)

2.25 The maps indicate where greatest theoretical visibility of turbines in the core study area would occur, shaded in red, and areas where visibility would be more limited, shaded blue.

2.26 The above scenarios were agreed with the Steering Group to best represent the range of planning applications for wind turbine developments received to-date. Their selection was also based on the results of the sensitivity assessment, which found that all of the landscape would be highly sensitive to turbines of greater than 80m in height. The overall results of the landscape sensitivity assessment for the district as a whole are summarised in Chapter 5.

2.27 In addition to these theoretical visibility maps, strategic-scale mapping of the cumulative visibility of current and consented wind turbines is presented at the end of **Chapter 3**.

Key patterns of theoretical intervisibility

2.28 The maps at Figures 2.4 to 2.7show some key patterns and 'hot spots' of intervisibility, highlighting in particular the following:

- The high ground and ridges within the district that have high levels of intervisibility with each other.
- The 'hidden' landscapes within the Churnet Valley – with the valley landform providing a physical restriction to views to and from this part of the district.
- Elevated land within the National Park that has intervisibility with and views over the district (e.g. The Roaches).
- Elevated land further afield within Newcastle-under-Lyme and East Staffordshire that has intervisibility with the Staffordshire Moorlands.
- The physical buffer formed by the Congleton Edge, meaning intervisibility between the Staffordshire Moorlands and Cheshire East district is limited.

2.29 These maps can help, at a strategic level, to understand visual relationships between different parts of the district (and beyond).

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Figure 2.4: Intervisibilty within the Study Area (Ground Level Scenario)

- Core study area (Staffordshire Moorlands District)
- Outer study area (15km buffer zone)
- District boundary
- Peak District National Park

Value

- High : 466
- Low : 0

Non Technical Note

This figure illustrates the relative visibility of a grid of points placed across the Staffordshire Moorland landscape, illustrating the locations where ground level is most visible (red) and least visible (blue). The map is based on a bare-ground terrain model.

Note

Intervisibility calculates number of points visible within 15km. The points are arranged in a 500m grid covering the whole of the Core Study Area. The viewshed is calculated to 0m for each point, from a height of 2m above ground level.

The visible extent for each point is set to 15km.

The terrain model is bare ground and derived from OS Terrain 50 height data.

The earth curvature and atmospheric refraction have been taken into account.

Map Scale @ A3:1:260,000

CB: EB:Goosen_V LUCLON 6195-01_002_Intervisibility_0m_Rev2 28/11/2014

Source: SMDC, Natural England, LUC

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Figure 2.5: Hypothetical Intervisibilty within the Study Area (Scenario for turbines of 30m to blade tip)

- Core study area (Staffordshire Moorlands District)
- Outer study area (15km buffer zone)
- District boundary
- Peak District National Park

Value

- High : 1217
- Low : 0

Non Technical Note
This figure illustrates the relative visibility of a grid of imaginary turbines, 30m in height, placed across the Staffordshire Moorlands landscape, illustrating the locations where such turbines would be most visible (red) and least visible (blue). The map is based on a bare-ground terrain model. This map does not represent the visibility of any existing or proposed turbines.

Note
Intervisibility calculates number of points visible within 15km. The points are arranged in a 500m grid covering the whole of the Core Study Area. The viewshed is calculated to 30m for each point, from a height of 2m above ground level.

The visible extent for each point is set to 15km.

The terrain model is bare ground and derived from OS Terrain 50 height data.

The earth curvature and atmospheric refraction have been taken into account.

Map Scale @ A3:1:260,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_004_Intervisibility_30m_Rev1 28/11/2014

Source: SMDC, Natural England, LUC

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Figure 2.6: Hypothetical Intervisibilty within the Study Area (Scenario for turbines of 50m to blade tip)

- Core study area (Staffordshire Moorlands District)
- Outer study area (15km buffer zone)
- District boundary
- Peak District National Park

Value

- High : 1577
- Low : 0

Non Technical Note
This figure illustrates the relative visibility of a grid of imaginary turbines, 50m in height, placed across the Staffordshire Moorlands landscape, illustrating the locations where such turbines would be most visible (red) and least visible (blue). The map is based on a bare-ground terrain model. This map does not represent the visibility of any existing or proposed turbines.

Note
Intervisibility calculates number of points visible within 15km. The points are arranged in a 500m grid covering the whole of the Core Study Area. The viewshed is calculated to 50m for each point, from a height of 2m above ground level.

The visible extent for each point is set to 15km.

The terrain model is bare ground and derived from OS Terrain 50 height data.

The earth curvature and atmospheric refraction have been taken into account.

Map Scale @ A3:1:260,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_004_Intervisibility_50m_Rev1 28/11/2014

Source: SMDC, Natural England, LUC

Staffordshire Moorlands Wind Turbine Landscape Sensitivity Assessment

Figure 2.7: Hypothetical Intervisibilty within the Study Area (Scenario for turbines of 80m to blade tip)

- Core study area (Staffordshire Moorlands District)
- Outer study area (15km buffer zone)
- District boundary
- Peak District National Park

Value

- High : 1883
- Low : 0

Non Technical Note

This figure illustrates the relative visibility of a grid of imaginary turbines, 80m in height, placed across the Staffordshire Moorlands landscape, illustrating the locations where such turbines would be most visible (red) and least visible (blue). The map is based on a bare-ground terrain model. This map does not represent the visibility of any existing or proposed turbines.

Note

Intervisibility calculates number of points visible within 15km. The points are arranged in a 500m grid covering the whole of the Core Study Area. The viewshed is calculated to 80m for each point, from a height of 2m above ground level.

The visible extent for each point is set to 15km.

The terrain model is bare ground and derived from OS Terrain 50 height data.

The earth curvature and atmospheric refraction have been taken into account.

Map Scale @ A3:1:260,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_004_Intervisibility_80m_Rev1 28/11/2014

Source: SMDC, Natural England, LUC

3 Methodology

Understanding the potential landscape effects of wind turbines

3.1 The European Landscape Convention (ELC) defines landscape as: "*An area as perceived by people, whose character is the result of the* action and interaction of natural and/or human factors" (Council of Europe 2000). Development can affect the character of a landscape as perceived by people, and that this can be from a static view, from views experienced when moving through a landscape, and also through other senses e.g. noise.

3.2 People's response to landscapes (both rural and urban) and the forces that act on them are personal and may change over time according to their cultural values. For example, there are varying attitudes to wind energy development depending on individual attitudes to the principle and presence of wind energy generation.

3.3 In order to minimise effects on the landscape through siting and design, it is important to first understand the characteristics of wind energy development and how they may affect the landscape.

3.4 Wind turbines are substantial vertical structures that are highly visible within the landscape, and it is not always possible to avoid significant effects on at least some views when they are constructed (particularly when considering larger height models and developments of multiple turbines). When they are in operation, the movement of the blades is a unique feature of wind energy developments, setting them apart from other stationary tall structures in the landscape such as masts or pylons.

3.5 Wind energy development may affect the landscape in the following ways:

i. **Construction of turbines and associated infrastructure may result in direct loss of landscape features**, including hedgerows and stone walls. This may include road 'improvements' such as road widening, junction improvements or removal of vegetation that might be necessary in order to transport larger turbine components to site. Whilst decommissioning and landscaping conditions may require that such features be restored/replanted after turbine approval, the original features may already have been lost or altered. This is a particular issue for rural lanes where thick hedges and hedgerow trees are distinct and valued features of the wider landscape.

ii. **Movement of rotor blades is a unique feature of wind energy development** and may affect characteristics of stillness, remoteness and solitude which are characteristics of parts of the district- larger models having slower rotor speeds than smaller models.

iii. **The presence of turbines may increase the influence of built development** on the landscape – this may be the case for scattered single turbines as well as for wind farms.

iv. **Turbines (particularly larger models) may be perceived as out of scale** in relation to human scale features in the landscape, such as trees, hedgerows and traditional farm buildings.

v. **Turbines on skylines may compete with existing landmark features for prominence** (particularly where prominent undeveloped skylines or landmark features are valued characteristics).

vi. **Access tracks may be highly visible**, particularly in open upland landscapes or undeveloped landscapes that currently may not contain tracks.

vii. **Ancillary buildings and security requirements (such as fencing) may introduce new features** into the landscape.

viii. **Road upgrades on access routes** may alter the character of rural roads.

ix. **Lighting of turbines (for aviation safety) may introduce a source of light** that would affect local amenity or intrinsically dark night skies – particularly important to consider in the valued rural landscapes of the district and on the fringes of the National Park.

3.6 As larger numbers of wind energy developments are built, it is increasingly necessary to consider their cumulative effects. This is considered further at the end of this chapter.

Turbine development size categories considered for this study

3.7 This Landscape Sensitivity Assessment applies to all designs of wind turbines, although it has been based on the most common horizontal axis three-bladed turbine, an example from the District is shown below. The study does not consider domestic-scale turbines (of 15m to blade tip or less), or roof-mounted turbines.

Figure 3.1: Standard three-bladed turbine in LCT 2

3.8 To enable a tailored assessment to be made considering both turbine heights and development sizes, the following categorisation (**Tables 3.1** and **3.2**) was agreed with the Council. The categories are consistent with the approaches taken in other landscape sensitivity assessments, and reflect the commercial availability of different heights of turbine.

3.9 The use of different height and group categories enables the assessment to consider the different landscape effects resulting from different scales of development.

Table 3.1: Wind turbine height categories

Wind turbine height categories
Category A (15-30m)
Category B (31-50m)
Category C (51-80m)
Category D (81-110m)
Category E (111-140m)

Table 3.2: Wind turbine group size categories

Wind turbine group size categories
Single turbine
Small cluster (2-3 turbines)
Small wind farm (4-6 turbines)
Medium wind farm (7-10 turbines)
Large wind farm (11-15 turbines)

Features as height comparators for wind turbines

3.10 In order to better visualise how the different turbine heights set out above relate to features found in the Staffordshire Moorlands landscape, examples of comparable features, existing turbines and/or well-known local landmarks is provided in **Table 3.3**.

Table 3.3: Features as height comparators for wind turbines

Feature	Height
Domestic buildings	6-10 metres
Category A turbine	15-30m (see **Figure 3.2**)
Mature deciduous trees (dependent on species)	10-25m
Category B turbine	31-50m (see **Figure 3.3**)
Standard 'lattice tower' pylons	46.5m (can be higher – see **Figure 3.4**)
Category C turbine	51-80m
St Giles Church spire, Cheadle	60m (see **Figure 3.5**)
Category D turbine	81-110m
Sutton Common BT Tower, Croker Hill (Cheshire East)	Exact height unknown, but assumed equivalent to a Category D turbine (see **Figure 3.6**)
Bolton Copperworks chimney	100m (see **Figure 3.7**)
Carsington Pastures Wind Turbines, Derbyshire Dales District	104 m (see **Figure 3.8**)
Cauldon Low Quarry Chimney	115m (see **Figure 3.9**)
Category E turbine	111-140m

Figure 3.2: Two-bladed, 25 metre tall turbine at Old Engine Farm (LCT 2)

Figure 3.3: 34.5 metre wind turbine at Meadowside (LCT 8)

Figure 3.4: Standard pylon, assumed to be 46.5m, in LCT 1

Figure 3.5: St Giles church spire, Cheadle (60m)

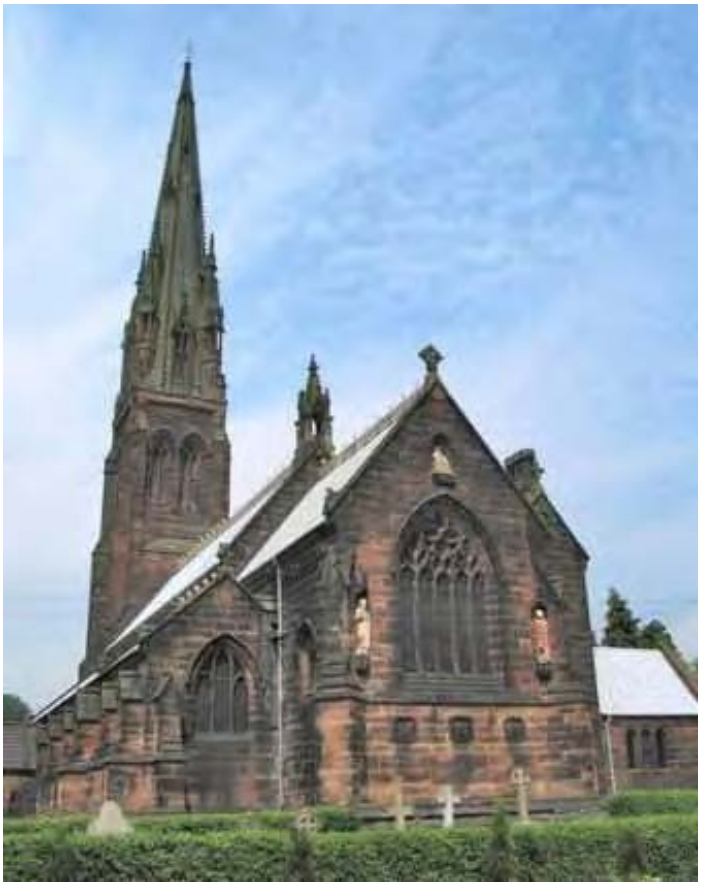

Figure 3.6: Sutton Common BT tower, Cheshire East (exact height unknown)

Figure 3.7: Bolton Copperworks chimney (100m, pictured in 2011)

Source: http://www.geograph.org.uk/

Figure 3.8: Carsington Pastures wind farm (turbines of 104m to blade tip)

Figure 3.9: Cauldon Low Quarry chimney (115m)

Current patterns of wind energy development in the Staffordshire Moorlands

3.11 Based on council data from October 2014, there are a total of fifteen permitted wind turbines within the core study area of which ten are operational. There are no developments of multiple turbines – all wind energy developments are single turbines, and are between 18.15m and 40m to blade tip. **Table 3.4** shows the number of turbines in each of the categories used in this assessment. Wind energy development is generally scattered across the district, although there are small concentrations of turbines in the more upland landscapes adjacent to the Peak National Park (LCTs 6 and 8).

Table 3.4: Number of operational/permitted turbines in each height category

Category	Number of operational/permitted turbines
Category A (15-30m)	5
Category B (31-50m)	10
Category C (51-80m)	None
Category D (81-110m)	None
Category E (111-140m)	None

3.12 Within the 15km buffer zone (excluding the City of Stoke-on-Trent), there are a further 20 operational or permitted turbines. The majority of these are below 50m in height (Category A or B). The largest of these developments is the Carsington Pastures windfarm in Derbyshire Dales, which is comprised of four 104m turbines, whilst a further three 102m turbines are consented adjacent to the Carsington Pastures development. A single 74m turbine is also consented at Stafford Motorway Services. A map showing the current distribution of operational and consented schemes is presented at **Figure 3.10**.

3.13 An analysis of theoretical visibility between the operational and consented schemes is discussed at the end of this chapter.

Staffordshire Moorlands Wind Turbine Landscape Sensitivity Assessment

Figure 3.10: Operational and Consented Turbines

- Consented turbine
- Operational turbine
- Core study area (Staffordshire Moorlands District)
- Outer study area (15km buffer zone)
- District boundary
- Peak District National Park

Map Scale @ A3:1:260,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_011_Cumulative_schemes_Rev1 28/11/2014

Source: SMDC, Natural England, LUC

Assessing landscape sensitivity to wind turbine development

3.14 There is currently no formally agreed methodology for assessing the sensitivity of different types of landscape to wind energy development. The approach taken for this study builds on current national best practice in using Landscape Character Assessment (LCA) as a tool for making judgements on sensitivity[9], and on the process of landscape and visual impact assessment[10]. It was also informed by a review of recent similar studies of landscape sensitivity to wind energy development in other parts of the UK; and built on LUC's own considerable relevant experience in this field.

3.15 The approach aims to be transparent, robust and defensible. This section of the report sets out key terms and definitions; and explains how the sensitivity assessment was undertaken for the Staffordshire Moorlands.

Key definitions

3.16 Paragraph 4.2 of Topic Paper 6 (reference below) states that:

'*Judging landscape character sensitivity requires professional judgement about the degree to which the landscape in question is robust, in that it is able to accommodate change without adverse impacts on character. This involves making decisions about whether or not significant characteristic elements of the landscape will be liable to loss... and whether important aesthetic aspects of character will be liable to change'.*

3.17 In this study the following definition of sensitivity has been used, which is based on the principles set out in Topic Paper 6. It is also compliant with the third edition of the *Guidelines for Landscape and Visual Impact Assessment* (GLVIA 3, 2013) as well as definitions used in other landscape sensitivity studies of this type:

> ***Landscape sensitivity is the extent to which the character and quality of the landscape is susceptible to change as a result of wind energy or solar PV developments.***

3.18 The definition of **susceptibility,** in the context of the above definition of landscape sensitivity, is *'the ability of a defined landscape to accommodate wind energy development without undue negative consequences'*. This is also in line with GLVIA 3.

Spatial and descriptive framework

3.19 As explained in the previous chapter and shown in **Figure 2.2**, the ten landscape character types (LCTs) and their accompanying descriptions from the 2008 Landscape and Settlement Character Assessment of Staffordshire Moorlands provide the spatial framework and key source of evidence for the landscape sensitivity assessment. In addition, further information (for relevant LCTs) was taken from the Churnet Valley Landscape Character Assessment (2011), as well as a range of spatial datasets obtained for the study. These included:

- Nature conservation designations, including Sites of Special Scientific Interest, National Nature Reserves, Local Nature Reserves and Sites of Biological Importance.
- Heritage datasets, including Conservation Areas, Listed Buildings, Registered Parks and Gardens and Scheduled Monuments.
- Access and recreation datasets, including public rights of way, cycle paths, open access land and Country Parks.

3.20 Further information on current landscape character was also gained from fieldwork undertaken in October 2014 to inform this study.

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[9] Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity. Landscape Character Assessment Guidance for England and Scotland. Available at http://www.naturalengland.org.uk/Images/lcatopicpaper6_tcm6-8179.pdf

[10] Landscape Institute and Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment,* third edition, Routledge.

Use of sensitivity assessment criteria

3.21 Wind turbine development will affect different characteristics of the landscape in different ways. It is therefore important to understand the nature and sensitivity of different components of landscape character, and to set these out and assess them in a consistent and transparent fashion. In order to do this, a set of criteria were used to highlight specific landscape and visual characteristics which are most likely to be affected by wind farm development.

3.22 The criteria were based on current good practice, developed by LUC through experience of carrying out work within this field and informed by information presented in a number of guidance documents relating to landscape sensitivity, LVIA, and wind farm development. These criteria are set out in **Table 3.5** below. The table includes guidance and examples for applying the criteria (including main information sources used), which were then verified through professional judgement and field survey to apply to the particular LCT in question.

3.23 All of the individual LCT assessments are included in Chapter 4.

Summarising levels of landscape sensitivity within the LCT

3.24 Once the criteria have been assessed individually, the results are drawn together into a balanced summary of landscape sensitivity to the principle of the wind energy development for each LCT.

3.25 If one criterion has a particularly strong influence on landscape sensitivity this is drawn out in the summary (an example might be a landscape with prominent/ dominant skylines, or particularly high levels of tranquillity or remoteness). In any given LCT there may be criteria that have conflicting effects on sensitivity. For example, when considering sensitivity to wind energy development, a settled landscape, while containing greater human influence (indicating a lower sensitivity), will also include more human scale features that could be affected by large-scale wind turbines (indicating a higher sensitivity). Conversely, a more remote landscape may lack the human scale features but is likely to present a higher sensitivity from a perceptual point of view.

3.26 It is important to note that the results of the sensitivity assessment are not influenced by the presence of existing or proposed wind energy developments in the landscape; it focuses on its *inherent* landscape sensitivity.

Judging landscape sensitivity to different turbine categories

3.27 The next stage of the assessment is to come to a judgement on landscape sensitivity to different sizes/scales of development (height and group sizes of wind turbines, as set out in **Table 3.1**).

3.28 Sensitivity is judged on a five-point scale as shown in **Table 3.4** below, which is consistent with the majority of studies of this kind undertaken in the UK. These sensitivity ratings can apply to any landscape in England (or indeed the UK) – they are not specific to this study. Therefore the sensitivity assessments are taken in the national context.

Table 3.5: Sensitivity levels and definitions

Sensitivity Level	Definition
High (H)	The key characteristics and qualities of the landscape are highly sensitive to change from the type and scale of renewable energy being assessed.
Moderate-High (M-H)	The key characteristics and qualities of the landscape are sensitive to change from the type and scale of renewable energy being assessed.
Moderate (M)	Some of the key characteristics and qualities of the landscape are sensitive to change from the type and scale of renewable energy being assessed.
Low-Moderate (L-M)	Few of the key characteristics and qualities of the landscape are sensitive to change from the type and scale of renewable energy

Sensitivity Level	Definition
	being assessed.
Low (L)	Key characteristics and qualities of the landscape are robust and are less likely to be adversely affected by the type and scale of renewable energy development being assessed.

Considering the cumulative effects of wind energy development

3.29 To aid in understanding current cumulative landscape and visual issues in the district, cumulative zone of theoretical visibility (CZTV) maps have been generated for two development scenarios:

- Operational wind turbines within the core and outer study areas; and
- Operational and consented wind turbines within the core and outer study areas

3.30 These are shown in **Figures 3.11** and **3.12**. These figures illustrate the number of constructed/consented wind turbines that are theoretically visible from any point within the core and outer study areas, the darker colours signifying a higher number of turbines visible. It should be noted that each CZTV is based on bare earth digital terrain modelling, which takes no account of trees, hedges, buildings and other features which serve to restrict visibility in the field. As such they overestimate the level of development visible from any one point, though the general patterns are considered to be representative. **It should also be borne in mind that visibility of turbines does not automatically equate to an impact on landscape character or views.**

3.31 In both cases, all relevant turbines within the core and outer study areas (excluding the City of Stoke-on-Trent) have been included, using the best available data sourced from either the local authorities, or the DECC renewable energy database[11]. The first scenario represents the current theoretical levels of visibility, while the second illustrates potential future patterns of visibility. There is a relatively high level of certainty that consented turbines will be built, hence it was felt helpful to include this scenario in the mapping exercise. It should be noted, however, that the actual future pattern of development may be different.

3.32 The CZTV of all operational turbines is shown in **Figure 3.11**. This clearly shows that the higher ground and ridgelines in the district allow for greater theoretical views of existing turbines, including in particular Ipstones Edge (LCTs 6 and 4), Morridge (LCT 6), the eastern ridge above Rudyard (LCT 6), Lask Edge and Upper Shirkley (LCT 7), as well as the ridgelines rising above the Churnet Valley. (LCTs 2, 3 and 10). The lower lying, gently rolling farmland and the Churnet Valley itself, lying between the ridges (including LCTs 2 and 3) tend to have the lowest levels of theoretical visibility – in many cases having no views at all to existing turbines. This map also shows hot-spots of theoretical visibility in areas outside the district. It is particularly important to note the high points within the Peak District National Park which have views of existing turbines – including The Roaches, Gun Hill, the Mixon ridgeline, Merryton Low and Whetstone Ridge.

3.33 **Figure 3.12** also incorporates consented turbine schemes. This shows similar patterns of visibility and 'hot spots', but an extension in the areas that have views to at least one scheme – including the lowland rolling landscapes within the district that currently do not have views to operational turbines.

[11] https://restats.decc.gov.uk/cms/planning-database/

Table 3.6: Sensitivity assessment criteria and examples of applying the scoring

Landform and scale				
A smooth gently sloping or flat landform is likely to be less sensitive to wind energy development than a landscape with a dramatic rugged landform, distinct landform features (including prominent headlands and cliffs) or pronounced undulations. Larger scale landforms are likely to be less sensitive than smaller scale landforms - because turbines may appear out of scale, detract from visually important landforms or appear visually confusing (due to turbines being at varying heights) in the latter types of landscapes. Landscapes with frequent human scale features that are traditional of the landscape, such as stone farmsteads and small farm woodlands[12] may be particularly sensitive to larger turbines. This is because large features such as wind turbines may dominate smaller scale traditional features within the landscape. Information sources: Landscape and Settlement Character Assessment of Staffordshire Moorlands; Churnet Valley Landscape Character Assessment; Ordnance Survey basemaps; Topography data (Ordnance Survey Panorama); fieldwork.				
LOW	**LOW-MODERATE**	**MODERATE**	**MODERATE-HIGH**	**HIGH**
e.g. an extensive lowland flat landscape or elevated plateau, often a larger scale landform	e.g. a simple gently rolling landscape, likely to be a medium-large scale landform	e.g. an undulating landscape, perhaps also incised by valleys, likely to be a medium scale landform	e.g.a landscape with distinct landform features, and/or irregular in topographic appearance (which may be large in scale), or a smaller scale landform	e.g. a landscape with a rugged landform or dramatic landform features (which may be large in scale), or a small scale or intimate landform
Land cover pattern and complexity				
Simple, regular landscapes with extensive areas of consistent ground cover are likely to be less sensitive to wind energy development than landscapes with more complex or irregular land cover patterns or smaller and / or irregular field sizes. Information sources: Landscape and Settlement Character Assessment of Staffordshire Moorlands; Churnet Valley Landscape Character Assessment;; Ordnance Survey basemaps; Google Earth (aerial photography); fieldwork.				
LOW	**LOW-MODERATE**	**MODERATE**	**MODERATE-HIGH**	**HIGH**
e.g. a very large-scale landscape with uniform groundcover and lacking in human scale features	e.g. a landscape with large-scale fields, little variety in land cover and occasional human scale features such as trees and domestic buildings	e.g. a landscape with medium sized fields, some variations in land cover and presence of human scale features such as trees, domestic buildings	e.g.a landscape with irregular small-scale fields, variety in land cover and presence of human scale features such as trees, domestic buildings	e.g. a landscape with a strong variety in land cover and small-scale / irregular in appearance containing numerous human scale features

[12] Human scale features are aspects of land cover such as stone walls, hedges, buildings which give a 'human scale' to the landscape

Skylines

Prominent and distinctive and/or undeveloped skylines, or skylines with important landmark features, are likely to be more sensitive to wind energy development because turbines may detract from these skylines as features in the landscape, or draw attention away from existing landform or landmark features on skylines. Important landmark features on the skyline might include historic features or monuments.

Information sources: Landscape and Settlement Character Assessment of Staffordshire Moorlands; Churnet Valley Landscape Character Assessment; fieldwork; presence of Scheduled Monuments.

LOW	LOW-MODERATE	MODERATE	MODERATE-HIGH	HIGH
e.g. a large-scale flat or plateau landscape where skylines are not prominent and/or there are no important landmark features on the skyline	e.g. a large-scale landscape where skylines are not prominent and/or there are very few landmark features on the skyline – other skylines in adjacent LCTs are more prominent	e.g. a landscape with some prominent skylines, but these are not particularly distinctive. There may be some landmark features on the skyline.	e.g. a landscape with prominent skylines that may form an important backdrop to views from settlements or important viewpoints, and/or with important landmark features	e.g. a landscape comprising prominent or distinctive undeveloped skylines or skylines with particularly important landmark features

Visibility and views

Landscapes that are visually contained by topography, buildings, trees or woodlands and hence have limited inward and outward views may be less sensitive than areas with extensive inward and outward views. Such features may give screening for the lower parts of turbines and for associated access and infrastructure. However trees and woodlands should be a long term feature if their screening effects are to be relied upon. Extensive close or middle range views from scenic routes, well-known vistas or tourist viewpoints may increase a landscape's sensitivity to wind energy development, as may close proximity to settlement.

