

## APPENDIX 1: LANDSCAPE AND VISUAL STATEMENT

### INTRODUCTION

1. This Landscape and Visual Impact Assessment (LVIA) Statement has been prepared in support of an application with Environmental Statement (2018 ES) to vary Condition 4 of a consent which has been granted under section 36 of the Electricity Act 1989 for the Heckington Fen Wind Park with deemed consent under s.90 of the Town and Country Planning Act 1990 (**12.04.09.04/31C**). **Chapter 3: Details of the Variation** provides details of the proposed amendment. The 2018 ES is submitted under the Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017.
2. The LVIA Statement has been prepared by Gavin David CMLI on behalf of Ecotricity<sup>1</sup>. Gavin authored Chapter 5: Landscape and Visual submitted with the 2011 Environmental Statement (2011 ES) and gave evidence at the subsequent planning inquiry. He was also principal author of the LVIA chapter forming part of the 2015 ES Addendum (2015 LVIA) which accompanied the application for the variation of the original consent submitted in 2015 (**the 2015 Application**).
3. The consented Heckington Fen Wind Park site (the Site) is located midway between the settlements of Sleaford and Boston, roughly 20km inland from the coast at the Wash as shown in **Figure 1: Site Location and Study Area with ZTV and Viewpoints**. The land holding occupies approximately 604 hectares of agricultural land north of East Heckington and the A17 and A1121.
4. The LVIA Statement provides an update, where necessary, of the landscape and visual effects of the consented Heckington Fen Wind Park considered against the baseline current at the time of writing (April 2018). It broadly follows the same approach detailed in Chapter 5: Landscape and Visual of the 2011 ES except it adopts the updated best practice guidance – Guidelines for Landscape and Visual Impact Assessment, Third Edition (2013) – known as GLVIA3 (see Updated Methodology section below). The LVIA Statement has regard to the residual effects likely to arise during construction and operation of the consented development at daytime and night time.
5. In the interests of brevity and having regard the GLVIA3 principle of ‘proportionality’ this LVIA Statement adopts a 5km ‘Study Area’ (approximately 20km in the case of cumulative effects), the same extent as the 2015 LVIA submission (see 2015 ES Figure 5.1 LVIA Study Area with ZTV and Photomontage Viewpoint Location). Where mentioned the previous 2011 LVIA study area (35km) is referred to as the ‘wider study area’ (see 2011 ES Figure 5.1 LVIA Study Areas with ZTV and Photomontage Viewpoint Locations).

### PURPOSE AND SCOPE OF ASSESSMENT

6. The purpose of this LVIA Statement is to confirm that the findings and conclusions of the 2011 LVIA hold true for the current baseline situation as of April 2018 and for the variation proposed as part of this application.

<sup>1</sup> Gavin is a Landscape Architect and Chartered Member of the Landscape Institute (CMLI) with over twenty years’ experience, including as expert witness at planning inquiries and appeals. In addition to serving with Ecotricity for the past eight years as Lead Landscape Architect and team manager (up to January 2017), he was formerly technical director of landscape at WSP Parsons Brinckerhoff (London), and previously employed as a landscape architect with RPS Planning and Development (Oxford) and Land Use Consultants (London and Bristol). Gavin is currently freelance and involved in a wide range of urban design, landscape architecture and environmental planning work on a day to day basis.

7. To this end the LVIA Statement involves the following:

- A brief review of the 2011 LVIA and 2015 LVIA (where appropriate) focussing on the assessment basis, the baseline situation, and the findings and conclusions;
- A best practice guidance and assessment methodology update as of the time of writing (April 2018);
- A planning policy context update as of April 2018;
- A landscape, visual and cumulative baseline update as of April 2018; and
- A statement of predicted landscape, visual and cumulative effects as of April 2018.

8. The LVIA Statement is supported by the following figures and appendices:

- Figure 1 – Site Location and Study Area with ZTV and Viewpoints (Updated)
- Figure 2 – Updated Landscape Planning Context (2011 LVIA Figure 5.5)
- Figure 3 – Updated Public Access Recreation Resources and Places of Interest (2011 LVIA Figure 5.7)
- Figure 4 – Updated Key Landscape and Visual Features and Receptors (2011 LVIA Figure 5.8)
- Figure 5 – Updated Cumulative Schemes
- Figure 6 – Updated Baseline Photographs
- Annex 1 – LVIA Methodology

### BRIEF REVIEW OF 2011 LVIA AND SUBSEQUENT SUBMISSIONS

9. The 2011 LVIA assessed the now consented 22 turbine 66 MW (approx) wind energy development with a maximum height of 125m, as detailed in the original s.36 application. The assessment basis was the landscape and visual baseline and the planning policy context pertaining at the time of preparation and prior to submission in 2011. The methodology was based on and accorded with the best practice guidance current at the time – GLVIA2<sup>2</sup>.
10. The 2015 LVIA provided an updated assessment to accompany the 2015 Application. The assessment basis was the landscape and visual baseline and the planning policy context pertaining at that time (2015). The methodology accorded with the updated best practice guidance – GLVIA3<sup>3</sup>.