Information sources: Landscape and Settlement Character Assessment of Staffordshire Moorlands; Churnet Valley Landscape Character Assessment; Ordnance Survey 1:25K basemaps; fieldwork; key views data (from Staffordshire Moorlands District Council)

LOW	LOW-MODERATE	MODERATE	MODERATE-HIGH	HIGH
e.g. a landscape with no important or valued views to other landscapes or that does not form a backdrop to views from settlements.	e.g. a landscape with a few valued views to/from the area but the majority is self contained.	e.g. some parts of the landscape form a rural backdrop to views from settlements and a few locations afford valued views to other landscapes.	e.g. large parts of the landscape form a valued rural backdrop to views from settlements or it is valued for its scenic views to other landscapes.	e.g. a landscape with prominent key landmarks, key vistas or important and valued views, appreciated for their unspoilt or scenic character.

Natural and cultural heritage aspects

The presence of valued natural and cultural heritage features such as semi-natural habitats, wildlife, geological, archaeological, historical or built environment features that enhance the landscape experience may increase sensitivity to wind turbines, particularly where these features may be directly affected by construction works and/or access tracks; or where enjoyment of these features may be diminished.

Information sources: Landscape and Settlement Character Assessment of Staffordshire Moorlands; Churnet Valley Landscape Character Assessment; Staffordshire Moorlands Historic Environment Assessment (which includes an assessment of HECZs as high medium or low sensitivity – see para **2.18**), Presence of SSSIs, NNRs, LNRs, SBIs, Listed Buildings, Conservation Areas, Scheduled Monuments, Registered Parks and Gardens.

LOW	LOW-MODERATE	MODERATE	MODERATE-HIGH	HIGH
e.g. the landscape has little or no nature or cultural heritage conservation value. Any HECZs present are of low historic value	e.g. the landscape has some valued natural and cultural heritage aspects but these are not likely to affected by wind energy development. HECZs are of low or medium historical value	e.g. the landscape has several valued natural and cultural heritage aspects which could be affected by wind energy development. Any HECZs are of medium historical value.	e.g. there are numerous locally valued and nationally important natural and cultural heritage features present. Any HECZs are of medium or high sensitivity.	e.g. there are numerous locally valued and internationally important natural and cultural heritage features present. HECZs within the LCT are all of high sensitivity.

Amenity and recreation

Areas offering access to high quality landscapes, memorable places, and special experiences and to a range of opportunities for open-air recreation may be more sensitive to wind energy development due to potential effects on accessibility and/or on the quality of the recreational experience that will be obtained. Sensitivity may be raised by proximity to important recreational features such as National Trails and other long distance routes.

Information sources: Landscape and Settlement Character Assessment of Staffordshire Moorlands; Churnet Valley Landscape Character Assessment; Ordnance survey basemaps; open access land and public rights of way datasets; fieldwork

LOW	LOW-MODERATE	MODERATE	MODERATE-HIGH	HIGH
e.g. a landscape that is mainly inaccessible and does not contain any specific recreational or visitor attractions	e.g. a landscape with a limited rights of way network or a small amount of land open to public access/amenity	e.g. a landscape with a moderate rights of way network and some amenity/recreational land	e.g. a landscape with a strong rights of way network, promoted long distance routes, and a number of recreational spaces	e.g. a landscape that is widely recognised for its multiple recreational opportunities and rights of way network (including long distance paths)

Scenic and special qualities

Landscapes that have a high scenic quality (which may be recognised as a National Park or AONB) will be more sensitive than landscapes of low scenic quality. This is particularly the case where their special qualities (as recorded in the Landscape Character Assessment or designation documents) are likely to be affected by wind energy development. Scenic and special qualities may relate to landscapes that are not designated as well as landscape designated for their natural beauty.

Information sources: Peak District National Park 'special qualities'; Landscape Character Assessment information on 'special qualities and features'.

LOW	LOW-MODERATE	MODERATE	MODERATE-HIGH	HIGH
e.g. landscape has low scenic quality such as an industrial area or despoiled land – special qualities will not be affected by wind energy development	e.g. landscape has low-medium scenic quality, or special qualities are unlikely to be affected by wind energy development	e.g. landscape has a medium scenic quality and some of the special qualities may be affected by wind energy development	e.g. landscape has a medium-high scenic quality – most of the special qualities are likely to be affected by wind energy development	e.g. area has a high scenic quality (likely to be recognised as National Park/AONB) and the scenic qualities will be affected by wind energy development

Perceptual qualities

Landscapes that are relatively remote or tranquil (due to freedom from human activity and disturbance and having a perceived naturalness or a strong feel of traditional rurality with few modern human influences) tend to increase levels of sensitivity to wind energy development compared to landscapes that contain signs of modern development (as the development will introduce new and uncharacteristic features which may detract from a sense of tranquillity and or remoteness/ naturalness).

Information sources: Landscape and Settlement Character Assessment of Staffordshire Moorlands; Churnet Valley Landscape Character Assessment; CPRE's Tranquillity and Intrusion mapping; Ordnance Survey basemaps (presence / absence of development, settlement, structures).

LOW	LOW-MODERATE	MODERATE	MODERATE-HIGH	HIGH
e.g. a landscape with much human activity and development such as industrial areas	e.g. a rural landscape with much human activity and dispersed modern development	e.g. a rural landscape with some modern development and human activity	e.g. a more naturalistic landscape and / or one with little modern human influence and development	e.g. a remote or 'wild' landscape with little or no signs of current human activity and development

Staffordshire Moorlands Wind Turbine Landscape Sensitivity Assessment

Figure 3.11: Cumulative Zone of Theoretical Visibility: Operational Turbines

- Turbine location
- Core study area (Staffordshire Moorlands District)
- Outer study area (15km buffer zone)
- District boundary
- Peak District National Park
- 1 wind farm or turbine visible
- 2 wind farms or turbines visible
- 3 wind farms or turbines visible
- 4 - 5 wind farms or turbines visible
- 6 - 7 wind farms or turbines visible
- 8 - 9 wind farms or turbines visible

Notes:
The ZTV includes all operational wind turbines in the core study area and the outer study area (15km buffer zone).

It is calculated to turbine tip height from a height of 2m above ground level. The ZTV extents for all windfarms are based on SNH guidance (Visual Representation of Windfarms: Version 2, 2014). The terrain model is bare ground and derived from OS Terrain 50 height data. The earth curvature and atmospheric refraction have been taken into account.

Map Scale @ A3:1:260,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_007_CZTV_operational_Rev1 28/11/2014

Source: SMDC, Natural England, LUC

Staffordshire Moorlands Wind Turbine Landscape Sensitivity Assessment

Figure 3.12: Cumulative Zone of Theoretical Visibility: Operational & Consented

- Turbine location
- Core study area (Staffordshire Moorlands District)
- Outer study area (15km buffer zone)
- District boundary
- Peak District National Park
- 1 wind farm or turbine visible
- 2 - 4 wind farms or turbines visible
- 5 - 7 wind farms or turbines visible
- 8 - 10 wind farms or turbines visible
- 11 - 13 wind farms or turbines visible
- 14 - 16 wind farms or turbines visible

Notes:
The ZTV includes all operational and consented wind turbines in the core study area and the outer study area (15km buffer zone).

It is calculated to turbine tip height from a height of 2m above ground level. The ZTV extents for all windfarms are based on SNH guidance (Visual Representation of Windfarms: Version 2, 2014). The terrain model is bare ground and derived from OS Terrain 50 height data. The earth curvature and atmospheric refraction have been taken into account.

Map Scale @ A3:1:260,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_006_CZTV_consented_operational_Rev1 28/11/2014

Source: SMDC, Natural England, LUC

4 Landscape sensitivity assessments by LCT

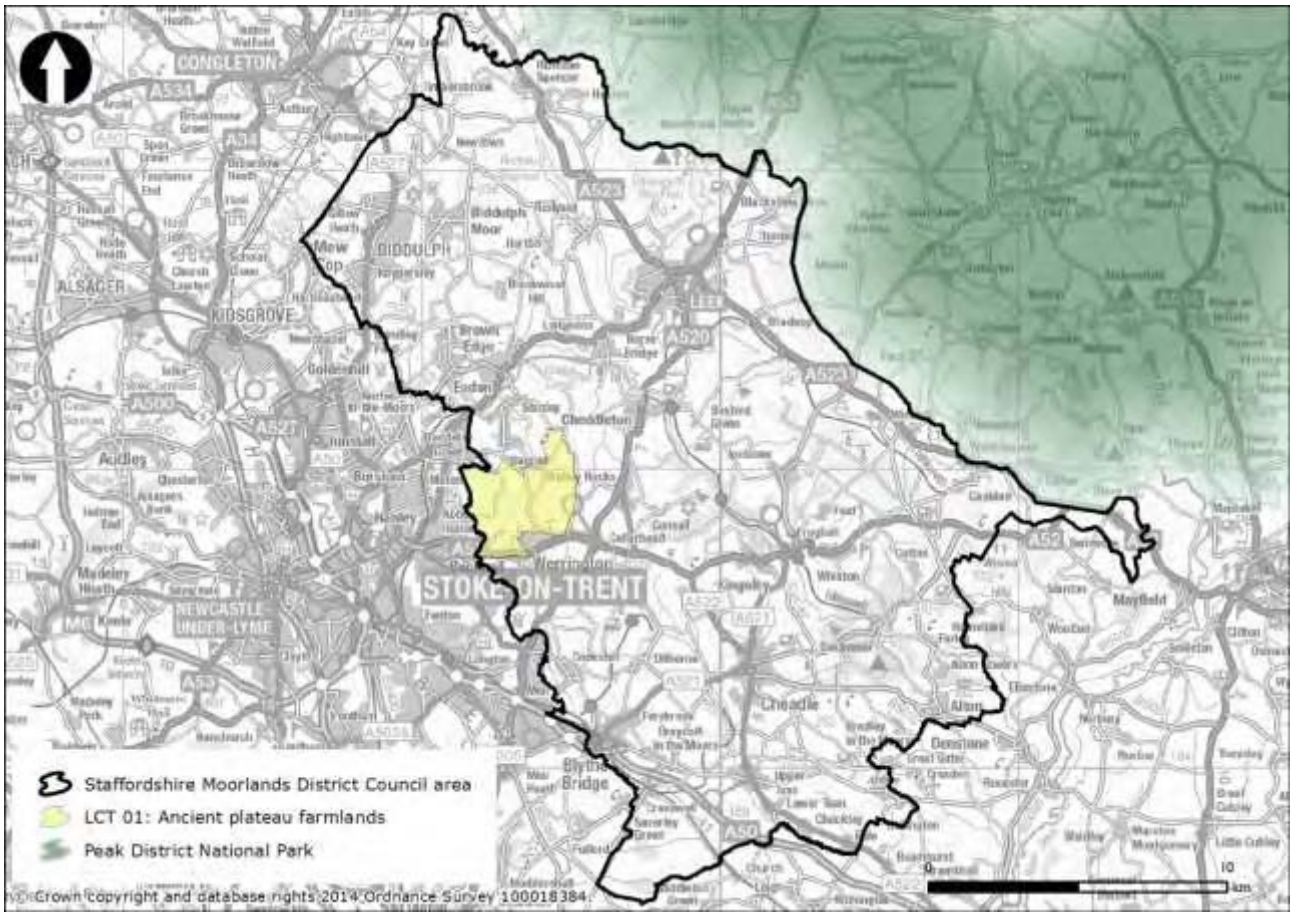
4.1 This Chapter contains the Landscape Sensitivity Assessments and Guidance tailored to each of the ten Landscape Character Types (LCTs) found within Staffordshire Moorlands District. Each document includes the following:

- A location map of the LCT as it occurs in Staffordshire Moorlands.
- Where relevant, a list of the Churnet Valley Character Areas found within the LCT.
- Key landscape characteristics derived from the 2008 Landscape and Settlement Character Assessment of Staffordshire Moorlands, 2011 Churnet Valley Landscape Character Assessment and from field observations.
- Landscape sensitivity assessment results for wind energy development.
- Landscape strategy and guidance for wind energy development (please note that further generic guidance relevant to all LCTs is included in Chapter 5).

4.2 The LCTs are arranged in numeric order.

LCT 1: Ancient Plateau Farmlands

LCT Location Map



Key Landscape Characteristics[13]

- Gentle undulating landform with some steep slopes.
- Heathland including wet heath with rushes and rough grasses.
- Drystone walls on the uplands with remains of unmanaged hedgerows and isolated trees elsewhere.
- Occasional areas of ancient woodland. Brookhouse Wood is locally designated as a Site of Biological Importance.
- Fields often demarcated by a variety of fencing styles.
- The predominant land use is for dairy farming and the rearing of livestock, although horse grazing is more common around the urban fringe of Stoke-on-Trent.
- Small woodland blocks of a mixture of broadleaf and conifer trees are found around buildings and industrial infrastructure.
- Isolated stone farm houses and buildings converted to residential dwellings. Dwellings on the urban fringe can be of a suburban character.
- Electricity power lines and a substation are dominant landscape features.
- The area contains a network of minor roads whilst the A52 runs along the south of the area.
- Several public rights of way cross the eastern half of the area.
- Extensive common land is found at Wetley Moor. The site is also a SSSI (covering 68 hectares), designated for the lowland dwarf heath habitat.
- Low grade agricultural land which is predominantly Grade 4 on the Agricultural Land Classification. There are limited areas of Grade 3 in the eastern part of this LCT.

[13] These Key Characteristics are derived from the 2008 Landscape and Settlement Character Assessment of Staffordshire Moorlands, with some additional information gained from fieldwork undertaken for this study.

Landscape Sensitivity Assessment for Wind Energy Development

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Landform and scale			M		
	Gently undulating large-scale plateau landform with distinctive steep slopes in localised areas (particularly the west, which drops down to Stoke-on-Trent). Elevation ranges from 130m to a maximum of 260m AOD on Wetley Moor and around Armshead. Locations of smaller scale landform are associated with westward draining stream valleys. A human scale is provided by the presence of frequent features such as hedges, walls, woodland, individual trees, farmsteads and nearby housing.				
Land cover pattern and complexity				M-H	
	Land cover consists of small to medium-sized fields which are both irregular and rectilinear, and predominantly used for grazing or as horse paddocks. Extensive tracts of open, semi-natural grassland and lowland heathland are found on Wetley Moor, covering 123 hectares. Further texture elsewhere is provided by bracken, small woodlands and plantation, areas of rough grassland and additional patches of remnant heath.				
Skylines			M		
	Wide, open skylines are characterised by silhouettes of trees and woodland. Pylons march across the landscape, forming prominent man-made structures on skylines.				
Visibility and views			M		
	There are views to this landscape from the built up areas surrounding the plateau, including Werrington (which backs onto Wetley Moor) and the eastern suburbs of Stoke-on-Trent. This landscape is visually transitional from urban fringes around settlements to a rural character on the plateau, and forms backdrop to views of the surrounding settlements. The western edge of Wetley Moor, which drops steeply down towards Stoke, forms a particularly prominent backdrop. There are also key views from this landscape over the adjacent LCT 2, which surrounds much of this landscape. Distant views to The Roaches in the Peak District National Park are afforded from some higher elevations in the east, during clear conditions.				
Natural and cultural heritage aspects				M-H	
	Wetley Moor SSSI is designated for its lowland dwarf heath habitat. Other semi-natural habitat found throughout the LCT includes fragmented lowland acidic grassland and ancient woodland. There are also two locally designated SBI sites at Holehouse and Knowsley, which include wooded valleys and common land. There are several Grade II listed buildings in the LCT, including Ash Hall and Brookhouse Lane Farmhouse. There is a Scheduled Monument at Moor Hall Farm which constitutes a moated site and pond. The LCT includes a significant part of the Cheddleton, Wetley Rocks and Werrington HECZ[14]. All of the land within these zones is classed as of either 'High' or 'Medium' historical value[15].				
Amenity and recreation			M		
	Wetley Moor is an extensive area of common land which is crossed by numerous public rights of way, including bridleways. This area is an invaluable recreational resource for local communities (including dog walkers), particularly residents from Werrington and Stoke. There are footpaths linking the Moor with housing areas on the eastern fringes				

[14] Historic Environment Conservation Zone, as defined in the Historic Environment Character Assessment for the Staffordshire Moorlands, August 2010 (Staffordshire County Council).

[15] 'Historical value' is defined in the above document as *'the extent to which the heritage assets are legible within the landscape and how they interact: this can include specific aspects of the landscape and individual buildings. Historical associations with events or persons can also add value to the ability of the public and community to engage with the heritage... The opportunities for the use and appropriate management of the heritage assets to enhance local distinctiveness and contribution to the sense of place'* are also considered.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
	of Stoke.				
Scenic and special qualities			**M**		
	Although not nationally designated for its scenic quality, the landscape's areas of lowland heath, meadows, remnant ancient woodlands and presence of frequent specimen trees evoke sense of timelessness and traditional rurality.				
Perceptual character			**M**		
	Sparse development throughout this landscape offers a relative sense of tranquillity, particularly in the context of its setting on the doorstep of urban areas. The southern edge of the LCT is influenced by the presence of the main A52 trunk road. Pylons crossing significant parts of the LCT, and the electricity sub-station in the east of the landscape, also reduce perceptions of tranquillity locally.				
Discussion on landscape sensitivity	The large-scale plateau landform and presence of existing development (including pylons on skylines) could indicate a lower sensitivity to wind energy development in this LCT. However, Wetley Moor's national importance for biodiversity, naturalistic qualities, and importance as a recreational resource heightens sensitivity within and around this asset. The presence of frequent human scale features, some distant intervisibility with the Peak District National Park and the role of this LCT as a rural backdrop to settlements also heightens sensitivity. The prominent western slopes of the LCT would be highly sensitive to any wind energy development.				
Sensitivity to different turbine heights	**Category A (15-30m)**				**L-M**
	Category B (31-50m)				**M**
	Category C (51-80m)				**M-H**
	Category D (81-110m)				**H**
	Category E (111-140m)				**H**
	The small scale land cover pattern and role of the LCT as a prominent backdrop to the surrounding settlements mean that this landscape is likely to be highly sensitive to Category D and E turbines. There may be limited opportunities for the siting of Category C turbines away from Wetley Moor and the prominent plateau edge in the west. Some of the LCT's key characteristics and qualities might also be susceptible to change as a result of the development of Category A and B turbines – please refer closely to the guidance in the next section.				
Commentary on different turbine groupings • Single turbine • Small cluster (2-3 turbines) • Small wind farm (4-6 turbines) • Medium wind farm (7-10 turbines) • Large wind farm (11-15 turbines)	Despite its large landform scale, the small to medium scale landscape patterns mean that this LCT would be highly sensitive to wind turbine developments larger than a 'small cluster'.				

Strategy and guidance for wind energy development

Overall strategy for wind energy development in the landscape

The majority of the LCT is highly sensitive to wind turbines of 50m to blade tip or higher, and in groups of more than three turbines. Limited locations away from Wetley Moor may be less sensitive to groups of up to three turbines, or single turbines of up to 80m to blade tip (Category C), if the guidance below is closely followed.

Some of the LCT's key characteristics and qualities might also be sensitive to the development of turbines of up to 50m (Categories A and B) – please carefully consider the guidance below.

The steep western plateau slope would be highly sensitive to all turbine developments.

Current patterns of permitted wind energy development

There are currently no permitted or operational wind energy developments in this LCT, or visible from it (in surrounding landscapes).

Current cumulative landscape and visual issues

There are currently no cumulative issues arising in this LCT from turbines already present in the landscape, or in the surrounding landscapes.

Summary of landscape constraints

The following landscape constraints should be taken account of in the proposed siting and design of wind energy developments:

- The elevated nature of the landscape and its visually prominent western slope (which forms a dramatic backdrop to Stoke).
- Its rural character with locally valued levels of tranquillity, particularly given its location on the doorstep of urban areas.
- The presence of frequent human scale features including blocks of woodland, hedges, walls, individual trees, farmsteads and nearby housing.
- The extensive area of common land at Wetley Moor, nationally important for nature conservation and highly valued as a recreational resource for local communities.
- The presence of other areas of valued semi-natural habitat, including ancient woodlands and acid grasslands.
- The intervisibility with surrounding landscapes (particularly LCT 2) and the Peak District National Park on the horizon.

Guidance for future wind energy development

When siting and designing wind energy developments in this LCT, the generic guidance in **Chapter 5** should be taken into account. Within this LCT particular care will need to be taken to ensure:

- Locations on the elevated plateau edge are avoided, where they would be prominent and highly visible from the surrounding urban areas, including the eastern edge of Stoke-on-Trent.
- Locations on or close to the common land on Wetley Moor, valued for its recreational and nature conservation importance, are avoided.
- Remnant areas of semi-natural habitat, including ancient woodlands and acid grasslands, are protected from the impacts of development (considering both direct disturbance and impacts on naturalistic landscape character).
- The historic values associated with the Cheddleton, Wetley Rocks and Werrington HECZ are understood and respected when considering locations for development.
- The character and setting of the LCT's Listed Buildings and the Scheduled Monument at Moor

Hall Farm are protected.

- The landscape's locally important levels of relative tranquillity and rurality are retained.
- Larger turbines do not overwhelm the human scale of the many landscape features present, including isolated buildings, trees and stone walls.

Guidance for siting multiple developments within this LCT

While it is accepted that some cumulative change to landscape character could result from wind energy development in the future, multiple wind energy developments in this LCT should:

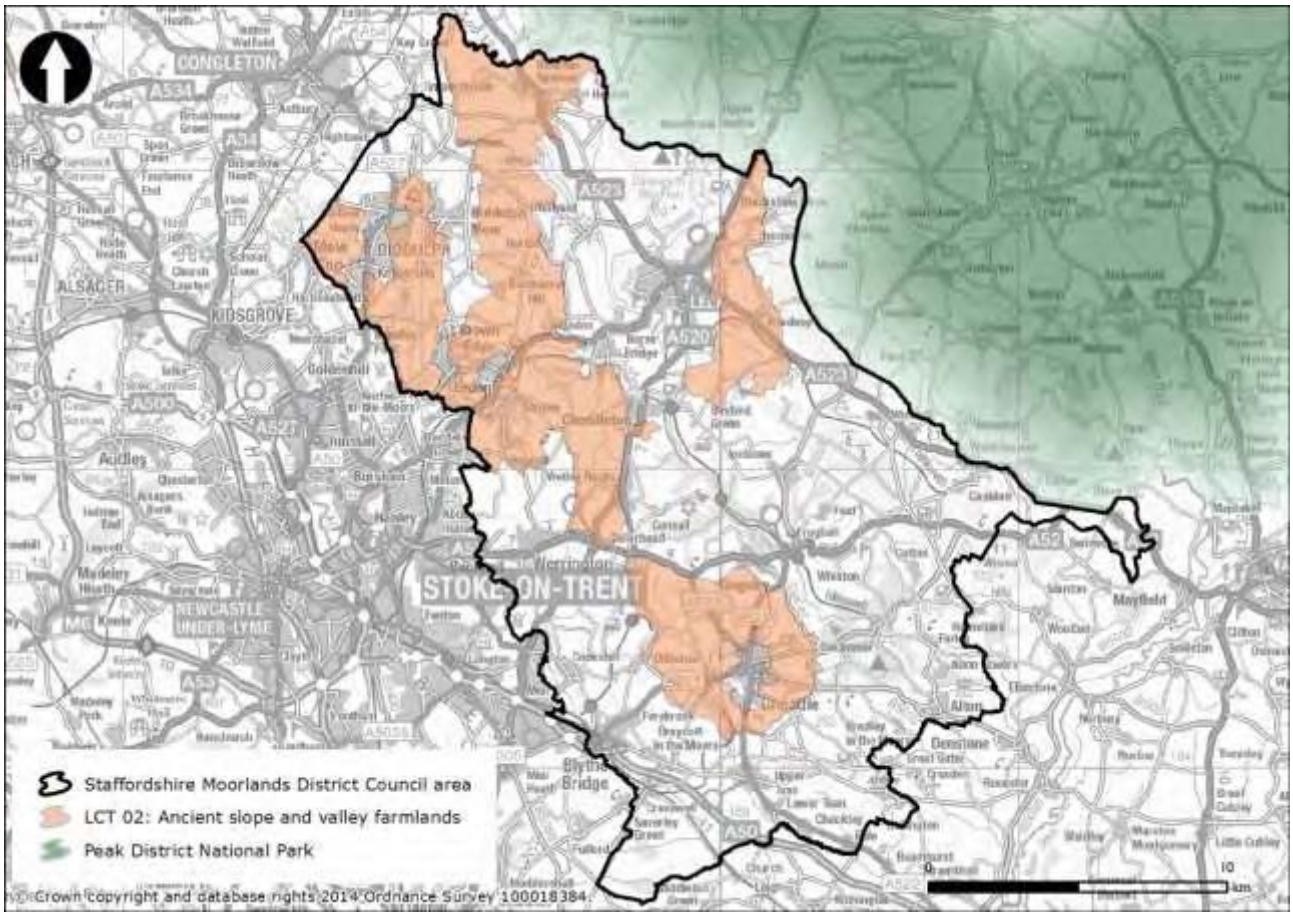
- Respect the underlying landscape character of the LCT (see the key characteristics at the start of this assessment).
- Collectively not become a key characteristic or defining influence on the character of the landscape (with reference to the definition of 'landscape capacity'[16]) – both in the LCT as a whole, in a given area, or when viewed sequentially from recreational and transport routes passing through the area, including the A52.
- Be similar in terms of siting, layout and relationship to key landscape characteristics, so as to present a simple image that relates clearly to landscape character[17] – for example through a clear association of Category A and B turbines with farm buildings.
- Ensure that any Category C turbines are sited well away from smaller turbines, so that the different size classes are not seen together.
- Avoid close juxtaposition of different turbine designs and heights within the same category, aiming instead for a consistent design and height in a given area.
- Avoid creating visual confusion when siting turbines in proximity to existing tall structures such as pylons and masts, particularly around the electrical sub-station in the east of the LCT.

[16] "Landscape capacity refers to the degree to which a particular landscape character area is able to accommodate change without significant effects on its character, or overall change of landscape character type…" (Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment Guidance for England and Scotland*).

[17] See Scottish Natural Heritage (2014) *Siting and Designing Windfarms in the Landscape*.

LCT 2: Ancient Slope and Valley Farmlands

LCT Location Map



Churnet Valley Landscape Character Areas

5a – Wetley Rocks

5b – East Leek

5c – North Rudyard

5d – South Kingsley

Key Landscape Characteristics[18]

- Strongly undulating or sloping landscape cut by small scale steep sided stream valleys. The exposed high ground contrasts with the intimacy of the valleys.
- Small scale mainly ancient irregular fields bounded by trees and sometimes poorly maintained hedgerows with frequent trees. Roadside boundaries are often dry stone walls.
- Extensive key views from higher ground, views are limited by woodland on lower ground. There are views of this LCT from the Peak District National Park near Blackshaw Moor.
- Woodland consists of intimate wooded valleys of ash, oak and alder. There are also occasional blocks of broadleaf and coniferous plantations.
- Deep Hayes County Park is a valued recreational resource.
- Stone buildings and drystone walls are found towards the uplands.
- Isolated rural properties are scattered throughout.
- Narrow, sometime sunken, winding lanes which link small farms together.
- Other transport routes include Caldon canal and the re-opened railway line of Moorland and City Railway, which is a prominent feature and attracts tourism.
- Areas of open water including Stanley Pool and Knypersley Reservoir. This LCT is also in close proximity to Rudyard Reservoir.
- Quarrying and mining activity and busy roads are intrusive features on the landscape. The JCB industrial site to the north of Cheadle is also a major feature.
- Public Rights of Way are found throughout. The LCT is in close proximity to the Staffordshire Way and a main cycle route.
- Biddulph Grange Country Park is a Grade I Registered Park and Garden and designated Conservation Area with a large amount of Ancient Woodland at Spring Wood.

[18] These Key Characteristics are derived from the 2008 Landscape and Settlement Character Assessment of Staffordshire Moorlands and the 2011 Churnet Valley Landscape Character Assessment, with some additional information gained from fieldwork undertaken for this study.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Landform and scale				**M-H**	
	Strongly undulating and sloping landscape with distinctive steep sided valleys and ridges cut into the landform. Elevation ranges from 140m to approximately 300m AOD at Mow Cop. This ridgeline, forming the western boundary of the district, is a particularly prominent landform feature. It forms a southern extension to Congleton Edge (LCT 7: Gritstone Uplands). Landform scale varies from medium-scale ridges to more undulating intricate valleys and farmland. Woodland in the valleys gives the landscape an intimate feel. A human scale is also provided by the presence of ancient small-scale field patterns, frequent trees, hedgerows and stone walls.				
Land cover pattern and complexity				**M-H**	
	Land use is pastoral, in small, irregular and regular fields (including pony paddocks), interspersed with wood pasture and parkland relating to the area's historic estates. Ribbons of woodland are found in the valleys, linking to thick hedges with frequent hedgerow trees and in-field specimens, adding variety and texture to the pastoral landscape.				
Skylines				**M-H**	
	Wooded skylines are associated with the valleys, whilst those on higher ground are more open. The elevated ridgeline of Mow Cop forms a prominent skyline feature in the west, characterised by its open nature with occasional wind sculpted trees. Although partially outside the district, Mow Cop castle forms a distinctive historic feature on the same skyline. Rocky tors at Wicken Stones also create distinctive skyline features, as does the spire of the Grade I listed St Giles church, Cheadle. In addition, a Scheduled moated site and pond at Moor Hall is sited on elevated ground. Existing man-made structures on skylines are generally limited to occasional pylon lines (e.g. near Rushton Spencer) and telecommunications masts. Mature in-field and hedgerow trees form common skyline features found across the LCT.				
Visibility and views			**M**		
	Views from higher ground along the valleys are extensive and recognised as significant. The LCT includes Cheshire's Close viewpoint, affording expansive views across the Cheshire Plain and eastwards across the district. Some areas are also intervisible with the White Peak area of the Peak District National Park. The LCT forms a rural backdrop to Biddulph, Cheadle, Leek, Endon and Brown Edge – as well as Congleton (within Cheshire East district).				
Natural and cultural heritage aspects				**M-H**	
	Part of the Coombes Valley SSSI falls within this LCT near Apesford, designated for ancient woodland and semi-natural grassland habitats which support a wide variety of birds and invertebrates. There are also two local nature reserves - Hales Hall Pool LNR and Marshes Hill Common LNR. A number of other Local Wildlife Sites are also found throughout. Remnant historic parklands associated with estates are found throughout this landscape. Biddulph Grange to the north of the area is a Grade I Registered Park and Garden and Conservation Area. The LCT includes the majority of the Biddulph & Biddulph Moor and Brown Edge & Endon HECZs[19], along with nearly half of the Cheddleton, Wetley Rocks and Werrington HECZ. All of the land within these zones is classed as of either 'High' or 'Medium' historical value[20].				

[19] Historic Environment Conservation Zone, as defined in the Historic Environment Character Assessment for the Staffordshire Moorlands, August 2010 (Staffordshire County Council).

[20] 'Historical value' is defined in the above document as *'the extent to which the heritage assets are legible within the landscape and how they interact: this can include specific aspects of the landscape and individual buildings. Historical associations with events or persons can also add value to the ability of the public and community to engage with the heritage... The opportunities for the use and*

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Amenity and recreation				**M-H**	
	Deep Hayes, Biddulph Grange and Greenway Bank Country Parks and the reservoirs at Stanley Pool, Knypersley and Rudyard are valued recreational resources within this LCT. Lengths of the Staffordshire Way, Dane Valley Way and Gritstone Trail Long Distance Walk also pass through the landscape. In addition, numerous other public rights of way cross the LCT, particularly concentrated in the north of the area (including promoted routes around Biddulph Grange).				
Scenic and special qualities				**M-H**	
	This area partially abuts the Peak District National Park, contributing to the setting of the White Peak character area[21] and the flow of landscape character beyond the National Park boundary (which is recognised as one of the National Park's 'special qualities'). Overall, this is a highly rural landscape with often strong historic sense of place associated with parkland estates and numerous ancient trees.				
Perceptual character			**M**		
	The narrow winding lanes and scattered, isolated dwellings offer a rural character to this LCT, although some locations of current and relict quarrying activity, other industrial developments and the presence of busy transport routes can erode levels of tranquillity locally. Views from elevated parts of the LCT to development at Biddulph detract locally from the relative rural (and sometimes remote) qualities associated with the surrounding landscape of the LCT.				
Discussion on landscape sensitivity	Areas of existing development and industrial activity, busy transport routes and some locations of larger scale landform at higher elevations could indicate lower levels of sensitivity to wind energy development. However, the presence of frequent human scale features such as trees, hedgerows and stone walls; the small-scale, ancient field patterns; variety of land cover including valued semi-natural habitats and historic estates; prominent, undeveloped skylines which are intervisible with the National Park; and role of the LCT as a rural backdrop to nearby settlements increases sensitivity. Areas closest to the Peak District National Park are likely to have a higher sensitivity (although this will need to be judged on a case by case basis).				
Sensitivity to different turbine heights	**Category A (15-30m)**				**M**
	Category B (31-50m)				**M**
	Category C (51-80m)				**M-H**
	Category D (81-110m)				**H**
	Category E (111-140m)				**H**
	The complex, strongly undulating landform (including intricate valleys), small-scale ancient field patterns and frequency of human-scale features mean this LCT will be highly sensitive to Category D and E turbines. There may be limited opportunities for the siting of Category C turbines in larger scale parts of the landscape. Some of the LCT's key characteristics and qualities might also be susceptible to change as a result of the development of Category A and B turbines – please refer closely to the guidance in the next section.				
Commentary on different turbine groupings • Single turbine • Small cluster (2-3 turbines) • Small wind farm (4-6 turbines) • Medium wind farm (7-10 turbines)	The scale of the landform, small-scale field patterns and presence of frequent human scale features means that this LCT is likely to be highly sensitive to any developments larger than a 'small cluster'.				

appropriate management of the heritage assets to enhance local distinctiveness and contribution to the sense of place' are also considered.

[21] As identified and described in the Peak District Landscape Character Assessment (July 2009)

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
• Large wind farm (11-15 turbines)					

Strategy and guidance for wind energy development

Overall strategy for wind energy development in the landscape

The majority of the LCT is highly sensitive to wind turbines of 50m to blade tip or higher, and in groups of more than three turbines. Limited locations away from the western plateau edge, and where field patterns are larger, may be less sensitive to groups of up to three turbines, or single turbines of up to 80m to blade tip (Category C), if the guidance below is closely followed.

Some of the LCT's key characteristics and qualities might also be sensitive to the development of turbines of up to 50m (Categories A and B) – please carefully consider the guidance below.

The highly prominent Mow Cop ridgeline would be highly sensitive to all scales of wind energy development.

Current levels of permitted wind energy development

There are currently five permitted schemes within this LCT (correct as of 23 October 2014):

- A single Category A turbine of 19.8m to blade tip at Greenway Hall, Milton (operational)
- A single Category A turbine of 20.4m to blade tip at The Sands, Brown Edge
- A single Category A turbine of 24.8m to blade tip at Old Engine Farm, Dilhorne (operational)
- A single Category B turbine of 34.2m to blade tip at Knivedon Farm, Leek
- A single Category B turbine of 34.2m to blade tip at Hatchley Farm, Dilhorne

Current cumulative landscape and visual issues

There are currently no cumulative issues arising in this LCT from turbines already present in the landscape, or in the surrounding landscapes.

Summary of landscape constraints

The following landscape constraints should be reflected in the proposed siting and design of wind energy developments:

- The strongly undulating landform with intricate steep sided valleys.
- The prominent Mow Cop ridgeline, which forms a dramatic western edge to the district and backdrop to Biddulph.
- The human scale of the landscape, with historic, small scale field patterns and frequent trees, hedgerows and stone walls.
- Areas of naturalistic land cover including nationally and locally designated nature conservation sites valued for their woodland and semi-natural grassland habitats.
- Areas of historic wooded estate character, including the Conservation Area and Grade I registered parkland at Biddulph Grange.
- Extensive and significant views from higher ground, including to (and from) the Peak District National Park.
- The role of the landscape in providing a setting to the White Peak area of the National Park.
- The importance of the landscape as a rural setting to the main settlements of Biddulph, Cheadle, Leek, Endon and Brown Edge.

Guidance for future wind energy development

When siting and designing wind energy developments in the landscape, the generic guidance in **Chapter 5** should be taken into account. Within this LCT particular care will need to be taken to ensure:

- Wind energy development does not overwhelm the human scale of the landscape and its landscape features, including trees, hedges and stone walls.
- Locations on the prominent, undeveloped Mow Cop ridgeline are avoided as sites for development.

- The strong rural character of the landscape with locally important levels of tranquillity is retained.
- The historic sense of place associated with the LCT's three HECZs and Conservation Area and Grade I registered parkland at Biddulph Grange is respected when considering the siting of turbines.
- Wind turbines do not prevent the appreciation and understanding of distinctive skyline/ landmark features such as Mow Cop castle, the rocky tors at Wicken Stones and the spire of St Giles Church (Cheadle).
- Valued naturalistic habitats are protected (considering both direct disturbance and impacts on naturalistic landscape character) - including tracts of semi-natural woodland, grassland and wood pasture/parkland.
- The LCT's characteristic winding rural lanes are not adversely affected by delivery of turbines.
- Wind turbines do not detract from the countryside backdrop provided by the LCT to the settlements of Biddulph, Cheadle, Leek, Endon and Brown Edge.
- Wind energy development does not adversely affect the setting or 'flow of landscape character' across the boundary of the Peak District National Park.

Guidance for siting multiple developments within this LCT

While it is accepted that some cumulative change to landscape character could result from wind energy development in the future, multiple wind energy developments in this LCT should:

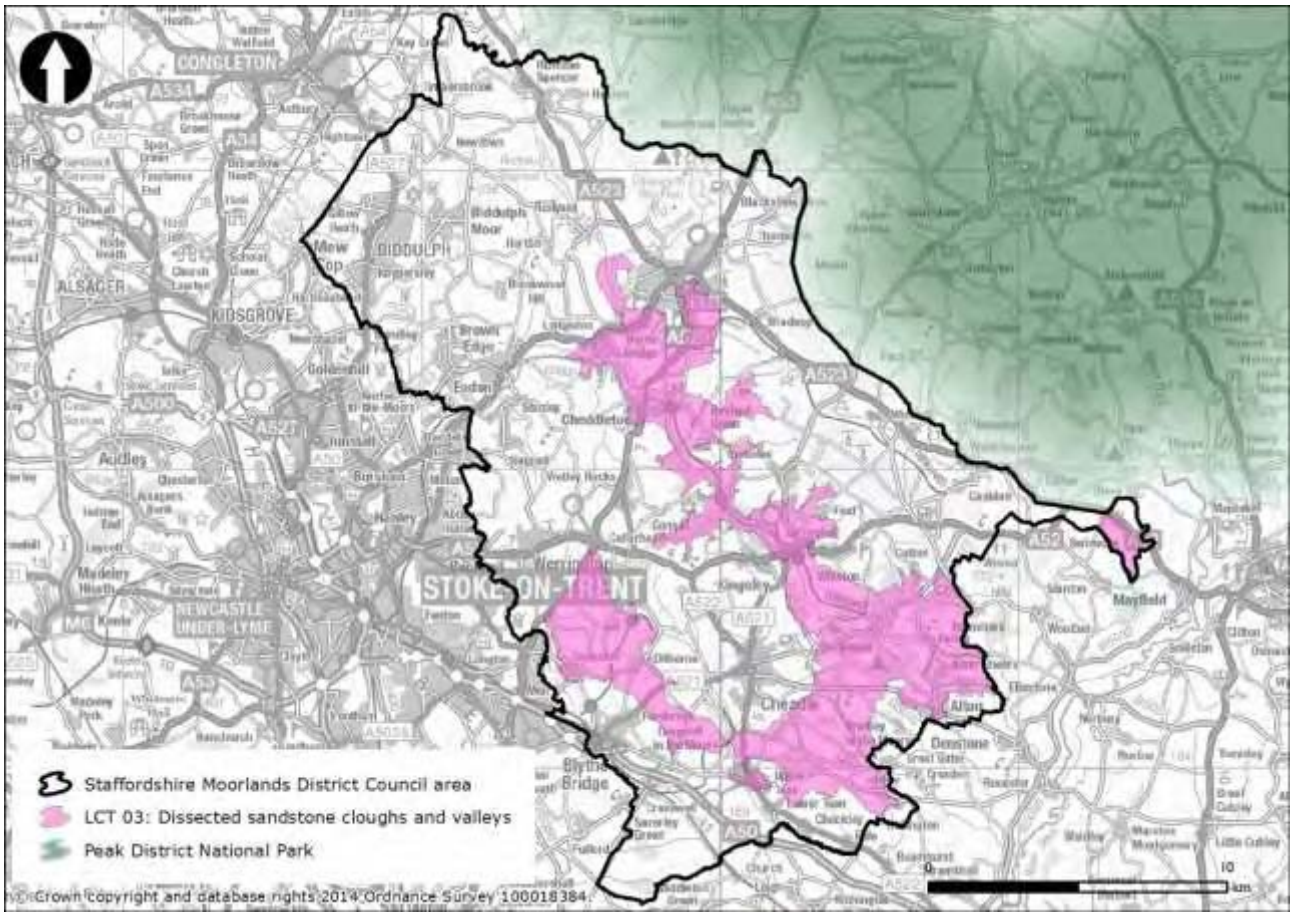
- Respect the underlying landscape character of the LCT (see the key characteristics at the start of this assessment).
- Collectively not become a key characteristic or defining influence on the character of the landscape (with reference to the definition of 'landscape capacity'[22]) – both in the LCT as a whole, in a given area, or when viewed sequentially from recreational and transport routes passing through the area, such as the A522.
- Be similar in terms of siting, layout and relationship to key landscape characteristics, so as to present a simple image that relates clearly to landscape character[23] – for example through a clear association of Category A and B turbines with farm or industrial buildings.
- Ensure that any Category C turbines are sited well away from smaller turbines, so that the different size classes are not seen together.
- Avoid close juxtaposition of different turbine designs and heights within the same category, aiming instead for a consistent design and height in a given area.
- Avoid creating visual confusion when siting turbines in proximity to existing tall structures such as pylons and masts, including in the landscape around Rushton Spencer.

[22] "Landscape capacity refers to the degree to which a particular landscape character area is able to accommodate change without significant effects on its character, or overall change of landscape character type…" (Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment Guidance for England and Scotland*).

[23] See Scottish Natural Heritage (2014) *Siting and Designing Windfarms in the Landscape*.

LCT 3: Dissected Sandstone Coughs and Valleys

LCT Location Map



Churnet Valley Landscape Character Areas

1a – Alton and Oakamoor

1b – Froghall and Consall Forge

1c – Cheddleton & Longsdon

Key Landscape Characteristics[24]

- Deeply incised wooded valleys with narrow winding watercourses, including the main body of the River Churnet.
- A mixture of semi-natural landscapes are found in this character type, including moorland landscape at Ramshom Common in the north of the area, and lowland heathland elsewhere.
- Grade I listed extensive Historic Parkland near Alton Towers includes designed lakes surrounding an early 19th Century Country House. Alton is also a designated Conservation Area.
- Stone buildings and walls constructed of locally sourced sandstone. On the fringes of settlements newer buildings may not relate to these traditional characteristics.
- Land use is mainly low intensity sheep and cattle farming in small-scale fields with some smallholdings.
- Large broadleaf woodlands, much of which is Ancient, with newer conifer plantations.
- Narrow sunken lanes with hedgebanks and tall hedges that limit views and create a sense of enclosure.
- Dominant views to higher ground.
- Lowland heathland.
- Rocky outcrops are dominant features on higher ground.
- Valuable areas for nature conservation including Consall Nature Park and Coombes Valley Nature Reserve. These areas are also popular for recreation.
- Alton Towers Resort and theme park, golf courses, Churnet Valley steam railway and country parks are all popular tourism destinations. There are caravan parks located in Cotton and Alton.
- The Staffordshire Way and other rights of way provide recreational routes to be experienced on foot, bicycle or horseback. Sabrina Way Bridleway and Denstone/Oakamoor Cycleway. There are also areas of Open Access Land near Alton Common.
- Alternative rights of way include the Churnet Valley Railway and Caldon Canal, which also provide a link to the former industrial activity in the area.
- Remnant industrial heritage at the Bolton Copperworks, Froghall Wharf and Limekilns at Froghall and Consall.
- Incongruous features include current and former sand and gravel quarrying and busy roads including the A520 and A53.

[24] These Key Characteristics are derived from the 2008 Landscape and Settlement Character Assessment of Staffordshire Moorlands and the 2011 Churnet Valley Landscape Character Assessment, with some additional information gained from fieldwork undertaken for this study.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Landform and scale					**H**
	Small, intimate landform of deeply incised wooded valleys with narrow winding watercourses, including the main body of the River Churnet. Elevation ranges from 140m to over 300m AOD. In some areas to the south and west of Cheadle the landform is more open and has a larger, less enclosed field pattern than the areas within the Churnet Valley. Fields are generally regular walled enclosures of small scale and human scale features are frequent throughout. These include blocks of ancient woodland, smallholdings and historically significant buildings.				
Land cover pattern and complexity				**M-H**	
	There is mixed land use throughout this LCT, with low intensity sheep and cattle grazing pastures interspersed with semi-natural habitats, woodland, specimen trees and historic estate parkland. Field patterns vary in size and regularity, with smaller more irregular field patterns found between blocks of woodland. There are extensive recreational facilities and heritage features throughout. Winding sunken lanes plunge steeply down the valley slopes. A number of well-screened quarries and sand and gravel pits are found in the landscape.				
Skylines				**M-H**	
	Alton Castle forms a distinctive feature on the skyline. Rocky outcrops are a notable feature of this LCT. Elsewhere, much of the skyline is wooded and undeveloped, although pylon lines form man-made structures near Dilhorne. The wooded skyline to the west of Oakamoor is a prominent feature, which is overlooked from the east (including from LCT 6). There are also locally important skyline edges to Leek at City Lane and Lowe Hill.				
Visibility and views			**M**		
	There are dominant views to higher ground in surrounding LCTs from within the valleys, although views from the landscape's narrow, sunken lanes are limited by vegetation cover. There are views to LCT 6 which include several telecommunications masts.				
Natural and cultural heritage aspects				**M-H**	
	The Churnet Valley and Coombes Valley SSSIs cover large areas in this LCT, designated for their ancient woodland habitats with semi-natural grassland which supports a range of species including rare birds and invertebrates. Bath Pasture SSSI, Dimmingsdale and Ranger SSSI, Whiston Eaves SSSI and Froghall Meadow and Pastures SSSI include valued tracts of acid grassland, heathland and broadleaved woodland. In addition, significant areas of land are designated locally for their nature conservation interest. Nationally important heritage features are found in this LCT, including the Alton Castle Scheduled Monument, Grade I registered parkland and Grade I Listed Building. Alton village contains a designated Conservation Area, as does Cheddleton; also significant lengths of the Caldon Canal form a Conservation Area. The LCT includes significant parts of the Leek & Ladderedge, Cheddleton, Wetley Rocks & Werrington and Alton HECZs[25], along with a small part of the Upper Tean HECZ. All of the land within these zones is classed as of either 'High' or 'Medium' historical value[26], excepting a small area to the north west of Cheddleton which is classed as 'Low'.				

[25] Historic Environment Conservation Zone, as defined in the Historic Environment Character Assessment for the Staffordshire Moorlands, August 2010 (Staffordshire County Council).

[26] 'Historical value' is defined in the above document as *'the extent to which the heritage assets are legible within the landscape and how they interact: this can include specific aspects of the landscape and individual buildings. Historical associations with events or persons can also add value to the ability of the public and community to engage with the heritage... The opportunities for the use and appropriate management of the heritage assets to enhance local distinctiveness and contribution to the sense of place'* are also considered.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Amenity and recreation				**M-H**	
	The Staffordshire Way crosses through this LCT, and there are several other public rights of way branching from this route, including a promoted route around Dimmingsdale. The Alton Towers theme park and resort attracts significant amounts of tourism to the area. Alternative recreational destinations include two golf courses, the Churnet Valley Railway, Caldon Canal and Ladderedge Country Park. There are also significant areas of Open Access land north of Alton Common.				
Scenic and special qualities				**M-H**	
	In the more rural areas, the enclosure afforded by the vegetation and the narrow winding lanes produces a sense of secrecy and tranquillity. Extensive semi-natural woodland cover along the main Churnet Valley and its tributaries affords a naturalistic feel to much of this LCT. The areas to the west and south of Cheadle are less wooded and intimate, although they still offer a valued rural backdrop to small settlements and have moderate levels of woodland cover. Although not designated at a national level, the Churnet Valley is *'a treasured part of the Staffordshire Moorlands which is rich in history and natural beauty…'*[27].				
Perceptual character			**M**		
	This LCT is afforded a high level of tranquillity as a result of high levels of tree cover and the naturalistic habitats found throughout this LCT. An historic estate parkland character also remains throughout this landscape. Although there is large scale active and disused quarrying and a large theme park at Alton Towers within this LCT, both are very well screened by the landform and tree cover. Associated traffic on local roads can, however, impact on levels of tranquillity locally.				
Discussion on landscape sensitivity	Despite the presence of quarrying activity, this LCT has many features and characteristics which result in an increased sensitivity to wind energy development, including its small, intricate valley landforms, large tracts of naturalistic woodland and grassland habitats, valued historic landscapes and features and high frequency of human scale features. Sensitivity is slightly lower in the south of the LCT, where landscape scale is larger and there are existing/former (well-screened) commercial sand and gravel extraction sites.				
Sensitivity to different turbine heights	**Category A (15-30m)**				**M**
	Category B (31-50m)				**M-H**
	Category C (51-80m)				**H**
	Category D (81-110m)				**H**
	Category E (111-140m)				**H**
	The small scale and complexity of the landform, its small-scale field patterns and the frequency of human-scale features result in it being assessed as of high sensitivity to any turbines larger than those within Category B. The Churnet Valley and its tributaries would be highly sensitive to all but Category A turbines. Some of the LCT's key characteristics and qualities might also be susceptible to change as a result of the development of Category A and B turbines – please refer closely to the guidance in the next section.				

[27] Churnet Valley Masterplan (March 2014) Supplementary Planning Document, Staffordshire Moorlands District Council. Accessed from http://www.staffsmoorlands.gov.uk/sm/council-services/area-action-plans/churnet-valley-masterplan

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Commentary on different turbine groupings • Single turbine • Small cluster (2-3 turbines) • Small wind farm (4-6 turbines) • Medium wind farm (7-10 turbines) • Large wind farm (11-15 turbines)	The intimate scale of the landform and fields means that this LCT is likely to be highly sensitive to any developments larger than a 'single turbine'. The larger scale areas in the south of the LCT would be highly sensitive to any developments greater than 'small clusters' of up to three turbines.				

Strategy and guidance for wind energy development

Overall strategy for wind energy development in the landscape

This LCT as a whole is highly sensitive to any turbines greater than 50m to blade tip, and any proposals larger than a single turbine development. The small-scale valley landforms of the River Churnet and its tributaries would also be highly sensitive to any turbines higher than 30m to blade tip, and any developments larger than a single turbine.

The larger-scale landscape in the south of the LCT, with existing and disused quarrying activity, may have limited opportunities for the careful siting of turbines up 50m to blade tip, in groups of up to three.

Some of the LCT's key characteristics and qualities might also be sensitive to the development of turbines of up to 30m (Category A) – please carefully consider the guidance below.

Current patterns of permitted wind energy development

There is currently one wind energy scheme permitted in this LCT (as of 23 October 2014)

- A single Category B turbine (34.2m to blade tip) at Dale Bank Farm, Winnothdale.

Current cumulative landscape and visual issues

There are currently no cumulative issues arising in this LCT from turbines already present in the landscape, or in the surrounding landscapes.

Summary of landscape constraints

The following landscape constraints should be taken account of in the proposed siting and design of wind energy developments:

- The intimate, small scale landscape of deeply incised valleys with narrow winding watercourses on the valley bottoms.
- The many landscape features that convey a human scale, particularly trees, woodland, small-scale field patterns and farmsteads.
- Large tracts of naturalistic landcover, including SSSI-designated ancient woodland, heathland and grasslands on valley sides.
- The presence of notable heritage features, including the Grade I registered parkland and Listed Building at Alton Towers, and the Conservation Areas at Alton, Cheddleton and the Caldon Canal.
- Areas assessed as of 'high' historical value in the Leek & Ladderedge, Cheddleton, Wetley Rocks & Werrington, Alton and Upper Tean HECZs.
- Distinctive rocky outcrops on skylines and wooded areas overlooked by other LCTs.
- The tranquil and 'secretive' nature of the wooded valleys, crossed by narrow sunken lanes plunging down steep slopes.

Guidance for future wind energy development

When siting and designing wind energy developments in this LCT, the generic guidance in **Chapter 5** should be taken into account. Within this LCT, particular care will need to be taken to ensure:

- Wind energy development does not overwhelm the generally small scale nature of the complex landform and its frequent human scale features.
- Sites within the deeply incised, small scale valleys and tributaries of the River Churnet are avoided.
- Areas of nationally and locally important semi-natural habitat are protected (considering both direct disturbance and impacts on naturalistic landscape character), particularly tracts of ancient woodland, heathland and semi-natural grassland.

- Opportunities are explored to link development to areas of existing commercial activity, particularly the quarries and sand/gravel extraction sites that are already well screened by woodland.
- Consideration is given to the effect of turbines on the integrity and setting of heritage features, including the Grade I listed Alton Castle and its parkland estate and the Conservation Areas at Alton, Cheddleton and the Caldon Canal.
- The historic sense of place associated with the Blythe Bridge & Forsbrook and High Tean HECZs and Caverswall Conservation Area is respected when considering the siting of turbines.
- The delivery of turbines does not adversely impact on the character of the landscape's sunken winding lanes enclosed by woodland and hedges.
- Turbines do not conflict with the characteristic skylines marked by specimen trees, woodland and distinctive rocky outcrops.
- The overlooked wooded skyline west of Oakamoor should be avoided as a location for development.
- The landscape's locally important scenic and tranquil qualities (particularly relating to the Churnet Valley) are retained.