<sup>2</sup> ‘Guidelines for Landscape and Visual Impact Assessment’ 2nd Edition (2002) Landscape Institute and Institute of Environmental Assessment

<sup>3</sup> ‘Guidelines for Landscape and Visual Impact Assessment 3rd Edition’ (2013) Landscape Institute and Institute of Environmental Management and Assessment

## UPDATED METHODOLOGY

11. This LVIA Statement has been prepared in accordance with the principles contained within GLVIA3 as summarised below and described in more detail at **Annex 1: LVIA Methodology**.

### Assessment Method

12. The methodology employed in this LVIA Statement accords with the current best practice guidelines – GLVIA3 (the same as that used in the 2015 LVIA for the 2015 Variation ) and related guidance, principally the following:
- Landscape Institute and Institute of Environmental Management and Assessment (2013) 'Guidelines for Landscape and Visual Impact Assessment 3rd Edition' (GLVIA3);
  - Scottish Natural Heritage, 2012: 'Assessing the Cumulative Effect of Onshore Wind Energy Developments';
  - Natural England (2014) 'An Approach to Landscape Character Assessment'; and
  - Landscape Institute Advice Note 01/11 photography and photomontage.

### GLVIA3

13. GLVIA3 reflects the spirit of European Landscape Convention (ELC) which was designed to achieve improved approaches to the planning, management and protection of landscapes throughout Europe. The 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"* (GLVIA 3, P14). GLVIA3 advocates the adoption of this broad and inclusive definition of landscape.
14. GLVIA3 places an emphasis on the distinction between 'Landscape Effects' and 'Visual Effects', and states that the role of LVIA is to *"...address both effects on landscape as a resource in its own right and effects on views and visual amenity"* (GLVIA3, paragraph 2.18, page 19).
15. GLVIA3 sets out the principles for LVIA and provides a framework for conducting LVIA. At the same time stresses that the framework is not intended to be prescriptive and that professional judgement should be used: *"Professional judgement is a very important part of LVIA. While there is some scope for quantitative measurement of some relatively objective matters, for example the number of trees lost to construction of a new mine, much of the assessment must rely on qualitative judgements, for example about what effects the introduction of a new development or land use change may have on visual amenity, or about the significance of change in the character of the landscape and whether it is positive or negative"* (GLVIA3, paragraph 2.23, page 21). This is intended to help to ensure that judgements are clear and transparent.
16. GLVIA3 highlights that it is a statutory requirement of the EIA Regulations to identify and describe the likely significant effects:
- "The Regulations require that a final judgement is made about whether or not each effect is likely to be significant. There are no hard and fast rules about what effects should be deemed 'significant' but LVIAs should always distinguish clearly between what are considered to be significant and non-significant effects ..."* (GLVIA3, paragraph 3.32, page 90)

17. The guidance also places great stress on the need for an LVIA to adopt *"...a reasonable approach which is proportional to the scale and nature of the proposed development"* (GLVIA3, p 98). This accords with the EIA directive and UK regulations which require projects to be assessed for the 'significance' of their likely effects, not just the identification and description of those effects.

### Presentation of Findings and Terminology

18. In terms of communication, GLVIA3 stresses the importance of having a well-argued narrative text to make clear what the significant issues and effects are. Tables and matrices, it says, should support this text rather than being relied upon to too great a degree.
19. GLVIA3 also provides guidance on what terminology an LVIA should adopt, in particular on the use of 'impact' and 'effect':
- "This guidance generally distinguishes between the 'impact', defined as the action being taken, and the 'effect', defined as the change resulting from that action, and recommends that the terms should be used consistently in this way."* (GLVIA3, paragraph 1.15, page 9)
20. In the interests of clarity, and to avoid confusion, this LVIA Statement uses the same approach as the 2011 and 2015 LVIAs as follows: the default position regarding judgements on whether residual landscape and visual effects are positive, negative or neutral is *negative / adverse*. In other words predicted effects are assumed to be negative / adverse unless stated otherwise.