Guidance for siting multiple developments within this LCT

While it is accepted that some cumulative change to landscape character could result from wind energy development in the future, multiple wind energy developments in this LCT should:

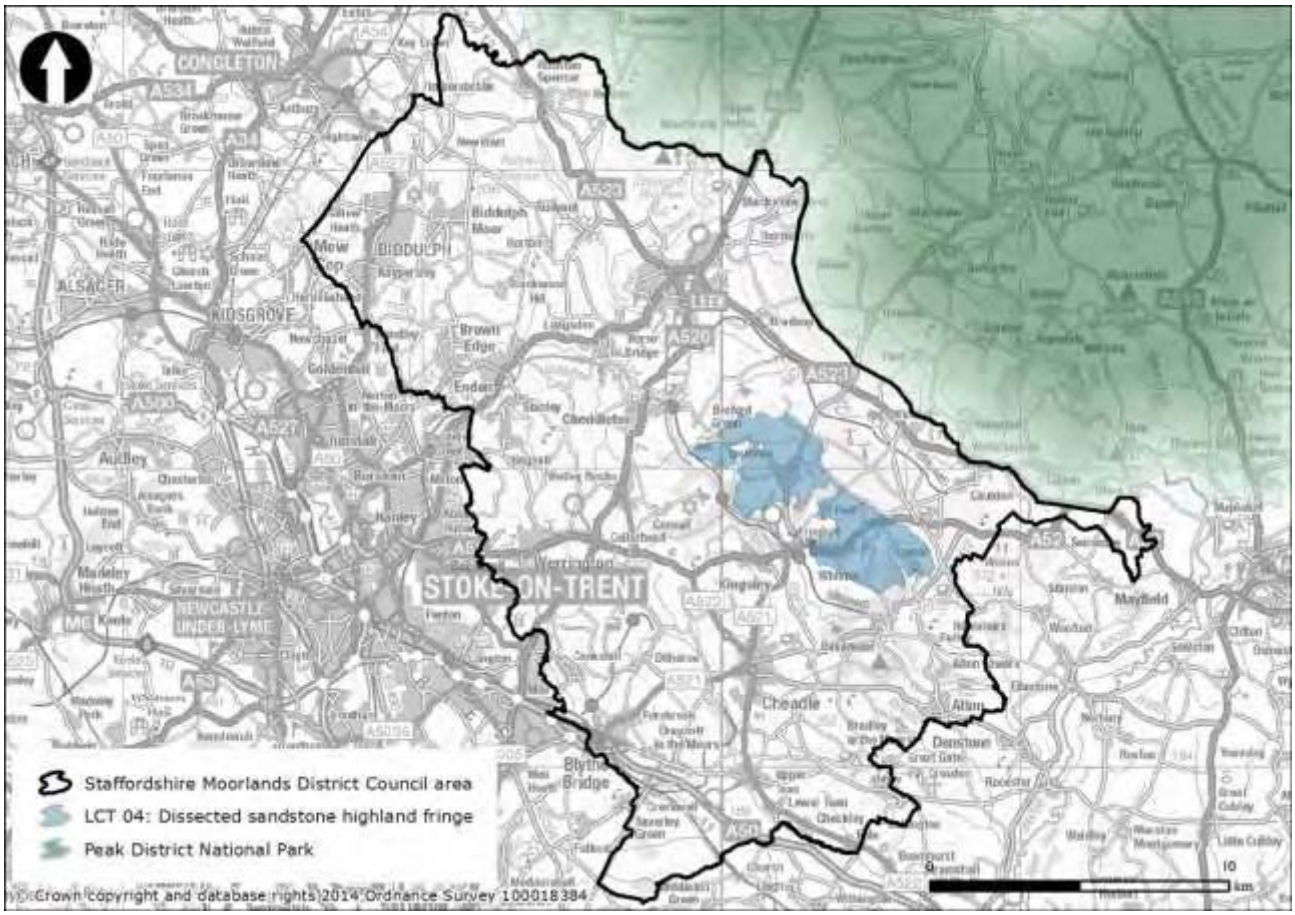
- Respect the underlying landscape character of the LCT (see the key characteristics at the start of this assessment).
- Collectively not become a key characteristic or defining influence on the character of the landscape (with reference to the definition of 'landscape capacity'[28]) – both in the LCT as a whole, in a given area, or when viewed sequentially from transport and recreational routes passing through the area.
- Be similar in terms of siting, layout and relationship to key landscape characteristics, so as to present a simple image that relates clearly to landscape character[29] – for example through a clear association of Category A and B turbines with farm or industrial buildings/structures.
- Avoid close juxtaposition of different turbine designs and heights within the same category, aiming instead for a consistent design and height in a given area.
- Avoid creating visual confusion when siting turbines in proximity to existing tall structures such as pylons and masts, including in the landscape around Dilhorne.

[28] "Landscape capacity refers to the degree to which a particular landscape character area is able to accommodate change without significant effects on its character, or overall change of landscape character type…" (Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment Guidance for England and Scotland*).

[29] See Scottish Natural Heritage (2014) *Siting and Designing Windfarms in the Landscape*.

LCT 4: Dissected Sandstone Highland Fringe

LCT Location Map



Churnet Valley Landscape Character Areas

3a – Ipstones and Whiston

Key Landscape Characteristics[30]

- Steep sided valleys and rounded dissected landform with an open character on the upland edge.
- Narrow stream valleys wooded with broadleaved trees, although these have been extended by the introduction of blocks of conifer plantation.
- Small to medium scale pastoral landscape. Frequent hedges in poor condition result in the landscape having a larger sense of scale.
- Fields are hedge lined or bounded by dry stone walls.
- Highly important and valuable semi-natural habitats including lowland acidic grassland and wet woodland.
- Scattered hedgerow trees.
- A mixture of stone built and red brick farmhouses are found throughout the area.
- The busy A52 and B5053 roads cut through the area, elsewhere roads consist of narrow, steep and winding lanes.
- Wide and distant views which extend out to other character areas.
- In the valleys, broadleaved woodlands comprised of oak, rowan, birch, beech and sycamore are extended by newer blocks of coniferous plantation.
- Former large scale quarrying activity at Moneystone Quarry, still affecting local landscape character.
- Extensive public rights of way network, including the Sabrina Way and a National Bridleroute Network.
- Golf course at Whiston is a dominant feature in the landscape and a destination for recreational activity.

[30] These Key Characteristics are derived from the 2008 Landscape and Settlement Character Assessment of Staffordshire Moorlands and the 2011 Churnet Valley Landscape Character Assessment, with some additional information gained from fieldwork undertaken for this study.

Landscape Sensitivity Assessment for Wind Energy Development

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Landform and scale			**M**		
	An undulating, rounded landform that is frequently dissected by valleys with small streams. These valleys are adjoined by a larger scale ridgeline with an open character, rising to 330 metres AOD along Ipstones Edge. The valleys throughout this landscape create areas of localised small scale character. Frequent hedgerow and in-field trees, bands of woodland, red-brick/stone farmsteads and cottages, and traditional field barns convey a human scale to the landscape.				
Land cover pattern and complexity				**M-H**	
	This is predominantly a pastoral landscape with small-medium sized rectilinear fields bounded by a mixture of hedgerows and dry stone walls. Semi-natural habitats including heathland, semi-natural grassland, purple moor grass, bracken and wet woodland contribute significantly to the naturalistic character of this area. Other variety is provided by pony paddocks, a golf course, fishing lakes and well-screened quarries.				
Skylines				**M-H**	
	Skylines on higher ground are open and undeveloped – the elevated Ipstones Edge is particularly prominent in the wider landscape. On lower ground higher levels of tree cover produce a wooded skyline.				
Visibility and views				**M-H**	
	The LCT overlooks and forms a backdrop to the Churnet Valley (LCT 3). There is also strong intervisibility with the ridgeline at Morridge (LCT 6), which lies in front of the Peak District National Park.				
Natural and cultural heritage aspects			**M**		
	Part of the Churnet Valley SSSI is contained within this LCT, designated for its ancient woodland and semi-natural grassland habitats which also support a range of bird and invertebrate species. There are numerous local wildlife sites found throughout which include ancient woodland, species rich grasslands and marshy grassland habitats. The historic settlement of Ipstones includes a Conservation Area. Disused mines and mining shafts around the village provide a rich legacy of past land use, visible in the hummocky landform. The LCT includes the Ipstones HECZ[31] the majority of which is classed as of 'High' historical value[32] (the remaining area is classed as of 'Medium' value).				
Amenity and recreation				**M-H**	
	This LCT has a high amenity and recreation value, as it is crossed by an extensive public rights of way network, included promoted routes such as the Staffordshire Way and the Sabrina Trail bridleway. The golf course at Whiston is a dominant feature in the landscape and a destination for recreational activity. Fishing lakes in this vicinity are also recreational destinations.				
Scenic and special qualities				**M-H**	
	Although this LCT is not within or adjacent to a nationally designated landscape, the elevated landform means that it contributes to the wider setting of the Peak District National Park. The LCT itself has a strong rural character, with traditional land uses and areas of semi-				

[31] Historic Environment Conservation Zone, as defined in the Historic Environment Character Assessment for the Staffordshire Moorlands, August 2010 (Staffordshire County Council).

[32] 'Historical value' is defined in the above document as *'the extent to which the heritage assets are legible within the landscape and how they interact: this can include specific aspects of the landscape and individual buildings. Historical associations with events or persons can also add value to the ability of the public and community to engage with the heritage... The opportunities for the use and appropriate management of the heritage assets to enhance local distinctiveness and contribution to the sense of place'* are also considered.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
	natural habitat and frequent trees creating a strong sense of naturalness.				
Perceptual character			**M**		
	The sparse settlement and limited vegetation at higher elevations result in an exposed upland character, with higher levels of tranquillity in the stream valleys as a result of enclosure afforded by vegetation. Busy roads (particularly the A52 in the south) affect levels of tranquillity locally.				
Discussion on landscape sensitivity	Despite the gently undulating landform, presence of a large-scale ridgeline and existence of busy transport routes and former quarrying activity, the open, undeveloped character of the higher ground, frequency of human-scale features, contribution of the LCT to the wider setting of the National Park, historic landscape character and valued tracts of naturalistic landcover all increase levels of sensitivity.				
Sensitivity to different turbine heights	**Category A (15-30m)**				**M**
	Category B (31-50m)				**M**
	Category C (51-80m)				**H**
	Category D (81-110m)				**H**
	Category E (111-140m)				**H**
	The frequency of human-scale features in the landscape and strong visual prominence of the elevated ridgeline mean that this LCT is likely to be highly sensitive to turbines larger than those within Category B. Some of the LCT's key characteristics and qualities might also be susceptible to change as a result of the development of Category A and B turbines – please refer closely to the guidance in the next section.				
Commentary on different turbine groupings • Single turbine • Small cluster (2-3 turbines) • Small wind farm (4-6 turbines) • Medium wind farm (7-10 turbines) • Large wind farm (11-15 turbines)	The small to medium-scale fields and complex landcover patterns mean that this LCT would be highly sensitive to any developments larger than a 'small cluster'.				

Strategy and guidance for wind energy development

Overall strategy for wind energy development in the landscape

This LCT is highly sensitive to any turbines higher than 50m to blade tip, and to groups of more than three turbines. Areas of more intricate landform and smaller-scale field patterns associated with the LCT's tributary valleys would be highly sensitive to any developments other than single turbines of up to 30m to blade tip.

Some of the LCT's key characteristics and qualities might also be sensitive to the development of turbines of up to 50m (Categories A and B) – please carefully consider the guidance below.

The highly prominent Ipstones Edge would be highly sensitive to all scales of wind energy development.

Current patterns of permitted wind energy development

There are currently no permitted or operational turbines located within this LCT.

Current cumulative landscape and visual issues

Key cumulative issues arising in this LCT are:

- There are prominent views to two Category B turbines in LCT 6 on the Morridge ridgeline, when viewed from Ipstones Edge.

It would be important to consider the intervisibility between these existing turbines and any proposed sites on Ipstones Edge, to understand any potential cumulative issues.

Summary of landscape constraints

The following landscape constraints should be taken account of in the proposed siting and design of wind energy developments:

- The strong visual prominence of the open, undeveloped Ipstones Edge and intervisibility with the ridgeline at Morridge (LCT 6).
- The presence of intricate, steep sided valleys at lower elevations with high levels of tranquillity.
- The small scale field patterns and frequency of human-scale features including hedgerow and in-field trees, bands of woodland, farmsteads, cottages, and traditional field barns.
- Designated areas of semi-natural habitat including lowland acidic grassland and wet woodland.
- The distinctive, hummocky landform around Ipstones – a legacy of the area's mining heritage creating a strong historic sense of place.
- Areas assessed as of 'high' historical value in the Ipstones HECZ.
- Wide and distant views which extend out to the Peak District National Park (with the LCT forming a part of the wider setting to the protected landscape).

Guidance for future wind energy development

When siting and designing wind energy developments in this LCT, the generic guidance in **Chapter 5** should be taken into account. Within this LCT, particular care will need to be taken to ensure:

- The most prominent, elevated and undeveloped sites are avoided as sites for development, including Ipstones Edge and locations that are intervisible with the Peak District National Park.
- Avoid locations within the steep sided valleys as turbines are likely to overwhelm the small scale and intimacy of these areas.
- Areas of nationally and locally important semi-natural habitat are protected (considering both direct disturbance and impacts on naturalistic landscape character), including tracts of ancient

woodland, heathland and semi-natural grassland.

- The legibility of historic features and past land uses is considered, particularly areas within the Ipstones Conservation Area and HECZ and where hummocky landforms are a legacy of the area's mining heritage.
- Opportunities are explored to link development to areas of former quarrying activity, which are already well screened by woodland.
- Look to retain the landscape's high levels of tranquillity and relative remoteness.
- The landscape's role as a backdrop to the Churnet Valley, and as part of the wider setting of the Peak District National Park, is considered.

Guidance for siting multiple developments within this LCT

While it is accepted that some cumulative change to landscape character could result from wind energy development in the future, multiple wind energy developments in this LCT should:

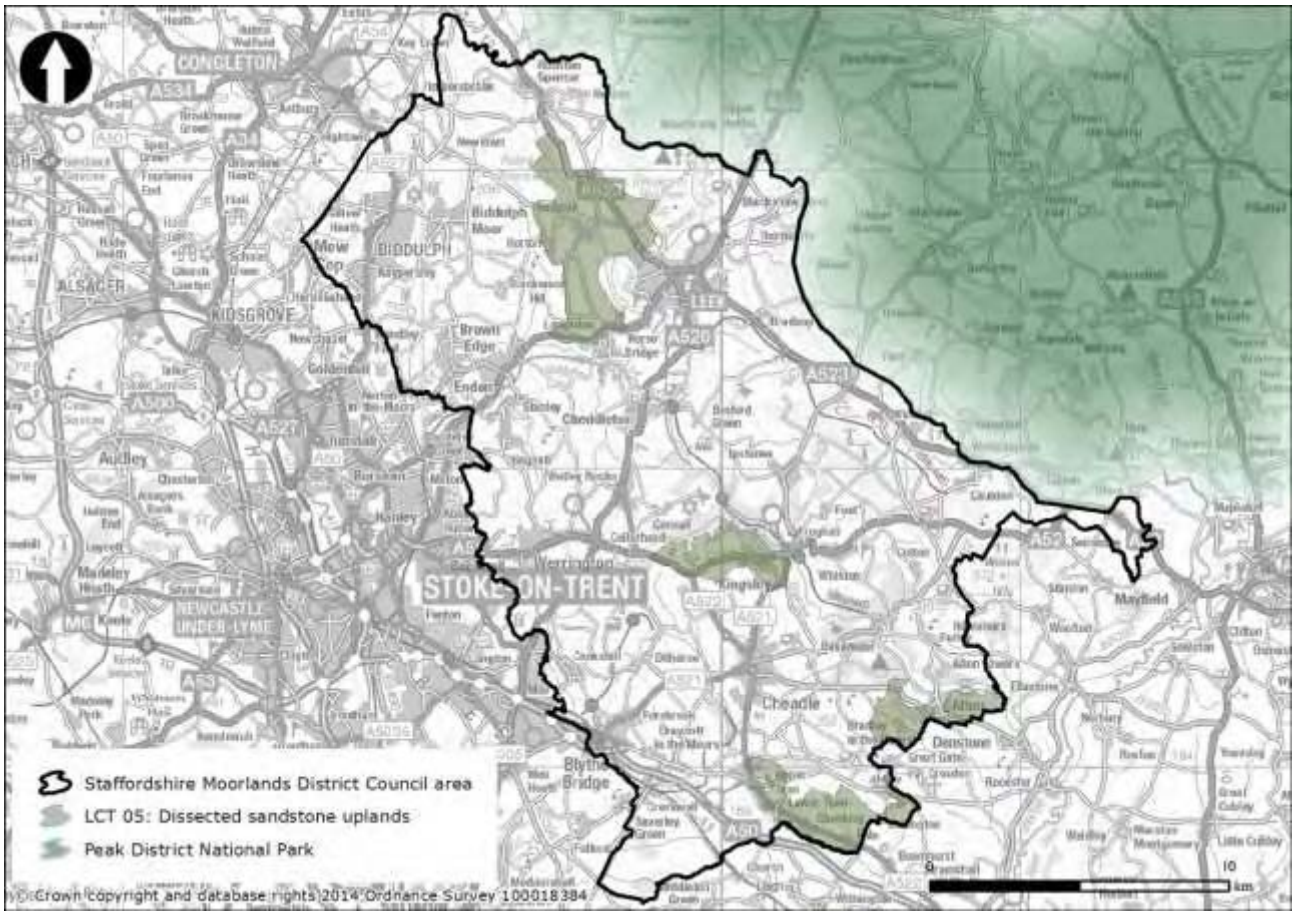
- Respect the underlying landscape character of the LCT (see the key characteristics at the start of this assessment).
- Collectively not become a key characteristic or defining influence on the character of the landscape (with reference to the definition of 'landscape capacity'[33]) – both in the LCT as a whole, in a given area, or when viewed sequentially from recreational and transport routes passing through the area (such as the A52).
- Be similar in terms of siting, layout and relationship to key landscape characteristics, so as to present a simple image that relates clearly to landscape character[34] – for example through a clear association of Category A and B turbines with farm or industrial buildings/structures.
- Avoid close juxtaposition of different turbine designs and heights within the same category, aiming instead for a consistent design and height in a given area.
- Avoid creating visual confusion when siting turbines in proximity to existing tall structures such as pylons and masts.

[33] "Landscape capacity refers to the degree to which a particular landscape character area is able to accommodate change without significant effects on its character, or overall change of landscape character type…" (Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment Guidance for England and Scotland*).

[34] See Scottish Natural Heritage (2014) *Siting and Designing Windfarms in the Landscape*.

LCT 5: Dissected Sandstone Uplands

LCT Location Map



Churnet Valley Landscape Character Areas

2a – Alton

2b – Kingsley

2c – Rudyard

Key Landscape Characteristics[35]

- A transitional landscape of rolling hills dissected by wooded small scale valleys.
- Small to medium scale hedged field pattern, with hedgerow trees and some drystone walls. Hedges are a dominant landscape feature.
- Low intensity pastoral farming is the predominant land use.
- Dispersed isolated settlement pattern with red brick and stone buildings. Some isolated farm buildings are run down.
- Blocks of woodland used for forestry and small copses of semi-natural broadleaved woodland.
- Views are restricted by vegetation and hedges and are limited in extent to the surrounding hillsides.
- The busy main roads of the A52, A53 and the A523 run through this area, although there are numerous winding sunken lanes running throughout the area.
- Banked hedgerows which are beginning to deteriorate in some areas and have been supplemented with post and wire fencing.
- Remnant historic parkland at Dunwood Hall, Cliffe Park Hall and Harracles Hall.
- Rudyard Reservoir is a popular destination for tourism and recreation.
- Settlements generally have a mix of construction styles with traditional buildings constructed of stone and newer brick dwellings. The historic core of Horton village is defined as a Conservation Area.
- More modern development has caused loss of traditional character in some settlements including the village of Upper Tean.
- Valued semi-natural habitat including lowland heathland, lowland acidic grassland and ancient woodland.
- The Staffordshire Way crosses through this area from north-south.
- Industrial activity is associated with Kingsley Quarry.

[35] These Key Characteristics are derived from the 2008 Landscape and Settlement Character Assessment of Staffordshire Moorlands and the 2011 Churnet Valley Landscape Character Assessment, with some additional information gained from fieldwork undertaken for this study.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Landform and scale			**M**		
	Rounded medium-scale undulating landform dissected by small scale wooded valleys resulting in variations in landform scale. Rudyard Reservoir sits within a deep, enclosed valley. Elevation ranges from 115m to 250m AOD near Hollins. The landscape includes frequent mature in-field and hedgerow trees, bands of woodland, stone walls and scattered buildings which convey a human scale.				
Land cover pattern and complexity				**M-H**	
	The predominant land use is low intensity grazing of cattle and sheep in small to medium, regular fields. Areas of remnant historic parkland, rush pasture, wetlands (e.g. Mill Pond), bracken and trees/woodland bring much texture to the landscape. Rudyard Reservoir occupies a large area, overlooked by steep wooded slopes.				
Skylines				**M-H**	
	Blocks of woodland scattered throughout the landscape and frequent hedgerow and in-field trees result in strong wooded skylines. The towering spire of St Chad's church, Longsdon (Grade II*) is an important local landmark of historic significance. Another more modern skyline feature is the chimney at the Kingsley Quarry complex. This is sometimes visible locally in views glimpsed through woodland.				
Visibility and views			**M**		
	Views are mainly restricted by vegetation, trees and hedges and are limited in extent to the surrounding hillsides (including LCTs 2, 6 and 7). The LCT forms a rural backdrop and surrounding to several settlements including Kingsley and Leek.				
Natural and cultural heritage aspects				**M-H**	
	Saltersford Lane Meadows SSSI is found in the south of this LCT, designated for its species-rich meadow habitat. Sites of Biodiversity Interest are found at Mill Pond and Rudyard dismantled railway. In addition, part of the Ladderedge Country Park Local Nature Reserve is also found within this LCT. Characteristic heritage features within this area include remnant historic parklands at Dunwood Hall, Cliffe Park Hall and Harracles Hall and the Conservation Area at Horton. A Scheduled bowl barrow is situated on the slopes above Lower Tean. The LCT includes part of the Upper Tean HECZ[36], along with all of the Kingsley, and areas of the Alton and Leek & Ladderedge HECZs. All of the land within these zones is classed as of either 'High' or 'Medium' historical value[37] (excepting a small area of the Alton HECZ at Newhouse Farm which is classed as 'Low').				
Amenity and recreation				**M-H**	
	The Staffordshire Way runs north-south through this area, and runs adjacent to the Rudyard Reservoir, which also offers significant outdoor recreational and amenity value. The Rudyard Lake promoted walking route is found within this LCT. Other rights of way link settlements within the landscape and there are very small pockets of access land covering woodlands near Rudyard.				
Scenic and special qualities			**M**		
	Although the landscape is not nationally designated for its scenic quality, it provides a scenic rural backdrop to several settlements including Alton, Kingsley and Rudyard. There is a historic parkland estate feel throughout much of this LCT, particularly in the				

[36] Historic Environment Conservation Zone, as defined in the Historic Environment Character Assessment for the Staffordshire Moorlands, August 2010 (Staffordshire County Council).

[37] 'Historical value' is defined in the above document as *'the extent to which the heritage assets are legible within the landscape and how they interact: this can include specific aspects of the landscape and individual buildings. Historical associations with events or persons can also add value to the ability of the public and community to engage with the heritage... The opportunities for the use and appropriate management of the heritage assets to enhance local distinctiveness and contribution to the sense of place'* are also considered.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
	areas around Alton and Rudyard.				
			M		
Perceptual character	This landscape has a traditional rural character, evoking feelings of tranquillity due to the enclosure provided by tree and woodland cover and general absence of modern development. This is eroded locally where the A52, A53 and the A523 main road corridors cross through, reducing local levels of tranquillity. Elsewhere there are numerous quiet, winding and sunken lanes which reinforce the rural qualities of the landscape.				
Discussion on landscape sensitivity	Despite its enclosed character and the presence of main roads (eroding local levels of tranquillity) and the prominent chimney structure at Kingsley Quarry, the complexity of the landscape patterns with tracts of naturalistic land cover, historic estate character and valued heritage features, strong levels of tranquillity and strong, undeveloped wooded skylines all heighten levels of sensitivity.				
Sensitivity to different turbine heights	**Category A (15-30m)**				**M**
	Category B (31-50m)				**M-H**
	Category C (51-80m)				**H**
	Category D (81-110m)				**H**
	Category E (111-140m)				**H**
	The frequency of human-scale features including mature in-field and hedgerow trees, bands of woodland, stone walls and scattered buildings mean that this LCT would be highly sensitive to all but Category A and B turbines. Some of the LCT's key characteristics and qualities might also be susceptible to change as a result of the development of Category A and B turbines – please refer closely to the guidance in the next section.				
Commentary on different turbine groupings • Single turbine • Small cluster (2-3 turbines) • Small wind farm (4-6 turbines) • Medium wind farm (7-10 turbines) • Large wind farm (11-15 turbines)	The scale of the landscape and role of the LCT as a backdrop to settlements mean that it will be highly sensitive to any wind farm developments larger than a 'small cluster'.				

Strategy and guidance for wind energy development

Overall strategy for wind energy development in the landscape

This LCT is highly sensitive to any wind turbines higher than 50m to blade tip, and developments comprising more than three turbines. The landscape's small-scale valleys (tributaries of the Churnet) should only be considered for single turbine developments of up to 30m to blade tip.

Category B turbines (31-50m to blade tip) should only be considered in locations where the landform is more open and gently rolling, defined by regular medium-scale field patterns (e.g. around Croxden, Upper Ellastone and east of Rudyard). In all cases, the guidance below should be carefully followed.

Some of the LCT's key characteristics and qualities might also be sensitive to the development of turbines of up to 50m (Categories A and B) – please carefully consider the guidance below.

Current patterns of permitted wind energy development

There are currently no permitted or existing wind energy schemes within this LCT.

Visual relationships with a Category B turbine (34.2m to blade tip) at Red Earth Farm, LCT 6, should be borne in mind when considering proposals in the north of this LCT. This will be particularly important for sites on the elevated land east of Rudyard.

Current cumulative landscape and visual issues

There are currently no cumulative landscape or visual issues arising within this LCT.

Summary of landscape constraints

The following landscape constraints should be taken account of in the proposed siting and design of wind energy developments:

- The area's varied landscape scale, with small tributary valleys creating a sense of intimacy.
- The frequency of human-scale landscape features including mature in-field and hedgerow trees, bands of woodland, stone walls and scattered buildings.
- Valued areas of semi-natural habitat bringing texture to the landscape, including species-rich meadows, wetlands, rush pasture and semi-natural woodland.
- An historic sense of place associated with remnant historic parkland at Dunwood Hall, Cliffe Park Hall, Harracles Hall and Horton Conservation Area.
- Areas assessed as of 'high' historical value in the Upper Tean, Kingsley, Alton and Leek & Ladderedge HECZs.
- Distinctive wooded skylines and the landmark church tower of St Chad's, Longsdon (Grade II* listed).
- The role of the LCT as a tranquil, countryside backdrop to the settlements of Alton, Kingsley, Leek and Rudyard.

Guidance for future wind energy development

When siting and designing wind energy developments in this LCT, the generic guidance in **Chapter 5** should be taken into account. Within this LCT, particular care will need to be taken to ensure:

- Wind energy development does not overwhelm the human scale of the LCT's many landscape features, including mature in-field and hedgerow trees, bands of woodland, stone walls and scattered buildings.
- Valued semi-natural habitats including species-rich meadows, wetlands, rush pasture and semi-natural woodland, are protected (considering both direct disturbance and impacts on

naturalistic landscape character).

- The legibility of historic features and past land uses is considered, particularly areas within the Upper Tean, Kingsley, Alton and Leek & Ladderedge HECZs.
- Special consideration is given to the effects of wind turbines on the integrity and setting of historic parkland estates as well as the Conservation Area at Horton.
- The location of turbines does not conflict with or affect the appreciation of the LCT's characteristic wooded skylines and the prominent Grade II* church tower at St Chad's, Longsdon.
- Avoid siting turbines within key views, especially those allowing uninterrupted vistas to the surrounding hillsides of LCTs 2, 6 and 7.
- The landscape's relatively tranquil, historic estate and rural character, valued as a rural backdrop to settlements, is retained.

Guidance for siting multiple developments within this LCT

While it is accepted that some cumulative change to landscape character could result from wind energy development in the future, multiple wind energy developments in this LCT should:

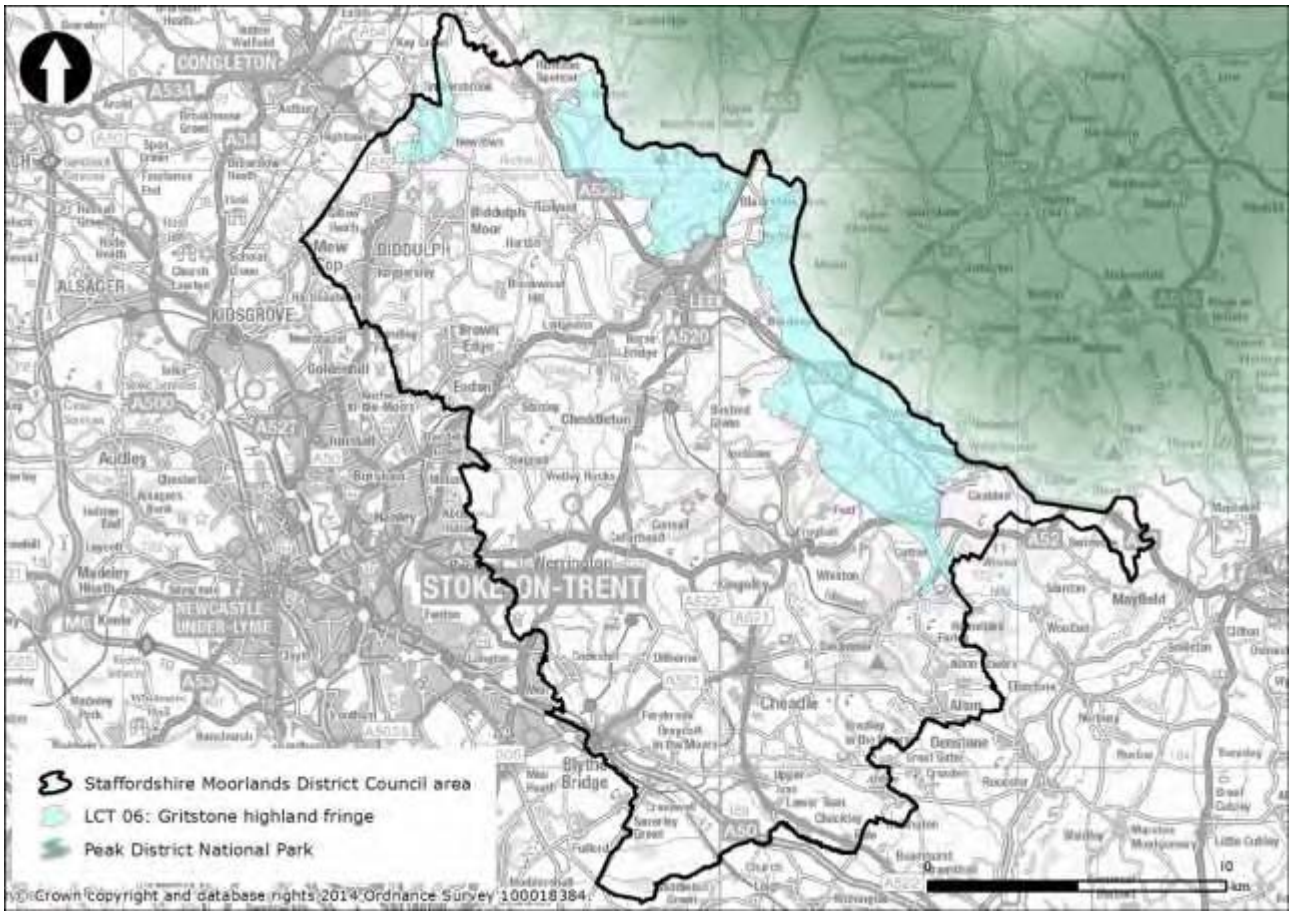
- Respect the underlying landscape character of the LCT (see the key characteristics at the start of this assessment).
- Collectively not become a key characteristic or defining influence on the character of the landscape (with reference to the definition of 'landscape capacity'[38]) – both in the LCT as a whole, in a given area, or when viewed sequentially from recreational and transport routes passing through the area (such as the A52, A53 and A523).
- Be similar in terms of siting, layout and relationship to key landscape characteristics, so as to present a simple image that relates clearly to landscape character[39] – for example through a clear association of Category A and B turbines with farm or industrial buildings/structures.
- Avoid close juxtaposition of different turbine designs and heights within the same category, aiming instead for a consistent design and height in a given area.
- Avoid creating visual confusion when siting turbines in proximity to existing tall structures such as pylons, masts and the chimney at Kingsley Quarry.

[38] "Landscape capacity refers to the degree to which a particular landscape character area is able to accommodate change without significant effects on its character, or overall change of landscape character type…" (Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment Guidance for England and Scotland*).

[39] See Scottish Natural Heritage (2014) *Siting and Designing Windfarms in the Landscape*.

LCT 6: Gritstone Highland Fringe

LCT Location Map



Churnet Valley Landscape Character Areas

6a – Tittesworth and Leek

Key Landscape Characteristics[40]

- Large scale, steeply sloping, smooth rolling upland landscape with plateaux, steep slopes and valleys.
- Skyline ridges with long distance panoramic views, particularly to and from the South West Peak LCT in the National Park.
- Highly visible from the surrounding character areas.
- Heathland areas encroached by sparse scrubby woodland.
- Large rectangular fields enclosed in the main with gritstone walls, with some hedgerows.
- Fields are mainly used for pastoral grazing and are enclosed by a mixture of derelict hedgerows and dry stone walls, with newer post and wire fencing to maintain stock control.
- Tree cover is sparse and is generally limited to blocks of conifer plantations and broadleaf woodland following narrow valleys.
- Tittesworth Reservoir and its visitor centre attract significant recreation and tourism to the area.
- Valued semi-natural habitats including moorland and upland grassland.
- Two designated SSSIs at Thorncliffe Moor and Swineholes Wood and Blackheath.
- Traditional building vernacular is of stone construction.
- Industrial activity including quarrying (with significant transport movements) and busy roads (particularly the A523) intrude on the landscape.

[40] These Key Characteristics are derived from the 2008 Landscape and Settlement Character Assessment of Staffordshire Moorlands and the 2011 Churnet Valley Landscape Character Assessment, with some additional information gained from fieldwork undertaken for this study.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Landform and scale			**M**		
	This is a large scale, smooth rolling upland landscape with some steep, visible slopes. It includes flat plateau areas as well as the elevated ridgeline at Morridge, rising to over 400m AOD. Lower lying areas include the Tittesworth Reservoir, which sits within a 'bowl' surrounded by rising land. Frequent tree and woodland cover away from the most exposed ridgelines creates a sense of enclosure and human scale. Other human scale features include stone-built cottages, walls, scattered farmsteads and hamlets.				
Land cover pattern and complexity			**M**		
	The main land use is pasture for stock rearing in medium to large rectangular fields. Higher elevations include areas of remnant heathland and wind-sculpted trees. Conifer plantations, large swathes of woodland and frequent trees (including veteran specimens) provide texture to the landscape.				
Skylines				**M-H**	
	Skylines are largely undeveloped and open, or marked by occasional trees and woodland. Morridge forms an elevated transitional boundary to the Peak District National Park. It is a strongly visible feature that forms a backdrop to views from across the district and the National Park. A group of telecommunications masts mark the skyline near Swineholes Wood, sitting in contrast to the adjacent heathland nature reserves.				
Visibility and views					**H**
	The elevated nature of much of the LCT means it is characterised by far-reaching and often panoramic views. There are also expansive views across the wooded Churnet Valley (LCT 3). From the high ridgeline of Morridge, views into the National Park (including The Roaches) and across the western half of the district are afforded. The landscape forms an upland, rural backdrop to the nearby town of Leek and features in views from many parts of the District.				
Natural and cultural heritage aspects				**M-H**	
	This LCT contains two SSSIs (Thorncliffe Moor and Swineholes Wood and Blackheath) which are designated for their upland heath and acidic grassland habitats. There are also numerous blocks of ancient woodland, particularly around Tittesworth Reservoir. Additionally there is a Scheduled Monument at the remains of Dieu-la-Cres Abbey which is within the locally registered remnant historic parkland of Abbey Green. The LCT includes parts of the Leek & Ladderedge and Waterhouses HECZs[41]. All of the land within these zones is classed as of either 'High' or 'Medium' historical value[42].				
Amenity and recreation				**M-H**	
	Tittesworth Reservoir is a popular recreational resource, and forms a hub to a strong rights of way network crossing the LCT. This includes lengths of the Churnet Way Long Distance Path, (including the 'Leek to Peak' walk). The Hamps Way Long Distance Path crosses through the eastern part of the LCT. There are patches of access land around Swineholes Wood and Black Heath.				
Scenic and special					**H**

[41] Historic Environment Conservation Zone, as defined in the Historic Environment Character Assessment for the Staffordshire Moorlands, August 2010 (Staffordshire County Council).

[42] 'Historical value' is defined in the above document as *'the extent to which the heritage assets are legible within the landscape and how they interact: this can include specific aspects of the landscape and individual buildings. Historical associations with events or persons can also add value to the ability of the public and community to engage with the heritage... The opportunities for the use and appropriate management of the heritage assets to enhance local distinctiveness and contribution to the sense of place'* are also considered.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
qualities	This LCT abuts and forms part of the setting for the White Peak and South West Peak character areas[43] of the Peak District National Park, contributing to the flow of landscape character beyond the National Park boundary, sense of wildness and remoteness and opportunities to experience tranquillity and quiet enjoyment (which are recognised as 'special qualities' of the National Park). This is a highly rural landscape with a remote, upland character on the higher elevations.				
Perceptual character				**M-H**	
	Overall, this landscape evokes a strong sense of remoteness and relative tranquillity, with an upland feel. This is diluted locally by the presence of busy main roads (e.g. the A523), modern structures such as telecommunications masts and views to nearby quarrying activity at Cauldon Low (LCT 8).				
Discussion on landscape sensitivity	The larger scale landform in this LCT, along with the presence of existing main roads and vertical structures, may indicate lower sensitivity to wind energy development. However, the proximity of this landscape to the National Park, the prominent ridgeline of Morridge forming a backdrop to long-ranging views, frequent human scale features, largely undeveloped skylines and locally valued levels of remoteness and tranquillity all heighten sensitivity. Elevated ridgeline locations visible from the Peak District National Park would be highly sensitive to any wind energy development.				
Sensitivity to different turbine heights	**Category A (15-30m)**				**M**
	Category B (31-50m)				**M-H**
	Category C (51-80m)				**H**
	Category D (81-110m)				**H**
	Category E (111-140m)				**H**
	The high levels of intervisibility with the rest of the district, proximity to the Peak District National Park and frequency of human-scale features mean that this landscape is likely to be highly sensitive to any turbines larger than those within Category B. Some of the LCT's key characteristics and qualities might also be susceptible to change as a result of the development of Category A and B turbines – please refer closely to the guidance in the next section.				
Commentary on different turbine groupings • Single turbine • Small cluster (2-3 turbines) • Small wind farm (4-6 turbines) • Medium wind farm (7-10 turbines) • Large wind farm (11-15 turbines)	The visual prominence of this LCT and the presence of many features that convey a human scale means that it will be highly sensitive to any developments larger than 'small clusters'. Locations immediately adjacent to the National Park will be highly sensitive to all but single turbine developments.				

[43] As identified and described in the Peak District Landscape Character Assessment (July 2009)

Strategy and guidance for wind energy development

Overall strategy for wind energy development in the landscape

The majority of the LCT is highly sensitive to turbines higher than 30m to blade tip and in groups of more than three. Locations associated with larger scale plateau areas may be less sensitive to carefully sited single Category B turbines (up to 50m to blade tip), or clusters of up to three turbines.

Some of the LCT's key characteristics and qualities might also be sensitive to the development of turbines of up to 30m (Category A) – please carefully consider the guidance below.

Elevated sites overlooked by the Peak District National Park would be highly sensitive to any wind energy developments.

Current patterns of permitted wind energy development

There are currently five permitted schemes within this LCT (correct as of 23 October 2014):

- A single Category A turbine of 18.15m to blade tip at Blakelow Farm, near Ipstones (operational)
- A single Category A turbine of 20.35m to blade tip at Ipstones Park Farm, Ipstones
- A single Category B turbine of 34.2m to blade tip at Garstones Farm, Morridge (operational)
- A single Category B turbine of 34.2m to blade tip at Red Earth Farm, near Rudyard (operational)
- A single Category B turbine of 34.5m to blade tip at Slate House Farm, Morridge (operational)

There are also views from higher elevations to a Category B turbine (34.5m) at Higher Overton Farm, LCT 7.

Current cumulative landscape and visual issues

Key cumulative issues arising in this LCT are:

- The two single turbines at Slate House Farm and Garstones Farm on the Morridge ridgeline are highly visible in the same view from the main A523 road, as well as in many distant views from LCTs in the western part of the district.
- Further wind energy developments within this LCT should take account of the current cumulative issues associated with existing turbines on the same ridgeline.

Summary of landscape constraints

The following landscape constraints should be reflected in the proposed siting and design of wind energy developments:

- The elevated, largely undeveloped skylines with long distance panoramic views, including to and from the South West Peak area of the National Park.
- The frequency of landscape features conveying a human scale to the landscape (away from the more exposed ridgelines), including trees, woodland and stone-built cottages.
- Nationally designated tracts of semi-natural habitat including areas of upland heath and acidic grassland, as well as blocks of ancient woodland.
- The Scheduled remains of Dieu-la-Cres Abbey, set within historic remnant parkland.
- Areas classed as of 'High' historical value within the Leek & Ladderedge and Waterhouses HECZs.
- The landscape's remote, upland character, role as a setting to the Peak District National Park and Churnet Valley, and function as rural backdrop to Leek.

Guidance for future wind energy development

When siting and designing wind energy developments in the landscape, the generic guidance in **Chapter 5** should be taken into account. Within this LCT particular care will need to be taken to ensure:

- Locations on the most prominent and undeveloped skyline ridges are avoided as sites for development (particularly Morridge, which is visible from many parts of the district).
- Valued naturalistic habitats are retained - including tracts of heathland, acidic grassland and ancient woodland (considering both direct disturbance and impacts on naturalistic landscape character).
- Special consideration is given to the landscape and visual effects of turbines on the approaches to and settings of historic buildings and settlements, as well as the Scheduled Dieu-la-Cres Abbey set within remnant parkland.
- The legibility of the historic landscape, valued within the Leek & Ladderedge and Waterhouses HECZs, is considered in any proposals.
- The landscape's remote, rural character, particularly valued in its function as a countryside backdrop to Leek, is retained.
- Wind energy development does not adversely affect the setting or 'flow of landscape character' across the boundary of the Peak District National Park. Elevated ridgeline sites which sit at a height above the neighbouring designated landscape should be avoided.

Guidance for siting multiple developments within this LCT

While it is accepted that some cumulative change to landscape character could result from future wind energy development, multiple wind energy developments in this LCT should:

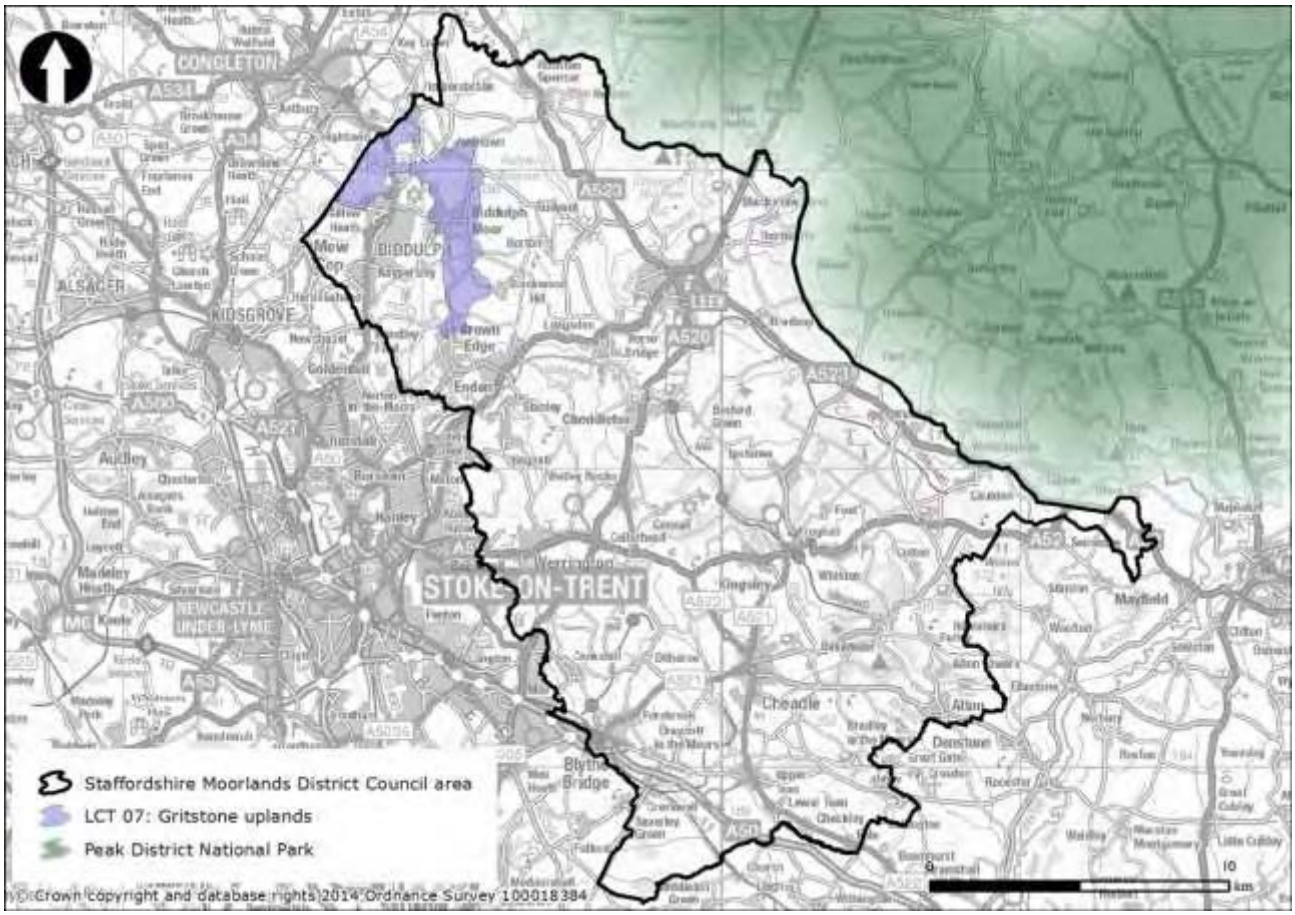
- Respect the underlying landscape character of the LCT (see the key characteristics at the start of this assessment).
- Collectively not become a key characteristic or defining influence on the character of the landscape (with reference to the definition of 'landscape capacity'[44]) – both in the LCT as a whole, in a given area, or when viewed sequentially from recreational and transport routes passing through the area (e.g. the A523).
- Be similar in terms of siting, layout and relationship to key landscape characteristics, so as to present a simple image that relates clearly to landscape character[45] – for example through a clear association of Category A and B turbines with farm buildings.
- Avoid close juxtaposition of different turbine designs and heights within the same category, aiming instead for a consistent design and height in a given area.
- Avoid creating visual confusion when siting turbines in proximity to existing tall structures such as pylons and masts, including the telecommunications masts near Swineholes Wood.

[44] "Landscape capacity refers to the degree to which a particular landscape character area is able to accommodate change without significant effects on its character, or overall change of landscape character type…" (Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment Guidance for England and Scotland*).

[45] See Scottish Natural Heritage (2014) *Siting and Designing Windfarms in the Landscape*.

LCT 7: Gritstone Uplands

LCT Location Map



Key Landscape Characteristics[46]

- Upland ridge landscape comprising strongly undulating slopes with localised steep sided valleys.
- Open upland plateau with extensive views eastward towards the Manifold Valley.
- Ridgeline of Lask Edge is found to the east of Biddulph Moor.
- Scale of the landscape varies from small in the valley bottoms to medium on higher ground.
- Varying sized fields with deteriorating boundaries of hedgerows and some dry stone walls. Due to the poor quality of the field boundaries post and wire fencing has been introduced in many areas for stock control.
- Scattered large farms with stone buildings which along with local settlements are becoming more urbanised. In some areas there is a mixture of traditional stone buildings and newer redbrick development.
- The main land use is low intensity pastoral farming of sheep and cattle.
- Trees are grouped around dwellings and vegetation is concentrated along stream lines. Blocks of ancient woodland are found along the north western edge of this LCT.
- This LCT provides a rural surrounding for the Grade I listed Historic Registered Park and Garden and Conservation Area at Biddulph Grange.
- 16th Century Biddulph Old Hall is designated as a Scheduled Monument and Grade II* listed building.
- There are no major roads or other transport routes through this area.
- Valuable semi natural habitats including those designated as Local Nature Reserves along Biddulph Valley Way and at Marshes Hill Common.
- There are numerous public rights of way including the Staffordshire Way and Biddulph Valley Way.

[46] These Key Characteristics are derived from the 2008 Landscape and Settlement Character Assessment of Staffordshire Moorlands, with some additional information gained from fieldwork undertaken for this study.

Landscape Sensitivity Assessment for Wind Energy Development

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Landform and scale				**M-H**	
	The landform is primarily ridged and rugged, with elevation ranging from 235m to 336m AOD at Lask Edge. The Congleton Edge ridgeline drops steeply down on either side, and is strongly intervisible with the Lask Edge, which forms the opposite eastern edge of the LCT. Generally the area has an open upland and in places moorland feel, with scattered farm buildings and houses, dry stone walls and telegraph poles offering a human scale to the landscape. The landscape is large scale on the plateau top with occasional trees.				
Land cover pattern and complexity		**L-M**			
	The land is primarily utilised for low intensity pastoral farming and horse paddocks in regular, small to medium-sized fields. Blocks of ancient woodland in the north west of the LCT offer variation to the generally uniform land cover pattern.				
Skylines				**M-H**	
	Along the elevated, prominent ridges the skylines are generally undeveloped, marked by wind-sculpted trees and woodland, and are visible from long distances. Lower lying land to the north of the LCT and close to Biddulph Grange is characterised by wooded skylines. The Sutton Common BT Tower at Croker Hill (within Cheshire East District) is visible in north easterly views.				
Visibility and views				**M-H**	
	This LCT, combined with LCT 2, forms a valued rural and relatively remote backdrop to the settlement of Biddulph. From the open upland areas (including Lask and Congleton Edges) there are extensive views eastward towards Morridge and the Manifold Valley and the Roaches within the Peak District National Park. Views westward stretch across Cheshire and Jodrell Bank is visible from elevated areas along the Congleton Edge.				
Natural and cultural heritage aspects			**M**		
	The Biddulph Valley Way Local Nature Reserve is found in the north of this area, and there also several local wildlife sites designated for their woodland, semi-natural grassland and heathland habitats. This LCT provides a rural surrounding for the Grade I listed Historic Registered Park and Garden and Conservation Area at Biddulph Grange. The 16th Century Biddulph Old Hall is designated as a Scheduled Monument and Grade II* listed building. The LCT includes portions of the Biddulph & Biddulph Moor HECZ[47]. All of the land within these zones is classed as of either 'High' or 'Medium' historical value[48].				
Amenity and recreation			**M**		
	The Biddulph Grange Registered Park and Garden and the Council- managed Country Park fall adjacent to the landscape (in LCT 2). This is a valued local recreational resource. Several promoted Staffordshire Moorlands routes cross this LCT, including the Staffordshire Way. Rights of Way provision is extensive across the landscape.				
Scenic and special qualities			**M**		
	None of the LCT falls within or is adjacent to the Peak District National Park, although its elevated ridgelines are strongly intervisible with the protected landscape, including The Roaches, Morridge and the Manifold Valley. Although not nationally designated for				

[47] Historic Environment Conservation Zone, as defined in the Historic Environment Character Assessment for the Staffordshire Moorlands, August 2010 (Staffordshire County Council).

[48] 'Historical value' is defined in the above document as *'the extent to which the heritage assets are legible within the landscape and how they interact: this can include specific aspects of the landscape and individual buildings. Historical associations with events or persons can also add value to the ability of the public and community to engage with the heritage... The opportunities for the use and appropriate management of the heritage assets to enhance local distinctiveness and contribution to the sense of place'* are also considered.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
	its scenic qualities, this LCT itself is locally valued for its remote, upland characteristics and long-ranging views.				
Perceptual character				**M-H**	
	The upland plateau has a bleak, upland character and the absence of major roads and industrial activity results in this LCT having a more 'wild' feel than the surrounding lower lying areas, resulting in higher levels of sensitivity.				
Discussion on landscape sensitivity	Although this landscape includes large-scale plateau areas and relatively consistent landcover patterns, its undeveloped and highly visible skylines, remote perceptual qualities, strong intervisibility with the National Park and general absence of modern development heightens sensitivity to wind energy development.				
Sensitivity to different turbine heights	**Category A (15-30m)**				**L-M**
	Category B (31-50m)				**M**
	Category C (51-80m)				**H**
	Category D (81-110m)				**H**
	Category E (111-140m)				**H**
	The high visual prominence of much of this landscape means that it would be highly sensitive to any turbines within Category C or above. Some of the LCT's key characteristics and qualities might also be susceptible to change as a result of the development of Category A and B turbines – please refer closely to the guidance in the next section.				
Commentary on different turbine groupings • Single turbine • Small cluster (2-3 turbines) • Small wind farm (4-6 turbines) • Medium wind farm (7-10 turbines) • Large wind farm (11-15 turbines)	The high levels of visibility and frequent human scale features indicate that this LCT is likely to be highly sensitive to any developments larger than 'small clusters'.				

Strategy and guidance for wind energy development

Overall strategy for wind energy development in the landscape

This LCT is highly sensitive to turbines greater than 50m to blade tip and in groups of more than three. It would be less sensitive to single Category A or Category B turbines that are carefully sited away from the most prominent ridgelines.

Limited locations (e.g. on the larger scale plateau) may be less sensitive to groups of up to three turbines, if the guidance below is closely followed.

Some of the LCT's key characteristics and qualities might also be sensitive to the development of turbines of up to 50m (Categories A and B) – please carefully consider the guidance below.

Current levels of permitted wind energy development

There is currently one permitted scheme within this LCT (correct as of 23 October 2014):

- A single Category B turbine of 34.5m to blade tip at Higher Overton Farm (operational).

There are also views to an existing Category B wind turbine of 34.2m to blade tip at Red Earth Farm, LCT 6.

Current cumulative landscape and visual issues

Visual relationships with a Category B turbine (34.2m to blade tip) at Red Earth Farm, LCT 6, should be borne in mind when considering proposals in the north of this LCT. This will be particularly important for sites on the elevated land east of Rudyard.

Summary of landscape constraints

The following landscape constraints should be reflected in the proposed siting and design of wind energy developments:

- Elevated upland ridge landscape with prominent undeveloped skylines, including Congleton Edge and Lask Edge.
- The presence of locally important tracts of semi-natural grassland, woodland and heathland habitats.
- The nearby Grade I listed Historic Registered Park and Garden and Conservation Area at Biddulph Grange (in adjacent LCT 2).
- The 16th Century Biddulph Old Hall, designated as a Scheduled Monument and Grade II* listed building.
- The role of the Congleton Edge as a prominent backdrop to the Cheshire Plain and the landscape's overall role as a setting to the lower-lying settlement of Biddulph (in conjunction with LCT 2).
- Areas assessed as of 'High' historical value within the Biddulph & Biddulph Moor HECZ.
- Strong levels of intervisibility with the Peak District National Park, owing to the landscape's elevated and open character.
- The landscape's high levels of tranquillity and remoteness, often evoking perceptions of bleakness.

Guidance for future wind energy development

When siting and designing wind energy developments in the landscape, the generic guidance in **Chapter 5** should be taken into account. Within this LCT particular care will need to be taken to ensure:

- Locations on the prominent, mostly undeveloped Congleton Edge and Lask Edge ridgelines are avoided as sites for development.
- Valued naturalistic habitats are retained (considering both direct disturbance and impacts on naturalistic landscape character), including tracts of semi-natural grassland, woodland and

heathland.

- The historic sense of place associated with the Biddulph & Biddulph Moor HECZ and the character and integrity of the nearby Grade I registered parkland and Conservation Area at Biddulph Grange is respected.
- The siting of wind turbines does not affect the character or integrity of the nationally important 16th Century Biddulph Old Hall.
- Wind turbines do not prevent the appreciation of extensive views eastward across the district, or role of the landscape as a setting to the Peak District National Park.
- The function of the landscape as a remote, elevated backdrop to Biddulph and the settled Cheshire Plain is considered in any proposals.
- The strong feelings of tranquillity and remoteness associated with the landscape are retained.

Guidance for siting multiple developments within this LCT

While it is accepted that some cumulative change to landscape character could result from wind energy development in the future, multiple wind energy developments in this LCT should:

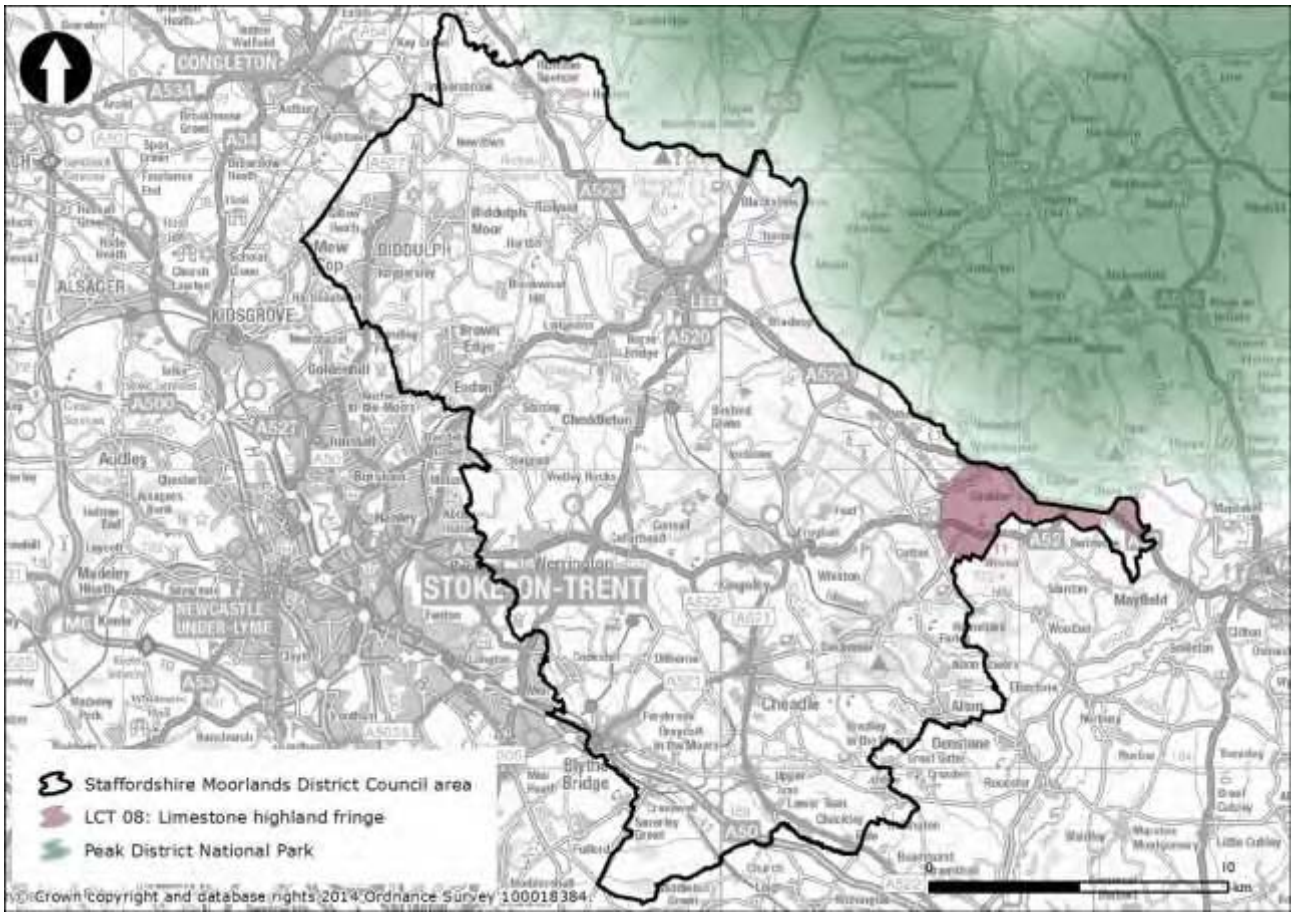
- Respect the underlying landscape character of the LCT (see the key characteristics at the start of this assessment).
- Collectively not become a key characteristic or defining influence on the character of the landscape (with reference to the definition of 'landscape capacity'[49]) – both in the LCT as a whole, in a given area, or when viewed sequentially from transport and recreational routes passing through the area.
- Be similar in terms of siting, layout and relationship to key landscape characteristics, so as to present a simple image that relates clearly to landscape character[50] – for example through a clear association of Category A and B turbines with farm buildings.
- Avoid close juxtaposition of different turbine designs and heights within the same category, aiming instead for a consistent design and height in a given area.
- Avoid creating visual confusion when siting turbines in proximity to existing tall structures such as pylons and masts, including a telecommunications mast standing at 318m AOD on Lask Edge.

[49] "Landscape capacity refers to the degree to which a particular landscape character area is able to accommodate change without significant effects on its character, or overall change of landscape character type…" (Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment Guidance for England and Scotland*).

[50] See Scottish Natural Heritage (2014) *Siting and Designing Windfarms in the Landscape*.

LCT 8: Limestone Highland Fringe

LCT Location Map



Key Landscape Characteristics[51]

- Smooth, open, pastoral upland landscape, with localised steeply incised valleys.
- Uninterrupted extensive views extend over the District and towards the Peak District National Park.
- Highly visible from surrounding areas.
- Abuts the White Peak landscape of the Peak District National Park to the north.
- Limestone walls enclosing large regular shaped fields. Stone walls are replaced by wire fencing in some places.
- Sparse tree cover on the upland landscape, with trees that are present being highly visible within the landscape.
- Within the valleys, trees are more populous, including both coniferous and broadleaved plantations.
- Incongruous limestone quarries and cement processing plant on Cauldon Low that dominate the area.
- Pastoral farming of sheep and cattle is the other main land use.
- Busy roads including the main A523, which are often busy with quarry traffic.
- Buildings are predominantly constructed of limestone, and are hidden within the valleys.
- Semi natural vegetation including calcareous and neutral grassland. Two of the four SSSIs in the area are designated for the presence of calcareous grassland. Cauldon Low and Cauldon Railway Cutting SSSIs are designated for their geological importance.
- Historically significant barrows (often designated as Scheduled Monuments) are occasionally located on top of hills.

[51] These Key Characteristics are derived from the 2008 Landscape and Settlement Character Assessment of Staffordshire, with some additional information gained from fieldwork undertaken for this study.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Landform and scale		**L-M**			
	Large-scale, smooth open landscape with a plateau-like character in places. There are a series of rounded hill summits including Milk Hill (286m AOD), Cliff Top (316m AOD) and above Hoftens Cross. Undulating slopes with greater levels of woodland cover are smaller in scale, and therefore of higher sensitivity to this criterion. Higher ground has fewer human-scale features than the more wooded slopes, limited to scattered in-field trees, stone walls and field barns. Scattered stone cottages and farmsteads are found throughout.				
Land cover pattern and complexity			**M**		
	Rectilinear fields are medium in scale, forming more intricate and stronger patterns on slopes. The main land use is pasture for sheep and dairy cattle. This is broken up by occasional small woodland copses and plantations on higher ground. Significant tree and woodland cover on slopes brings texture to lower elevations. The western part of the LCT is dominated by the large-scale Cauldon Low and Wardlow quarries and associated infrastructure.				
Skylines				**M-H**	
	Barrows and tumuli frequently crown hilltops, including three Scheduled Monuments. These form distinctive historic skyline features. Elsewhere elevated skylines are generally open, undeveloped and marked by trees or woodland. The chimney at Cauldon Low quarry introduces a man-made vertical structure (115m high) that can be seen from long distances.				
Visibility and views				**M-H**	
	Due to its elevation and open character, there are frequent uninterrupted and extensive views across the western part of the district and south into East Staffordshire. Although the LCT lies directly adjacent to the Peak District National Park, equivalent elevations mean that views between the two landscapes are generally limited. The Weaver Hills to the south (in East Staffordshire district) frame and overlook the LCT to the south. These hills are marked by numerous ancient tumuli and barrows in elevated positions.				
Natural and cultural heritage aspects			**M**		
	There are four SSSIs in this LCT, which are designated for a combination of geological and semi-natural habitat features, including calcareous and neutral grassland. A significant number of Sites of Biological Importance also reflect the importance of remnant areas of semi-natural grassland. Prehistoric barrows and tumuli on hilltops (some of which are Scheduled Monuments), areas of former mine workings visible as hummocky landforms, stone field barns and the strong pattern of planned walled enclosures bring a sense of time depth to the LCT. The LCT includes part of the Waterhouses HECZ[52], with approximately half of this area classed as of 'High' historical value[53] and half classed as 'Low'.				
Amenity and recreation			**M**		
	A strong network of rights of way crosses through the landscape. This includes part of the popular Manifold Way cycle trail, with cycle hire facilities provided at Waterhouses. Although within the National Park, this honeypot location brings recreational users into				

[52] Historic Environment Conservation Zone, as defined in the Historic Environment Character Assessment for the Staffordshire Moorlands, August 2010 (Staffordshire County Council).

[53] 'Historical value' is defined in the above document as *'the extent to which the heritage assets are legible within the landscape and how they interact: this can include specific aspects of the landscape and individual buildings. Historical associations with events or persons can also add value to the ability of the public and community to engage with the heritage... The opportunities for the use and appropriate management of the heritage assets to enhance local distinctiveness and contribution to the sense of place'* are also considered.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
	the landscape of the LCT. The slopes to the west of Wardlow Quarry are open access land, as is a band of woodland on the lower fringes of Milk Hill.				
Scenic and special qualities				**M-H**	
	The northern edge of the LCT lies directly adjacent to the White Peak landscape character area, as defined in the Peak District Landscape Character Assessment (2009). The landscape therefore provides an important setting to the protected landscape and contributes to the National Park's special quality of *'the flow of landscape character across and beyond the National Park boundary'.* It also contributes to other special qualities including a sense of wildness and remoteness and opportunities to experience tranquillity and quiet enjoyment.				
Perceptual character				**M-H**	
	Despite the quarrying activity dominating the west of the LCT, and the presence of the busy A52 and A523 road corridors, overall this is a strongly rural landscape with an upland feel. Its historic landscape features (including stone walls and barns) contribute to a traditional sense of place to the landscape.				
Discussion on landscape sensitivity	The large-scale plateau landform, areas of consistent landcover, and presence of significant industrial activity (with tall chimney structure) may result in a lower sensitivity of this LCT to wind energy development. However, the undeveloped, elevated skylines of much of the LCT (frequently marked by ancient tumuli), uninterrupted and expansive views, and position directly adjacent to the National Park, presence of valued semi-natural habitats and strong historic sense of place all heighten sensitivity.				
Sensitivity to different turbine heights	**Category A (15-30m)**				**L-M**
	Category B (31-50m)				**M**
	Category C (51-80m)				**M-H**
	Category D (81-110m)				**H**
	Category E (111-140m)				**H**
	The open, highly visible and mostly undeveloped nature of this landscape mean it will be highly sensitive to any turbines higher than Category B. More visually contained land around or within the Cauldon Low quarry site may be less sensitive to carefully sited Category C turbines. Some of the LCT's key characteristics and qualities might also be susceptible to change as a result of the development of Category A and B turbines – please refer closely to the guidance in the next section.				
Commentary on different turbine groupings • Single turbine • Small cluster (2-3 turbines) • Small wind farm (4-6 turbines) • Medium wind farm (7-10 turbines) • Large wind farm (11-15 turbines)	The scale of the landform and fields, as well as the high elevation means that this LCT is likely to be highly sensitive to any developments larger than 'small clusters'.				

Strategy and guidance for wind energy development

Overall strategy for wind energy development in the landscape

All of this LCT is highly sensitive to wind turbines higher than 80m to blade tip and in groups of more than three turbines. The majority of the landscape is also highly sensitive to any developments comprising turbines with a blade tip height of more than 50m.

The exception to this is the contained large-scale quarry site at Cauldon Low, where there may be opportunities for the careful siting of larger turbines in Category C (up to 80m to blade tip).

Some of the LCT's key characteristics and qualities might also be sensitive to the development of turbines of up to 50m (Categories A and B) – please carefully consider the guidance below.

Current patterns of permitted wind energy development

There are currently two permitted wind energy schemes within this LCT (correct as of 23 October 2014):

- A single Category B turbine of 34.2m to blade tip at Forest Farm, Calton Moor (operational)
- A single Category B turbine of 34.5m to blade tip at Meadowside, Calton Moor (operational)

Current cumulative landscape and visual issues

Key cumulative issues arising in this LCT are:

- The existing turbines at Forest Farm and Meadowside can be seen collectively from some viewpoints within this LCT, particularly along the A523 which forms the boundary with the National Park.

These existing cumulative landscape and visual issues may be a constraint on further wind energy development.

Summary of landscape constraints

The following landscape constraints should be taken account of in the proposed siting and design of wind energy developments:

- The elevated, upland nature of the landscape with uninterrupted, extensive views across the district and into East Staffordshire.
- Intricate field patterns on slopes, with increased tree and woodland cover, along with scattered cottages and farmsteads, conveying a human scale.
- Areas of valuable semi-natural habitat, particularly calcareous grassland (including SSSIs).
- Ancient tumuli (often designated as Scheduled Monuments) marking undeveloped skylines, including those on the adjacent Weaver Hills, East Staffordshire.
- Areas classed as of 'High' historical value within the Waterhouses HECZ.
- The role of the LCT as an immediate setting to and continuation of the landscape character of the Peak District National Park.
- The landscape's strongly rural qualities and upland feel, particularly away from quarrying activity in the west.

Guidance for future wind energy development

When siting and designing wind energy developments in this LCT, the generic guidance in **Chapter 5** should be taken into account. Within this LCT, particular care will need to be taken to ensure:

- Sites which are characterised by uninterrupted key views are avoided, especially those to and from the Peak District National Park, across the District and into East Staffordshire.
- Turbines do not affect the appreciation or understanding of ancient tumuli forming features on

undeveloped skylines.

- Areas of nationally and locally important semi-natural habitat are protected (considering both direct disturbance and impacts on naturalistic landscape character), particularly tracts of remnant calcareous grassland.
- The historic sense of place and legibility of heritage assets within the Waterhouses HECZs are respected when considering the siting of turbines.
- Wind energy development does not adversely affect the setting or 'flow of landscape character' across the boundary of the Peak District National Park.
- The landscape's remote and strongly rural qualities away from quarrying activity in the west, are protected.
- Opportunities are explored to link development to areas of existing large-scale quarrying activity in the west.
- Where larger turbines are proposed, ensure that they do not overwhelm the human scale of local landscape features such as farmsteads, trees and stone walls.

Guidance for siting multiple developments within this LCT

While it is accepted that some cumulative change to landscape character could result from wind energy development in the future, multiple wind energy developments in this LCT should:

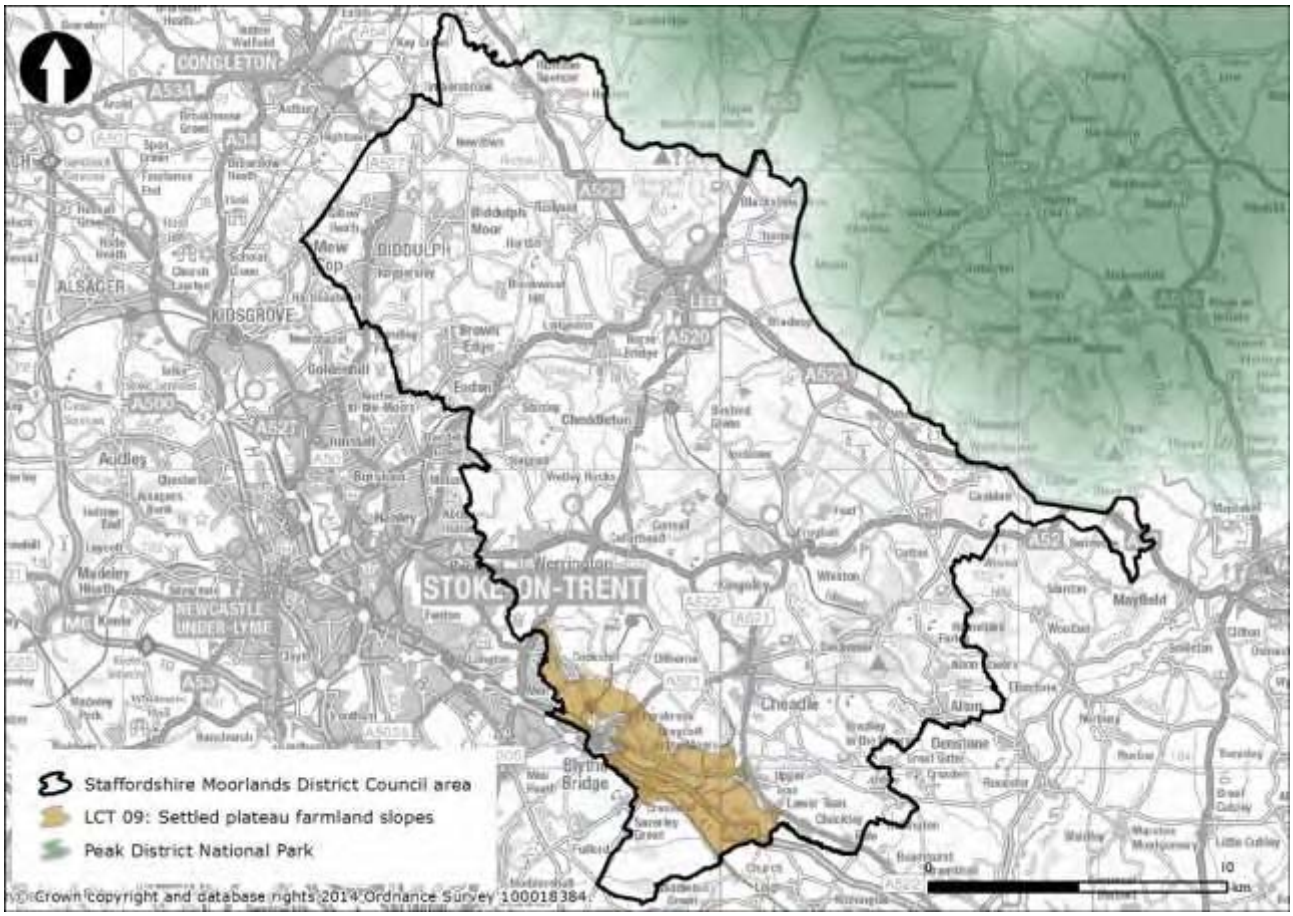
- Respect the underlying landscape character of the LCT (see the key characteristics at the start of this assessment).
- Collectively not become a key characteristic or defining influence on the character of the landscape (with reference to the definition of 'landscape capacity'[54]) – both in the LCT as a whole, in a given area, or when viewed sequentially from recreational and transport routes passing through the area.
- The above point is particularly relevant when considering views from the A523 – where two turbines are already seen in the same views.
- Be similar in terms of siting, layout and relationship to key landscape characteristics, so as to present a simple image that relates clearly to landscape character[55] – for example through a clear association of Category A and B turbines with farm or industrial buildings/structures.
- Ensure that any Category C turbines are sited well away from smaller turbines, so that the different size classes are not seen together.
- Avoid close juxtaposition of different turbine designs and heights within the same category, aiming instead for a consistent design and height in a given area.
- Avoid creating visual confusion when siting turbines in proximity to existing tall structures, including pylons and the 115m high quarry chimney at Cauldon Low.

[54] "Landscape capacity refers to the degree to which a particular landscape character area is able to accommodate change without significant effects on its character, or overall change of landscape character type…" (Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment Guidance for England and Scotland*).

[55] See Scottish Natural Heritage (2014) *Siting and Designing Windfarms in the Landscape*.

LCT 9: Settled Plateau Farmland Slopes

LCT Location Map



Key Landscape Characteristics[56]

- Gentle undulating landform with flat open valleys.
- Small scale ancient hedgerow field pattern, with frequent mature oak and ash trees creating a sense of enclosure.
- Irregular field boundaries, which are in a state of deterioration near the edge of Stoke-on-Trent, and have been replaced with post and wire fencing.
- Blocks of ancient semi-natural woodland at The Wing Drumble.
- Low lying wet fields with ponds and well vegetated streams lined with alder and willow trees.
- Views across the Stoke-on-Trent skyline from higher elevations.
- Views out of the area are limited by the small scale hedgerow pattern and dense tree cover.
- Predominant land use of low intensity pastoral farming.
- Urban fringe farming with horseyculture is encroaching into this landscape.
- Historical features in the landscape include the Conservation Area at Caverswall and the Grade II* Listed Church of St Margaret in Draycott in the Moors.
- Villages including Blythe Bridge, Forsbrook and Cresswell becoming more suburbanised with the conversion of farm buildings to residential accommodation and the construction of new brick houses among traditional properties.
- Incongruous A50 dual carriageway corridor and mainline Stoke to Derby railway which interrupt the rural nature of the landscape.

[56] These Key Characteristics are derived from the 2008 Landscape and Settlement Character Assessment of Staffordshire Moorlands, with some additional information gained from fieldwork undertaken for this study.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Landform and scale			**M**		
	This LCT primarily constitutes a gently undulating landform with wide, open valleys. Elevation ranges from 130m to 210m AOD. A human scale is provided by the presence of scattered trees, hedges, occasional blocks of woodland, housing and farmsteads. The open, intensively farmed land to the south of the A50 appears larger in scale due to a lower distribution of such features.				
Land cover pattern and complexity			**M**		
	This is a strongly farmed landscape with a mixture of pasture and some arable cultivation. Fields are a combination of small, irregular enclosures bounded by thick ancient hedges, and larger rectilinear fields enclosed by fencing. Horse paddocks, ponds, scattered trees and occasional woodland blocks provide some landscape variety.				
Skylines		**L-M**			
	Due to elevation, skylines are not particularly prominent. These are often marked by trees, pylons or views of housing.				
Visibility and views			**M**		
	Views tend to be self-contained, owing to both topography and the presence of thick, tall hedges. The more open landscape in the south, around Draycott-in-the-Moors and the A50, allows views south into the gently rolling countryside of Stafford District. The LCT forms a rural backdrop to Blythe Bridge and the eastern fringes of Stoke-on-Trent. Views west from the LCT are characterised by the urban skyline of the city.				
Natural and cultural heritage aspects			**M**		
	There is a Local Wildlife Site north-east of Newton, valued for its species-rich, semi-improved pasture. Low lying wet fields with ponds, well vegetated streams lined with alder and willow trees, and an area of ancient woodland at The Wing Drumble also provide areas of nature conservation interest. Important heritage features within this LCT include the Caverswall Conservation Area and the village's Grade I Listed castle, and a number of Listed Buildings within villages including St Margaret's church in Draycott (Grade II*). Disused railways provide evidence of the area's industrial past. The LCT includes land assessed as of 'High' historical value[57] in the Blythe Bridge and Forsbrook HECZ[58], as well as land classed as either 'High' or 'Medium' historical value in the Upper Tean HECZ.				
Amenity and recreation		**L-M**			
	The public rights of way network in this LCT is generally limited, with occasional routes crossing farmland to link the landscape's villages.				
Scenic and special qualities			**M**		
	This landscape is not located within or adjacent to a nationally designated landscape, however it does provide a locally important, scenic rural backdrop to the surrounding urban areas.				
Perceptual character			**M**		
	The rural nature of this LCT is interrupted by the main A50 trunk road and mainline railway which intersect the area. However, pockets of tranquillity are found throughout				

[57] 'Historical value' is defined in the above document as *'the extent to which the heritage assets are legible within the landscape and how they interact: this can include specific aspects of the landscape and individual buildings. Historical associations with events or persons can also add value to the ability of the public and community to engage with the heritage... The opportunities for the use and appropriate management of the heritage assets to enhance local distinctiveness and contribution to the sense of place'* are also considered.

[58] Historic Environment Conservation Zone, as defined in the Historic Environment Character Assessment for the Staffordshire Moorlands, August 2010 (Staffordshire County Council).

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
	as a result of the small scale of the landscape with high levels of enclosure. The busy roads and main line railways detract from this in localised areas. Industrial works are located near Cresswell.				
Discussion on landscape sensitivity	The large scale, gently undulating landform and urban influence may indicate lower levels of sensitivity to wind energy development in this LCT, however, the presence of small scale irregular field patterns, human-scale features in the form of hedges, trees and woodlands and the role of the LCT as a rural backdrop to surrounding settlements (including Stoke on Trent) result in increased sensitivity.				
Sensitivity to different turbine heights	**Category A (15-30m)**				**L-M**
	Category B (31-50m)				**M**
	Category C (51-80m)				**M-H**
	Category D (81-110m)				**H**
	Category E (111-140m)				**H**
	The small-scale landscape patterns, frequent presence of trees and hedges (conveying a human scale) and proximity to development mean this LCT would be highly sensitive to Category D and E turbines, and the majority to Category C turbines. The more open, large-scale landscape around the A50 in the south of the LCT may be slightly less sensitive to Category C turbines, where carefully sited. Some of the LCT's key characteristics and qualities might also be susceptible to change as a result of the development of Category A and B turbines – please refer closely to the guidance in the next section.				
Commentary on different turbine groupings • Single turbine • Small cluster (2-3 turbines) • Small wind farm (4-6 turbines) • Medium wind farm (7-10 turbines) • Large wind farm (11-15 turbines)	The scale of the landform and fields across much of the landscape means that this LCT would be highly sensitive to any developments larger than a 'small cluster'. The larger scale landscape in the south of the area (around the A50 road corridor) may be slightly less sensitive to developments up to the scale of a 'small wind farm'.				

Strategy and guidance for wind energy development

Overall strategy for wind energy development in the landscape

The majority of this LCT is highly sensitive to larger scale wind energy developments (above 50m to blade tip and in groups of more than 3 turbines). In general it would be less sensitive to single or small clusters of Category A or Category B turbines that reflect the scale of the landscape and its characteristic features.

Limited locations around the A50 road corridor, where fields are larger with fewer human-scale features, may be less sensitive to developments of up to 6 turbines, or single turbines of between 50m and 80m to blade tip (Category C).

Some of the LCT's key characteristics and qualities might also be sensitive to the development of turbines of up to 50m (Categories A and B) – please carefully consider the guidance below.

Current levels of permitted wind energy development

There are currently no permitted or operational wind energy developments in this LCT, or visible from it (in surrounding landscapes).

Current cumulative landscape and visual issues

There are currently no cumulative issues arising in this LCT from turbines already present in the landscape, or in the surrounding landscapes.

Summary of landscape constraints

The following landscape constraints should be taken account of in the proposed siting and design of wind energy developments:

- The human scale of the landscape, where frequent trees, hedges and settlements are present.
- The role of the LCT as a rural backdrop and setting to Blythe Bridge and the south-eastern fringes of Stoke-on-Trent.
- Uninterrupted views south across the rolling countryside of Stafford district.
- Fragments of locally important semi-natural habitat, such as wet meadows, ponds, riparian vegetation and ancient woodland.
- The Conservation Area at Caverswall and presence of a number of Listed Buildings within villages.
- Areas assessed as of 'high' historical value in the Blythe Bridge & Forsbrook and High Tean HECZs.
- Pockets of relative tranquillity away from the A50 road corridor and areas of existing development.

Guidance for future wind energy development

When siting and designing wind energy developments in the landscape, the generic guidance in **Chapter 5** should be taken into account. Within this LCT particular care will need to be taken to ensure:

- Wind turbine development does not overwhelm the human scale of the LCT's landscape features, including trees, hedges, farmsteads and villages.
- The strong rural character of the landscape with locally important relative levels of tranquillity is retained.
- The historic sense of place associated with the Blythe Bridge & Forsbrook and High Tean HECZs and Caverswall Conservation Area is respected when considering the siting of turbines.
- Remaining pockets of naturalistic habitat are protected - including wet meadows, ponds, riparian vegetation and ancient woodland (considering both direct disturbance and impacts on naturalistic landscape character).
- The LCT's characteristic narrow, hedged rural lanes off the main A50 are not adversely

affected by delivery of turbines.

- Wind turbines do not detract from the countryside backdrop provided by the LCT to Blythe Bridge and the south-eastern fringes of Stoke-on-Trent.
- Open views of undeveloped skylines in East Staffordshire District are protected.

Guidance for siting multiple developments within this LCT

While it is accepted that some cumulative change to landscape character could result from wind energy development in the future, multiple wind energy developments in this LCT should:

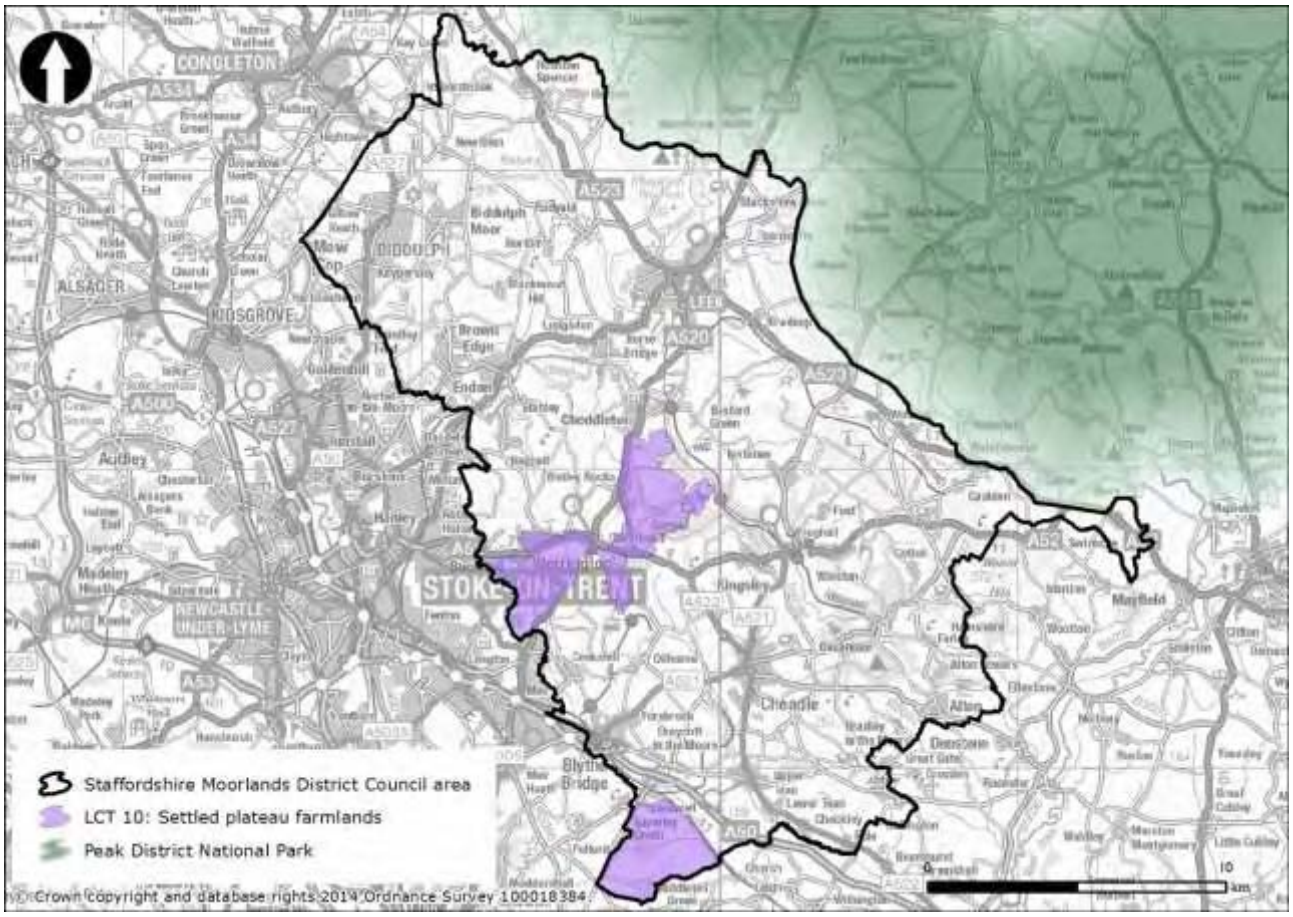
- Respect the underlying landscape character of the LCT (see the key characteristics at the start of this assessment).
- Collectively not become a key characteristic or defining influence on the character of the landscape (with reference to the definition of 'landscape capacity'[59]) – both in the LCT as a whole, in a given area, or when viewed sequentially from recreational and transport routes passing through the area, including the A50.
- Be similar in terms of siting, layout, form and relationship to key landscape characteristics, so as to present a simple image that relates clearly to landscape character[60] – for example through a clear association of Category A and B turbines with farm or industrial buildings.
- Ensure that any Category C turbines are sited well away from smaller turbines, so that the different size classes are not seen together.
- Avoid close juxtaposition of different turbine designs and heights within the same category, aiming instead for a consistent design and height in a given area.
- Avoid creating visual confusion when siting turbines in proximity to existing tall structures such as pylons and masts, including in the open landscape south of the A50.

[59] "Landscape capacity refers to the degree to which a particular landscape character area is able to accommodate change without significant effects on its character, or overall change of landscape character type…" (Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment Guidance for England and Scotland*).

[60] See Scottish Natural Heritage (2014) *Siting and Designing Windfarms in the Landscape*.

LCT 10: Settled Plateau Farmlands

LCT Location Map



Churnet Valley Landscape Character Areas

4a - Consall

Key Landscape Characteristics[61]

- Open large scale landscapes with extensive views from a rolling plateau.
- Low grade pasture farmland with overgrazed poorly drained fields with rushes and rough grass.
- Large scale regular and irregular field patterns with hedges and dry stone walls.
- Hedges deteriorated to the extent that field boundaries marked by isolated trees, fencing and remnant thorn and holly.
- Historic rectilinear field patterns remain, although these are threatened by boundary loss and deterioration.
- Some blocks of mature broadleaf woodland, particularly around the historic estate parklands.
- Valuable semi-natural heathland present in isolated areas on higher ground.
- Historic estate parkland around Consall Hall and Ashcombe Park with associated woodland and specimen trees, some of which are exotic species. Consall Nature Park is also a designated Local Nature Reserve.
- Dispersed settlement pattern, with the main villages being Werrington, Cellarhead and Wetley Rocks.
- Traditionally buildings are constructed of stone, although in many areas these are now intermixed with newer brick dwellings.
- Developing urban fringe character due to proximity to Stoke-on-Trent. The main land use of low intensity dairy farming is gradually being replaced by horseyculture on the urban edge.
- A busy road network surrounds the area, including the A52, A520 and A522. The main railway line running from Stoke-on-Trent to Derby also crosses this area.
- Major power lines cross this area in the southernmost tip of the district, intruding on the rural character.
- There are few public rights of way around Consall.
- Parkhall Country Park on the edge of Stoke-on-Trent abuts this character type and is commonly used for recreation. The Hulme Quarry parts of this site are also designated as a NNR and SSSI for geological interest and valuable wetland habitats.
- Stone outcrops are distinctive features characterising higher areas.

[61] These Key Characteristics are derived from the 2008 Landscape and Settlement Character Assessment of Staffordshire Moorlands and the 2011 Churnet Valley Landscape Character Assessment, with some additional information gained from fieldwork undertaken for this study.

Landscape Sensitivity Assessment for Wind Energy Development

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
Landform and scale		**L-M**			
	A gently rolling plateau landscape, with large open areas. The landform steeply slopes upwards from Stoke-on-Trent to the plateau. Elevation ranges from 130m to 285m AOD near Wetley Rocks. Fields are generally medium to large scale. Human scale features include historic estate buildings and associated parklands, scattered farm dwellings and buildings and isolated trees. Fields are larger to the south of the LCT.				
Land cover pattern and complexity			**M**		
	A mixture of regular and irregular shaped pastures, with occasional woodland associated with historic estate parklands. Mixed woodlands, hedgerows and conifer plantations create a wooded feel to the landscape. Further naturalistic qualities are associated with meadows and rush pasture. Park Hall Country Park includes both coniferous plantation and remnant heathland. Horse grazing is common throughout due to close proximity to urban areas.				
Skylines			**M**		
	Stone outcrops on higher ground from distinctive skyline features. Major overhead powerlines dominate the skyline in the southern part of the area, and there are views to industrial chimneys and smoke plumes near Fox's Plantation (John Pointon's industrial complex). The wooded skylines of the adjacent Churnet Valley (LCT 3) also influence this landscape.				
Visibility and views				**M-H**	
	This LCT forms an elevated rural backdrop to the eastern edge of Stoke on Trent, with westerly views dominated by the urban area. To the east near Wetley Rocks, there are long views over the Churnet Valley (LCT 3) and beyond to the elevated ridgeline of Morridge (LCT 6). On the plateau top, views are generally self-contained due to topography. There is intervisibility with the adjacent LCT 1, particularly the pylons characterising some of its skylines.				
Natural and cultural heritage aspects				**M-H**	
	Semi-natural habitats include isolated areas of heathland and areas of ancient semi-natural woodland at Bromley Wood in the south of the district. Part of the Hulme Quarry SSSI/NNR is located within this LCT and is primarily designated for its geological interest. Consall Nature Park is a designated Local Nature Reserve. Habitats at Park Hall Country Park include sandstone canyons, open heathland, wildflower meadows, coniferous/deciduous woodland and wet grassland. The Old Hall at Consall is a Grade II listed building, and there are occasional moated sites scattered throughout which are designated as Scheduled Monuments. The LCT includes areas of the Cheddleton, Wetley Rocks and Werrington HECZ[62]. All of the land within these zones is classed as of either 'High' or 'Medium' historical value[63].				
Amenity and recreation			**M**		
	Park Hall Country Park is located to the west of the LCT, providing an important recreational resource including for the communities of Stoke-on-Trent. Rights of way are more limited in other areas, particularly around Consall.				
Scenic and special			**M**		

[62] Historic Environment Conservation Zone, as defined in the Historic Environment Character Assessment for the Staffordshire Moorlands, August 2010 (Staffordshire County Council).

[63] 'Historical value' is defined in the above document as *'the extent to which the heritage assets are legible within the landscape and how they interact: this can include specific aspects of the landscape and individual buildings. Historical associations with events or persons can also add value to the ability of the public and community to engage with the heritage... The opportunities for the use and appropriate management of the heritage assets to enhance local distinctiveness and contribution to the sense of place'* are also considered.

Criteria	Levels of landscape sensitivity				
	Low	Low-moderate	Moderate	Moderate-high	High
qualities	None of this LCT falls within or is adjacent to a nationally protected landscape, however it is locally valued as an area of traditional rurality on the doorstep of urban development. There are also long views across LCT 10 to the Peak District National Park, so the landscape forms part of the wider setting of the protected landscape.				
Perceptual character			**M**		
	The overall traditional rural character of this landscape is interrupted by the proximity of the Stoke-on-Trent urban area. Major overhead power lines, roads (the A50, A52 and A522), industrial works and rail routes detract from the relative levels of tranquillity associated with the LCT.				
Discussion on landscape sensitivity	The medium-large scale, rolling landform and existing human influence (including overhead powerlines, industrial chimneys and major roads) may result in reduced levels of sensitivity to wind energy development. However, sensitivity is increased by the frequency of human scale features, tracts of naturalistic landcover, localised areas of historic parkland character and the LCT's role as an immediate rural backdrop to Stoke.				
Sensitivity to different turbine heights	**Category A (15-30m)**				**L-M**
	Category B (31-50m)				**M**
	Category C (51-80m)				**M-H**
	Category D (81-110m)				**H**
	Category E (111-140m)				**H**
	The presence of human-scale features and elevated skylines forming a rural backdrop to urban development means that this landscape is highly sensitive to Category D and E turbines. There may be limited locations which may be less sensitive to Category C turbines, sited away from the western plateau edge which slopes down to Stoke. Some of the LCT's key characteristics and qualities might also be susceptible to change as a result of the development of Category A and B turbines – please refer closely to the guidance in the next section.				
Commentary on different turbine groupings • Single turbine • Small cluster (2-3 turbines) • Small wind farm (4-6 turbines) • Medium wind farm (7-10 turbines) • Large wind farm (11-15 turbines)	The landcover pattern and field pattern means that this LCT is likely to be highly sensitive to any developments larger than a 'small cluster' (up to three turbines).				

Strategy and guidance for wind energy development

Overall strategy for wind energy development in the landscape

The majority of the LCT is highly sensitive to wind turbines of 50m to blade tip or higher, and in groups of more than three turbines. Limited locations away from the western plateau edge, and where field patterns are larger, may be less sensitive to groups of up to three turbines, or single turbines of up to 80m to blade tip (Category C), if the guidance below is closely followed.

Some of the LCT's key characteristics and qualities might also be sensitive to the development of turbines of up to 50m (Categories A and B) – please carefully consider the guidance below.

The steep western plateau edge would be highly sensitive to all scales of wind energy development.

Current levels of permitted wind energy development

There is currently one permitted scheme within this LCT (correct as of 23 October 2014):

- A single Category B turbine of 40m to blade tip at New Buildings Farm, near Hilderstone (operational)

Current cumulative landscape and visual issues

There are currently no cumulative issues arising in this LCT from turbines already present in the landscape, or in the surrounding landscapes.

Summary of landscape constraints

The following landscape constraints should be taken account of in the proposed siting and design of wind energy developments:

- The prominent, steep plateau edge sloping down to Stoke-on-Trent in the west, forming a dramatic easterly backdrop to the town.
- Distinctive stone outcrops crowning some skylines, and close views to the wooded skylines of the Churnet Valley (LCT 3).
- The human scale of the landscape's characteristic features, including trees, historic estate buildings and scattered farmsteads.
- Important tracts of semi-natural habitat, particularly areas of heathland on higher ground and lowland acidic grassland.
- Areas assessed as of 'high' historical value in the Cheddleton, Wetley Rocks and Werrington HECZ.
- The Grade II Listed Consall Old Hall and the presence of several Scheduled moated sites.
- The wooded estate of Park Hall Country Park – an important recreational resource for local residents.
- Perceptions of relative tranquillity and rurality on the doorstep of urban development.

Guidance for future wind energy development

When siting and designing wind energy developments in the landscape, the generic guidance in **Chapter 5** should be taken into account. Within this LCT particular care will need to be taken to ensure:

- Locations on the prominent westerly plateau edge, sloping steeply down to Stoke, are avoided as sites for development.
- The siting of turbines does not prevent the appreciation of the distinctive stone outcrops crowning some skylines.
- Wind energy development does not impact on the significant, uninterrupted views from this landscape across the Churnet Valley (LCT 3).

- The character and integrity of valued heritage features, including the Grade II Listed Consall Old Hall, Scheduled moated sites and remnant historic parklands, is respected.
- The historic sense of place associated with the Cheddleton, Wetley Rocks and Werrington HECZ is respected when considering the siting of turbines.
- Valued naturalistic habitats are retained (considering both direct disturbance and impacts on naturalistic landscape character) – particularly the areas of heathland on higher ground and lowland acidic grassland, and the varied woodland habitats within Park Hall Country Park.
- Wind turbines do not detract from the countryside backdrop provided by the LCT to the settlements of Stoke-on-Trent, Werrington and Cresswell, and perceptions of relative tranquillity.

Guidance for siting multiple developments within this LCT

While it is accepted that some cumulative change to landscape character could result from wind energy development in the future, multiple wind energy developments in this LCT should:

- Respect the underlying landscape character of the LCT (see the key characteristics at the start of this assessment).
- Collectively not become a key characteristic or defining influence on the character of the landscape (with reference to the definition of 'landscape capacity'[64]) – both in the LCT as a whole, in a given area, or when viewed sequentially from recreational and transport routes passing through the area, including the A52 and A522.
- Be similar in terms of siting, layout and relationship to key landscape characteristics, so as to present a simple image that relates clearly to landscape character[65] – for example through a clear association of Category A and B turbines with farm or industrial buildings.
- Ensure that any Category C turbines are sited well away from smaller turbines, so that the different size classes are not seen together.
- Avoid close juxtaposition of different turbine designs and heights within the same category, aiming instead for a consistent design and height in a given area.
- Avoid creating visual confusion when siting turbines in proximity to existing tall structures such as pylons and masts, as well as the chimneys associated with John Pointon's industrial works.

[64] "Landscape capacity refers to the degree to which a particular landscape character area is able to accommodate change without significant effects on its character, or overall change of landscape character type…" (Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment Guidance for England and Scotland*).

[65] See Scottish Natural Heritage (2014) *Siting and Designing Windfarms in the Landscape*.

5 Summary of landscape assessment results and generic siting and design guidance

5.1 **Table 5.1** provides a summary of the overall landscape sensitivity results for wind energy development across LCTs within the Staffordshire Moorlands District planning authority area. The full assessment matrices provided in Chapter 4 (which contain specific information relating to different sensitivities within the LCTs) should always be referred to when interpreting the summary tables.

5.2 These overall results are also mapped in **Figures 5.1** to **5.5**. The aim of the maps is to show visually the results of the landscape sensitivity assessment at the LCT level; they are not intended to illustrate the visual impacts of individual developments on the surrounding landscape. That would need to be undertaken for individual schemes, aided by the use of computer generated 'Zones of Theoretical Visibility' (ZTVs).

Observations on landscape sensitivity across the Staffordshire Moorlands

Interpretation of the landscape sensitivity assessment results

5.3 LCTs often contain areas of higher and lower sensitivity within them, which should be borne in mind when using the overall sensitivity results maps and tables. It is therefore very important to take note of the content of the specific LCT sensitivity assessments and guidance in Chapter 4, as well as the generic guidance on siting and design within this chapter. Variations may, for example, occur on urban fringes or around brownfield sites where sensitivity may be lower than the rural parts of an LCT.

Overall findings

5.4 Generally the landscapes across the Staffordshire Moorlands are relatively small scale (compared to other parts of the country), rural in character and contain a significant number of features that convey a human scale, particularly the frequent trees, hedgerows, stone walls, farm buildings and views to nearby settlements. As a result, the sensitivity of the District's landscape becomes progressively higher as you progress through the different turbine categories, as indicated in **Figures 5.1** to **5.5**. The strong intervisibility of many parts of the district with the Peak District National Park – a nationally designated landscape – is also a significant factor in the sensitivity assessment results.

5.5 The study concludes that all of the land in Staffordshire Moorlands District would be highly sensitive to the development of turbines in Categories D and E (higher than 80m to blade tip), with many parts also being highly sensitive to turbines greater than 50m to blade tip.

Table 5.1: Summary of overall sensitivity of each LCT to all categories of wind energy development

Landscape Character Type	Landscape Sensitivity Assessment results by category	
LCA 1: Ancient Plateau Farmlands	Category A (15-30m)	**L-M**
	Category B (31-50m)	**M**
	Category C (51-80m)	**M-H**
	Category D (81-110m)	**H**
	Category E (111-140m)	**H**
LCA 2: Ancient Slope and Valley Farmlands	Category A (15-30m)	**M**
	Category B (31-50m)	**M**
	Category C (51-80m)	**M-H**
	Category D (81-110m)	**H**
	Category E (111-140m)	**H**
LCA 3: Dissected Sandstone Cloughs and Valleys	Category A (15-30m)	**M**
	Category B (31-50m)	**M-H**
	Category C (51-80m)	**H**
	Category D (81-110m)	**H**
	Category E (111-140m)	**H**
LCA 4: Dissected Sandstone Highland Fringe	Category A (15-30m)	**M**
	Category B (31-50m)	**M**
	Category C (51-80m)	**H**
	Category D (81-110m)	**H**
	Category E (111-140m)	**H**
LCA 5: Dissected Sandstone Uplands	Category A (15-30m)	**M**
	Category B (31-50m)	**M-H**
	Category C (51-80m)	**H**
	Category D (81-110m)	**H**
	Category E (111-140m)	**H**
LCA 6: Gritstone Highland Fringe	Category A (15-30m)	**M**
	Category B (31-50m)	**M-H**
	Category C (51-80m)	**H**
	Category D (81-110m)	**H**
	Category E (111-140m)	**H**
LCA 7: Gritstone Uplands	Category A (15-30m)	**L-M**
	Category B (31-50m)	**M**
	Category C (51-80m)	**H**
	Category D (81-110m)	**H**
	Category E (111-140m)	**H**

LCA 8: Limestone Highland Fringe	Category A (15-30m)	**L-M**
	Category B (31-50m)	**M**
	Category C (51-80m)	**M-H**
	Category D (81-110m)	**H**
	Category E (111-140m)	**H**
LCA 9: Settled Plateau Farmland Slopes	Category A (15-30m)	**L-M**
	Category B (31-50m)	**M**
	Category C (51-80m)	**M-H**
	Category D (81-110m)	**H**
	Category E (111-140m)	**H**
LCA 10: Settled Plateau Farmlands	Category A (15-30m)	**L-M**
	Category B (31-50m)	**M**
	Category C (51-80m)	**M-H**
	Category D (81-110m)	**H**
	Category E (111-140m)	**H**

Staffordshire Moorlands Wind Turbine Landscape Sensitivity Assessment

Figure 5.1: Landscape Sensitivity to Category A Wind Turbines (15-30m)

Staffordshire Moorlands District Council area

Peak District National Park

Landscape Character Types

- LCT 01: Ancient plateau farmlands
- LCT 02: Ancient slope and valley farmlands
- LCT 03: Dissected sandstone cloughs and valleys
- LCT 04: Dissected sandstone highland fringe
- LCT 05: Dissected sandstone uplands
- LCT 06: Gritstone highland fringe
- LCT 07: Gritstone uplands
- LCT 08: Limestone highland fringe
- LCT 09: Settled plateau farmland slopes
- LCT 10: Settled plateau farmlands

Landscape sensitivity to Category A wind turbines

- Low - moderate
- Moderate

Map Scale @ A3:1:120,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_005_Sensitivity_categoryA_Rev1 28/11/2014

Source: Staffordshire Moorlands District Council, OS, Natural England, LUC

Staffordshire Moorlands Wind Turbine Landscape Sensitivity Assessment

Figure 5.2: Landscape Sensitivity to Category B Wind Turbines (31-50m)

Staffordshire Moorlands District Council area

Peak District National Park

Landscape Character Types

- LCT 01: Ancient plateau farmlands
- LCT 02: Ancient slope and valley farmlands
- LCT 03: Dissected sandstone cloughs and valleys
- LCT 04: Dissected sandstone highland fringe
- LCT 05: Dissected sandstone uplands
- LCT 06: Gritstone highland fringe
- LCT 07: Gritstone uplands
- LCT 08: Limestone highland fringe
- LCT 09: Settled plateau farmland slopes
- LCT 10: Settled plateau farmlands

Landscape sensitivity to category B wind turbines

- Moderate
- Moderate - high

Map Scale @ A3:1:120,000

LUC

0 5 10 km

CB: EB:Goosen_V LUCLON 6195-01_005_Sensitivity_categoryB_Rev1 28/11/2014

Source: Staffordshire Moorlands District Council, OS, Natural England, LUC

Staffordshire Moorlands Wind Turbine Landscape Sensitivity Assessment

Figure 5.3: Landscape Sensitivity to Category C Wind Turbines (51-80m)

Staffordshire Moorlands District Council area

Peak District National Park

Landscape Character Types

- LCT 01: Ancient plateau farmlands
- LCT 02: Ancient slope and valley farmlands
- LCT 03: Dissected sandstone cloughs and valleys
- LCT 04: Dissected sandstone highland fringe
- LCT 05: Dissected sandstone uplands
- LCT 06: Gritstone highland fringe
- LCT 07: Gritstone uplands
- LCT 08: Limestone highland fringe
- LCT 09: Settled plateau farmland slopes
- LCT 10: Settled plateau farmlands

Landscape sensitivity to category C wind turbines

- Moderate - high
- High

Map Scale @ A3:1:120,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_005_Sensitivity_categoryC_Rev1 28/11/2014

Source: Staffordshire Moorlands District Council, OS, Natural England, LUC

Staffordshire Moorlands Wind Turbine Landscape Sensitivity Assessment

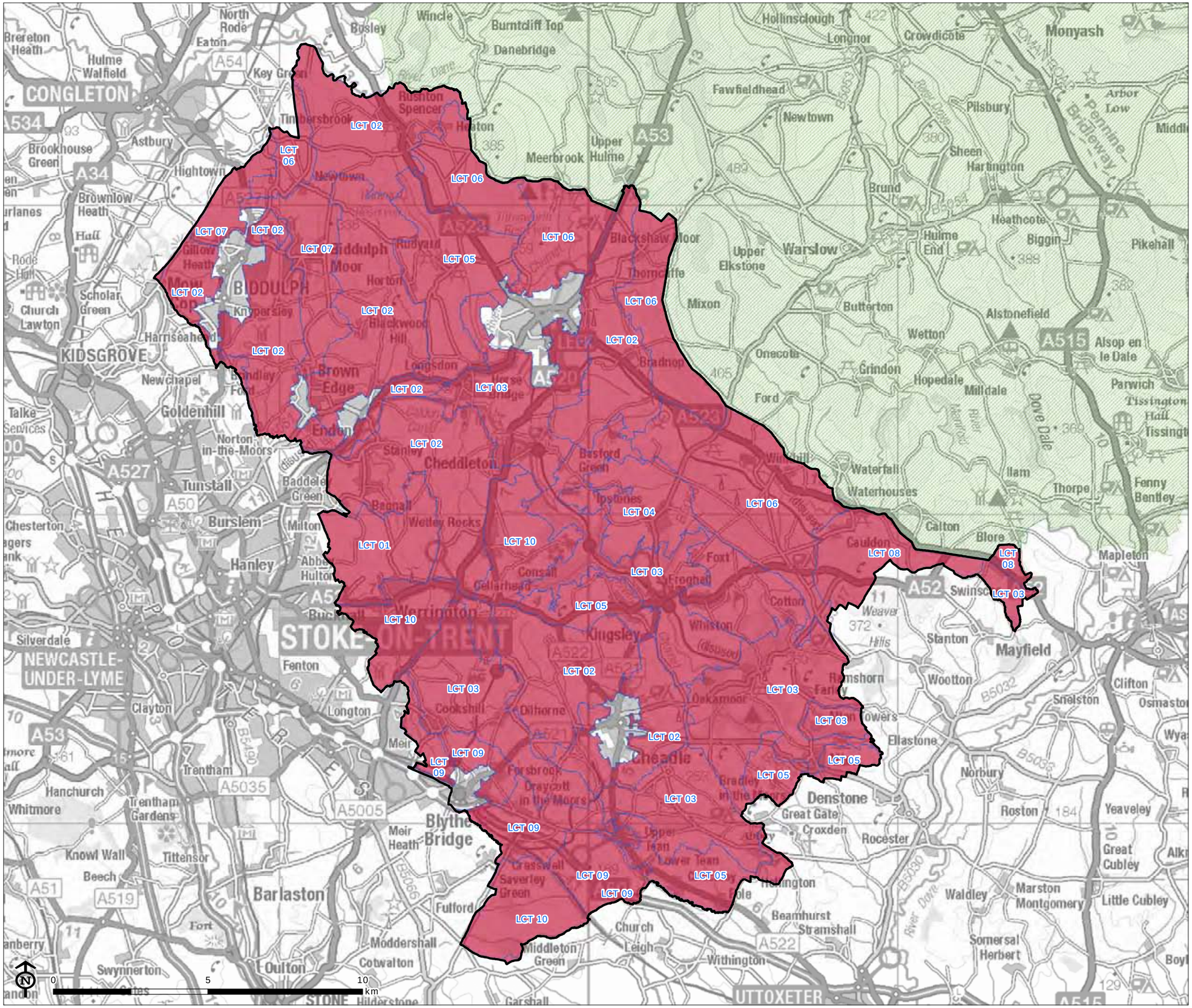


Figure 5.4: Landscape Sensitivity to Category D Wind Turbines (81-110m)

Staffordshire Moorlands District Council area

Peak District National Park

Landscape Character Types

- LCT 01: Ancient plateau farmlands
- LCT 02: Ancient slope and valley farmlands
- LCT 03: Dissected sandstone cloughs and valleys
- LCT 04: Dissected sandstone highland fringe
- LCT 05: Dissected sandstone uplands
- LCT 06: Gritstone highland fringe
- LCT 07: Gritstone uplands
- LCT 08: Limestone highland fringe
- LCT 09: Settled plateau farmland slopes
- LCT 10: Settled plateau farmlands

Landscape sensitivity to category D wind turbines

- High

Map Scale @ A3:1:120,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_005_Sensitivity_categoryD_Rev1 28/11/2014

Source: Staffordshire Moorlands District Council, OS, Natural England, LUC

Staffordshire Moorlands Wind Turbine Landscape Sensitivity Assessment

Figure 5.5: Landscape Sensitivity to Category E Wind Turbines (111-140m)

Staffordshire Moorlands District Council area

Peak District National Park

Landscape Character Types

- LCT 01: Ancient plateau farmlands
- LCT 02: Ancient slope and valley farmlands
- LCT 03: Dissected sandstone cloughs and valleys
- LCT 04: Dissected sandstone highland fringe
- LCT 05: Dissected sandstone uplands
- LCT 06: Gritstone highland fringe
- LCT 07: Gritstone uplands
- LCT 08: Limestone highland fringe
- LCT 09: Settled plateau farmland slopes
- LCT 10: Settled plateau farmlands

Landscape sensitivity to category E wind turbines

- High

Map Scale @ A3:1:120,000

LUC

CB: EB:Goosen_V LUCLON 6195-01_005_Sensitivity_categoryE_Rev1 28/11/2014

Source: Staffordshire Moorlands District Council, OS, Natural England, LUC

Generic guidance on turbine siting, layout, design and colour

5.6 This section provides some generic guidance on siting, layout and design of wind energy developments in Staffordshire Moorlands, focusing on the minimisation of landscape and visual effects. It is recognised that siting, layout and design also need to take into account a range of other specific ecological, ornithological, archaeological, built heritage, recreational and other interests at application stage, each of which are material planning considerations during assessment.

5.7 Further information and guidance on siting, layout and design of wind energy development in the landscape can be found in the more detailed good practice guidance that is listed in the bibliography in **Appendix 1**. The Scottish Natural Heritage document, *Siting and Designing Wind Farms in the Landscape* (May 2014) [66], is of particular relevance.

5.8 Good site selection and scheme development, that take careful account of landscape and visual issues from the outset, are the most effective ways of preventing and mitigating potential adverse landscape and visual effects and may improve a scheme's likelihood of gaining approval. Note that the NPPF[67] (para 66) expects applicants to work closely with those directly affected by their proposals and evolve designs that take account of the views of the community. More recently the Government introduced new regulations[68] which require applicants to conduct pre-application consultation with affected communities in the case of any 2+ turbine proposal, or any single turbine of 15m+ hub height: the application must explain what account was taken of any community representations subsequently received.

Guidance on landscape siting

5.9 The following guidance should be followed when siting any wind energy development in the Staffordshire Moorlands, whether it comprises one Category A turbine or multiple larger turbines:

GUIDANCE ON SITING

- Ensure the size and grouping of turbines responds to landscape character, reinforcing the difference between distinct types of and scales of landscape.
- Seek to keep a turbine group within one type of landscape (particularly as perceived in sensitive views) so that turbines do not span across marked changes in character on the ground, such as changes in topography.
- Prominent and highly visible skylines, particularly those on the edge of the Peak District National Park, should be avoided where possible.
- The visibility of turbines from valleys and lower ground may be reduced if they are located on high plateau with concave or steep wooded slopes.

Source: Devon County Council, 2013

- Where turbines are to be sited on a hill ridge, they may be set back from the edge and placed such that the slopes preclude visibility from below.

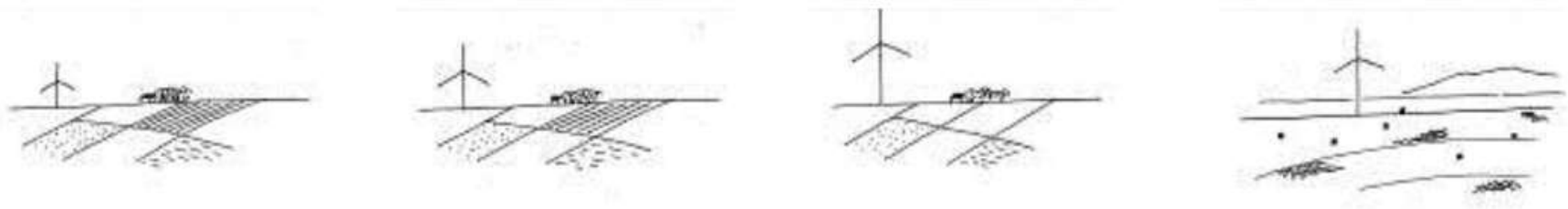
[66] http://www.snh.org.uk/pdfs/strategy/renewables/Guidance_Siting_Designing_wind_farms.pdf

[67] Department for Communities and Local Government (March 2012) *National Planning Policy Framework*.

[68] The Town and Country Planning (Development Management Procedure and Section 62A Applications) (England) (Amendment) Order 2013

- Significant effects on views from important viewpoints (including views which are integral to the character of Conservation Areas and recognised /iconic views), popular tourist and scenic routes, and settlements should be avoided where possible or minimised through careful siting.
- It is preferable to site turbines where they do not diminish the understanding and appreciation of historic landmarks features such as hilltop monuments or church spires.
- It is generally less distracting to see a substantial part of a turbine rather than blade tips only – this may be a particular consideration for views from sensitive viewpoints or those frequented by a larger number of potential viewers.
- Consider locations of lesser natural/scenic/perceptual/historic sensitivity such as those in/around man-made landscapes such as business parks and industrial or reclaimed sites, and where other landscape sensitivities may not be compromised.
- Screening afforded by existing woodland can sometimes be used to good effect through careful placement of turbines and adjustment of turbine base heights. However, the presence of trees for screening purposes should not be relied upon if felling is likely during the lifespan of the project (note that trees may be felled by third parties without the need for planning permission).
- Adequate separation from walking, riding and other recreational routes is important to prevent adverse impacts on the landscape experience, amenity and safety of recreational landscape users.
- Siting should identify and where possible avoid impacts on areas of tranquil or remote character, and on features of natural, cultural or recreational heritage interest that contribute to landscape character and landscape value.
- When siting developments with turbines of Category C or above (i.e. those with multiple turbines over 50m tip height), select sites in simple, regular landscapes with extensive areas of consistent ground cover over landscapes with more complex or irregular land cover patterns, smaller field sizes and landscapes with frequent human scale features (subject to satisfying other sensitivities). See the illustration at **Figure 5.6**.
- When selecting or assessing sites, consider the potential effects of transporting turbines to site, and the possible limitations presented by winding narrow lanes bounded by hedgerows.
- Consider siting single turbines so they are perceived as part of other built development /in association with a building group where effects on amenity (e.g. in relation to noise or disturbance) allow. For example, there may be some opportunity to site Category A single turbines in relation to farm buildings, or Category B or C turbines sited in relation to larger industrial-scale buildings/structures. The acceptability of this, however, will need to be considered against factors such as historic buildings and heritage assets.
- In support of the above point – development should be commensurate with (or reflect) the scale of the associated buildings.
- Where turbines are proposed to be sited near to trunk roads, safety issues such as sufficient 'topple distance' and views from the road will also require consideration in accordance with Highways Agency advice.
- Consider the landscape effects and wider appropriateness of transmission infrastructure when considering the siting of proposals; sites that will minimise the need for above ground transmission infrastructure are preferable. Undergrounding cabling may mitigate effects in sensitive locations.

Figure 5.6: Considering underlying landscape pattern and scale when siting wind turbines



The size of wind turbines is clearer within a distinct landscape pattern that includes definite scale indicators. Although older/ domestic wind turbines may relate to the scale of buildings, most commercial wind turbines will seem to dominate elements of landscape pattern. There may be, however, a threshold in some landscapes at which a larger wind turbine would no longer seem associated with the underlying landscape pattern but seem 'elevated' above it, by appearing to relate to larger components.

Source: SNH (2014)

Guidance on layout

5.10 The next stage in preparing a wind energy scheme is to plan the layout of turbines in the landscape. The following guidance will help developers take account of landscape character.

GUIDANCE ON LAYOUT

- Ensure that turbines read as a coherent group in all the main views – aim for a composition that is visually balanced, simple and consistent in image as it is viewed from various directions, minimising views of blade tips only in views (which can be distracting).
- Careful layout and arrangement of turbines can help to ensure that turbines read as a coherent group in all the main views.
- Turbines should be located on the most level part of the site or following contours to avoid discordant variation in perceived turbine heights.
- Significant turbine overlaps or 'stacking' of turbines when seen from one direction may catch the eye and should be avoided as far as possible.
- Layouts that reflect existing landscape patterns, such as regular field patterns or linear transport corridors, may allow the positive sculptural qualities of turbines to be seen to good effect.
- Ensure the size of turbine groups is in proportion with the scale of the landscape, including landform features and landscape elements such as woodlands and fields.
- Ensure wind turbines respect the hierarchy of elements in the landscape and do not compete with, or create clutter when seen together with, other man-made landscape elements such as pylons.

Visual clutter created by turbines located alongside pylons and masts (LUC, 2014)

- In urban fringe or industrial contexts, developments should respond to the scale of the built form and sit comfortably alongside existing buildings or structures.
- Alternative site layouts should be investigated from an early stage to find the optimum response to character as seen from key viewpoints.
- Where appropriate, wind energy development can act as the stimulus for restoration and/or improvement of land use within or around the site. For example the restructuring of commercial coniferous forestry can lead to new opportunities, including the re-creation of habitats such as heathland.
- It may be helpful for developers to prepare a design statement summarising the way in which scheme design has evolved and the reasons why particular decisions on site layout have been taken. All "major" planning applications require the submission of a design and access statement.

Guidance on design

5.11 Important design considerations in relation to the turbines themselves are set out in the box below.

GUIDANCE ON DESIGN

- A good design will respect the hierarchy of elements in the landscape and will not compete with, or create clutter when seen together with, other man-made landscape elements such as pylons.
- In urban or industrial contexts, developments should respond to the scale of the built form and sit comfortably alongside large buildings or structures, providing a balanced composition.
- Any existing focal points (such as historic church spires and towers) should be respected and visual conflict avoided.
- In more modern industrial or commercial areas it may sometimes be appropriate to create a new visual focus.
- It is important to ensure that the proportion of rotor diameter to tower height is balanced – short blades on a tall tower or long blades on a short tower may look unbalanced.

Examples of different rotor diameter to tower height proportions (SNH, 2014)

- Tubular steel towers tend to look simpler and less 'industrial' than lattice towers, a consideration which is especially important in rural areas. In turn, the more industrial-looking, lattice towers might be suited to industrial locations.

Two-bladed turbines with industrial-style lattice towers in a rural context (Source: LUC)

- It should be borne in mind that two bladed turbines can appear less balanced when turning (impacting on the smoothness of movement, when compared to three bladed models).
- Smaller turbine blades also appear to turn faster than larger ones. It is therefore important

to ensure any multiple turbine developments, or turbines in the same view, are of a consistent height and design to avoid visual confusion caused by variations in blade speeds/movements.

Guidance on Turbine Colour

5.12 As stated in the current SNH guidance (2014), selecting the most appropriate colour for a turbine(s) is an important part of detailed windfarm design and mitigation. Further guidance on the choice of **turbine colour** is also included below and in **Figure 5.8**. This draws on the current SNH guidance (2014).

- It may be useful to investigate a range of colour options for turbines, considering the background against which the turbines will usually be seen.
- Darker colours may be appropriate where turbines will be seen against a landscape backdrop, including woodlands or plantations (this would be most appropriate for Category A turbines).
- Simple, pale grey coloured turbines will be most suitable for most turbines of Category B or above (to reduce contrast with the sky). Note that light coloured turbines seen against a land backdrop may have greater prominence than light or dark turbines seen against the sky.
- The use of graded colours at the turbine base should be avoided. The SNH guidance notes that public perception studies have demonstrated that aesthetic unity is viewed favourably. Therefore graduated schemes, or turbines with colour variation, should be used with caution. See Figures 5.7 and 5.8 for examples.
- Paint reflection should be minimised. Texture is an important factor in reducing reflectivity, and matt or light absorbent finishes are preferable to reduce glare.
- A strategic approach to turbine colour is desirable, and the colour of turbines should generally be consistent in a given area.
- Avoid use of advertising on turbine masts (e.g. manufacturer names and logos), particularly in rural areas (see example at **Figure 5.7** below).

Figure 5.7: Example of a turbine with graded colour and advertising (source: LUC)

Figure 5.8: Pros and cons of different turbine colour schemes (SNH, 2014)

Variable colouring of turbine bases typically does not correspond with the skyline from most viewpoints and increases contrast when seen against the sky. From some viewpoints, this effect can also make the turbines seem to 'float'

Different colour of wind turbine components creates a more complex image and means the visibility of different sections varies

Pale grey turbines will look bright in certain light conditions, but will tend to convey a positive image. This may be associated with cleanliness and existing white foci in our landscape such as white-washed cottages

Grey wind turbines will appear less prominent when seen against a grey sky, although they will rarely match the shade

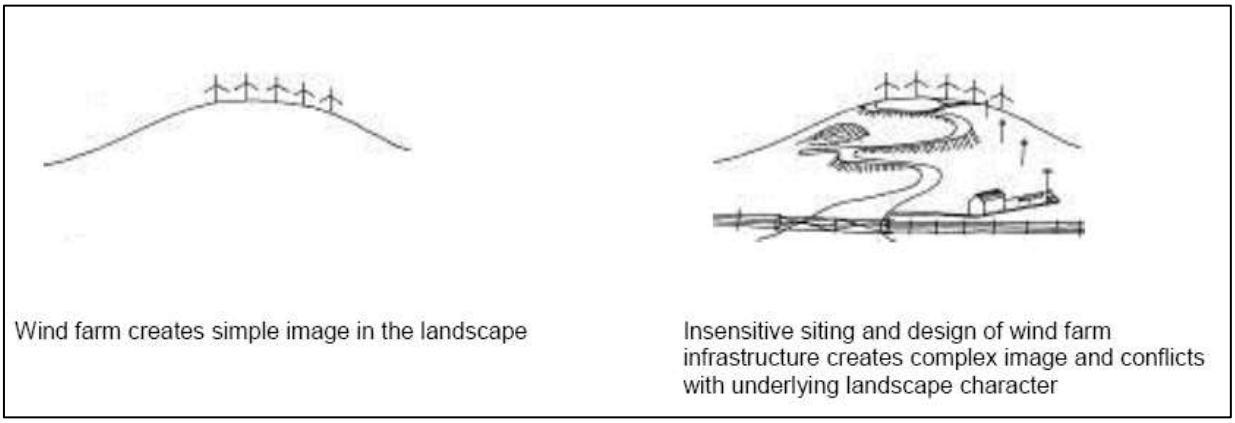
Guidance on the siting of ancillary infrastructure

5.13 The ancillary features associated with wind energy developments (such as buildings, access tracks, perimeter fencing and underground cabling) also need to be handled with great care. The following guidance ensures that landscape sensitivities are taken into account. These points are summarised in the illustration at **Figure 5.9**.

GUIDANCE ON THE SITING OF ANCILLARY INFRASTRUCTURE

- Use of existing farm or forestry tracks (provided these are not historic features in their own right) may help reduce the impacts of on-site access tracks.
- The length of new on-site access track should be minimised through efficient track layout, and tracks should be surfaced in a way that blends in with the surroundings. Where possible tracks should be re-vegetated (in full or in part) following construction.
- Access tracks on very steep slopes (where they may require zig-zag routes, cut and fill and drainage channels) or on wet marshy ground (where they may require extensive foundations) should be avoided wherever possible.
- Access tracks should, wherever possible, avoid crossing or running along long distance paths or other public rights of way.
- Measures should be put in place to minimise use of access tracks by recreational motor vehicles, which can cause erosion and loss of tranquillity.
- Use of highly engineered highway solutions should be minimised as it may scar the landscape, and tracks should follow the contours (provided this does not entail excessive length).
- Schemes should minimise direct effects on existing landscape features such as stone bridges, walls, gateposts, hedges and trees that may be associated with the creation of site entrances and access tracks.
- Where such impacts cannot be avoided, ensure that there is appropriate mitigation, such as boundary reinstatement and replacement planting. Measures that would urbanise the character of rural lanes e.g. kerbing and fencing should be avoided.
- Opportunities should be taken to improve the management and condition of semi-natural habitats, but any fencing (especially on commons or other open access land) should be minimal and temporary, to maintain open character and recreational access.
- Consider sites where areas of existing vegetation and woodland/tree cover could screen ground-level features of wind energy developments (such as fencing, tracks and transformers), subject to schemes being acceptable on arboricultural/ecological grounds.
- Where possible, transformers should be housed within the turbine tower to reduce their visual impacts, and on-site cables should be buried underground.
- Substation and control buildings should be carefully sited and should generally avoid high, exposed locations where they may be incongruous and provide a scale comparison with turbines.
- Use of local building materials and styles will help integrate such structures into the landscape. Hard surfacing, fencing and lighting around substations should be minimised.
- Grid connections should be sited underground wherever possible.

Figure 5.9: Illustration showing how insensitive infrastructure design/siting can conflict with underlying landscape character (SNH, 2014).



Guidance for multiple wind energy developments

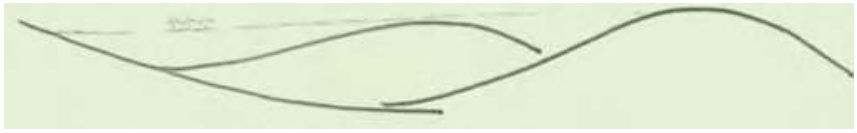
5.14 Where multiple wind energy developments exist in a given area, siting, layout and design of further wind energy development requires particular care:

- When designing a wind energy development it is important to consider how the scheme fits with other operational, consented and proposed schemes (including any within neighbouring planning authorities) and to minimise cumulative effects.
- If wind energy development already exists (and is appropriate) in a particular type of landscape, further wind energy development should be similar in design, siting, layout and relationship to key landscape characteristics (e.g. single Category A or B turbines associated with buildings).
- Turbines of similar height and design (including type of tower, number of blades, and proportion of rotor diameter to height) should be used where two or more wind energy developments are clearly visible in the same view and in the same type of landscape (unless the existing design is considered inappropriate) – the closer they are to each other the more important this is.
- Multiple wind energy developments should not obscure distinctive landform features and should be in scale with ridges and hills.
- The extent to which the development influences the overall experience of the landscape should be carefully considered (see **Figure 5.10**), with developments that are judged as having a defining influence generally avoided.
- As multiple wind energy developments are built they may 'compete' with the landscape's valued focal points – it is important to maintain a hierarchy of focal points so that the original foci can still be appreciated in the landscape. Examples might include historic church spires or landmark tree groups.
- Consider views from settlements when designing multiple wind energy developments – and in particular avoid 'surrounding' a settlement with wind turbines.
- Consider views from the Peak District National Park when designing multiple wind energy developments – avoid 'surrounding' the designated landscape with wind turbines.
- Individual wind energy developments should generally appear visually separate from each other unless specifically designed to create the appearance of a single combined wind farm.

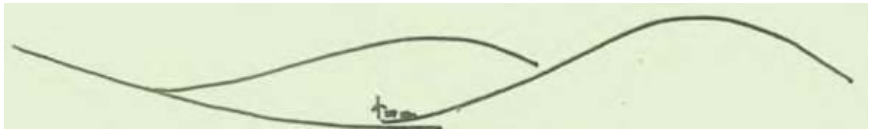
5.15 More detailed guidance on landscape and visual issues associated with multiple wind energy developments can be found on pp 27-31 of the Scottish Natural Heritage document, *Siting and Designing Wind Farms in the Landscape.*

Figure 5.10: Considering how the presence of wind energy development affects overall landscape character (Source LUC, 2013)

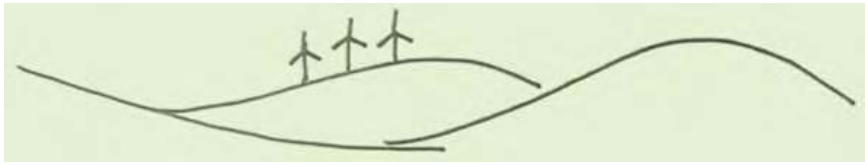
A '**landscape without wind energy development**' – a landscape within which no wind energy developments are located. There may, however, be distant views of wind energy developments located in clearly different types of landscape, which may be perceptible under conditions of good visibility.



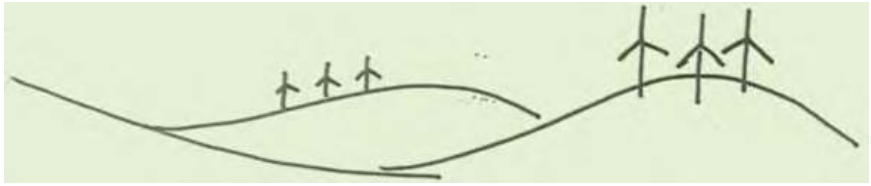
A '**landscape with very occasional wind energy**' – a landscape in which there are very occasional very small-scale turbines, usually associated with farm buildings. There may be views of larger scale wind developments located in clearly different types of landscape, which may be perceptible under conditions of good visibility.



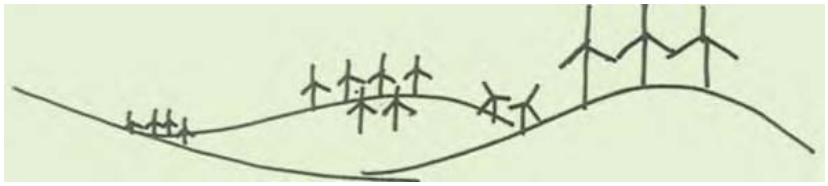
A '**landscape with occasional wind energy**' – a landscape within which one or more wind energy developments are located. In this landscape, the wind energy developments are usually clearly separated and whilst each wind energy development influences the perception of the landscape at close proximity, they do not have a defining influence on the overall experience of the landscape (developments would not result in a significant cumulative impact on the landscape character type or area as a whole or overall change of landscape character type). The landscape would not be dominated by wind turbines.



A '**landscape with wind energy development'** – a landscape within which several wind energy developments are located, and where the landscape may be perceived as having wind energy developments visible in more than one direction, and where they are a defining characteristic of the landscape character type or area. It will still be possible to appreciate the character of the landscape without wind farms dominating every view within that landscape.



A '**wind farm landscape**' – a landscape where turbines are the overwhelming influence on the landscape character of the area. All other landscape features are seen in the context of extensive wind energy development.



Appendix 1: User Guide

The following brief User Guide is designed for developers, planners and decision-makers and is intended to help them use this study to consider landscape character and sensitivity in relation to proposals for wind energy developments. It is arranged under three key stages, and sets out a series of questions as prompts to assist in using available information to shape proposals and make decisions on wind energy applications.

Stage 1 – Landscape sensitivity

- Which landscape character type (LCT) does the proposed development lie within?
- Is the site characteristic of the wider LCT (as per the key characteristics provided at the beginning of each LCT assessment in Chapter 4)? If not how does it differ?
- What is the sensitivity rating for the height category of turbine(s) being proposed?
- What is the sensitivity rating for the number of turbines ('turbine groupings') being proposed?

Stage 2 – Siting and design considerations

- Are the height and number of turbines proposed consistent with the overall strategy for the relevant LCT, as set out in Chapter 4? If not how does the proposed development differ?
- Does the proposal conflict with any of the 'landscape constraints' set out for the LCT in question in Chapter 4?
- Do the siting and design of the scheme accord with the 'Guidance for future wind energy development' for the relevant LCT? If not, which aspects of the proposed development conflict with which parts of the guidance?
- Does the development accord with the generic guidance on siting, layout, design and colour included in Chapter 5? If not, which aspects of the proposed development conflict with which parts of the guidance?
- Have opportunities been taken to mitigate significant adverse effects, and opportunities for landscape enhancement, been included as part of the proposal?

Stage 3 – Cumulative impact

- Have 'current levels of permitted wind energy development' in the LCT changed since this study was prepared (consult Council's planning database for the latest information[69])?
- Would the proposed development further contribute to the 'Current cumulative landscape and visual issues' already identified for the relevant LCT (as set out in Chapter 4)?
- Is the proposed development in line with the 'Guidance for siting multiple developments' for the relevant LCT, included in Section 4? If not, how does it conflict with this guidance?
- Is the proposed development in line with the general 'Guidance for multiple developments' set out in Chapter 5? If not, how does it conflict with this guidance?
- If permitted, would wind energy development become a defining influence on the overall character of the landscape?

[69] http://www.staffsmoorlands.gov.uk/sm/council-services/planning-applications/search-for-a-planning-application

Appendix 2: Bibliography and sources of further reading

Relevant Good Practice Guidance

Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment Guidance for England and Scotland*.

Natural England (2014) *An approach to Landscape Character Assessment*.

Countryside Agency and Scottish Natural Heritage (2004) *Landscape Character Assessment Guidance Topic Paper 6: Techniques and Criteria for Judging Sensitivity and Capacity*.

English Heritage (2005) *Wind Energy and the Historic Environment*.

Highland Council (2013) *Visualisation Standards for Wind Energy Developments*.

Landscape Institute and Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment*, 3rd edition, Routledge.

Landscape Institute (2011) *Photography and photomontage in landscape and visual impact assessment: Landscape Institute Advice Note 01/11.*

Natural England (2010) *Making Space for Renewable Energy: Natural England's Approach to Assessing On-Shore Wind Energy Development* (Catalogue Code: NE254).

Scottish Natural Heritage (2014) *Visual Representation of Wind Farms: Good Practice Guidance*, Version 2.

Scottish Natural Heritage (2014) *Siting and Designing Wind Farms in the Landscape*, Version 2.

Scottish Natural Heritage (2012) *Assessing the Cumulative Impact of Onshore Wind Energy Developments*.

The British Horse Society (2014) *Wind Turbines and Horses – Guidance for Planners and Developers*.

Landscape Character Assessments

Staffordshire County Council (Aug 2010) *Historic Environment Character Assessment for the Staffordshire Moorlands*

Wardell Armstrong (2008) *Landscape and Settlement Character Assessment of Staffordshire Moorlands*

Wardell Armstrong (2011) *Churnet Valley Landscape Character Assessment*