### Cumulative Impact Assessment Guidance

21. The updated assessment of potential cumulative effects provided in this LVIA Statement accords with 'Assessing the Cumulative Effect of Onshore Wind Energy Developments' (2012) Scottish Natural Heritage. The guidance distinguishes between landscape and visual cumulative effects:
- "Cumulative landscape effects"** as effects that *'can impact on either the physical fabric or character of the landscape, or any special values attached to it'* (SNH, 2012: 10);
- "Cumulative visual effects"** as effects that *can be caused by combined visibility, which 'occurs where the observer is able to see two or more developments from one viewpoint' and/or sequential effects which 'occur when the observer has to move to another viewpoint to see different developments'* (SNH, 2012: 11).
22. Cumulative effects can be 'combined', for example occurring simultaneously at a settlement or other single vantage point; or 'sequential' arising along a road or recreational trail. Sequential effects may occur 'frequently' or 'occasionally', or somewhere in between. Combined effects may be experienced either in 'combination' or 'succession'.

## Consultation

23. A record of relevant consultation and communications with BEIS is set out in **Table 1.1** below.

**Table 1.1: Summary of Communications relating to this LVIA Statement**

Individual/s at body / organisation	Dates, forms and context of communication	Summary of outcome of communications
Keith Welford, Gareth Leigh and Denise Libretto	8 <sup>th</sup> March 2018.at the Department of Business, Energy and Industrial Strategy Offices, London	General discussion over additional information that may be required for this Variation Application. No specific LVIA information requested by DBEIS. The Applicant put forward that a review of the baseline and any policy/guidance changes would be considered within any LVIA.

24. The context in which this LVIA Statement is submitted does not require further consultation over and above that indicated above.

## Amendment to Condition 4

25. An amendment to Condition 4 is sought in relation to the construction and operation of a wind turbine generating station on land at Six Hundred Farm, Six Hundred Drove, East Heckington, Lincolnshire ("the Development") (DECC ref: 12.04.09.04/31C). Details of the amendment sought are provided in **Chapter 3** of this 2018 ES submission.

## Site Visit

26. A site visit was undertaken in April 2018 by Ecotricity staff in order to review the current landscape and visual baseline situation and assess the changes in the baseline since the 2011 and 2015 submissions. The visit involved a walkover of the Site and survey of the Study Area including the retaking of 6 key representative viewpoints (VP nos. 1, 2, 3, 4, 5 and 6) as presented in **Figure 6: Updated Baseline Photographs** of this LVIA Statement.

27. The fieldwork established that the baseline of the Site and Study Area (as of April 2018) has not changed materially since the original submission in 2011. And further, the descriptions and plans presented in Chapter 5: Landscape and Visual of the 2011 ES are still a fair and accurate description of the current baseline conditions. Where small, subtle changes have occurred on the Site and in the immediate surroundings these are identified in the following Updated Baseline Assessment section.

## UPDATED BASELINE ASSESSMENT

### Planning Policy Context

28. As one might expect the planning policy context relevant to wind energy and landscape has evolved since the 2011 and 2015 submissions, as shown on **Figure 2: Updated Landscape Planning Context** (2011 LVIA Figure 5.5). The main changes since 2011 concern the following some of which were covered in the 2015 ES:

- Government statements / overarching policy regarding onshore wind energy development.
- National Policy Statements (NPS) on energy infrastructure.
- Local policy.

### Government Statements and National and Regional Policy

29. Regional Spatial Strategies (RSS) were revoked by the Coalition Government in 2010. Hence the East Midlands RSS 2006-2026 and Lincolnshire Structure Plan 2006 are no longer relevant. This has effectively introduced a two-tier planning system, cutting out the regional tier, in which the National Planning Policy Framework (NPPF) informs Local Plans and Supplementary Guidance.

30. National Policy Statements on Energy Infrastructure (EN-1 and EN-3) were issued in July 2011 outlining the Government's objectives for development of nationally significant infrastructure. Both policy documents are still in place, as summarised in the 2015 LVIA.

31. The government published the National Planning Policy Framework (NPPF)<sup>4</sup> on 27 March 2012, which gives guidance to local councils in drawing up Local Development Plans and on making development control decisions. The NPPF is supported by the online Planning Practice Guidance.

32. The then Secretary of State for Communities and Local Government (Greg Clark) issued a Written Ministerial Statement on 18 June 2015 relating to onshore wind energy development the substance of which is included in the revised NPPF consultation draft (see below).

### National Planning Practice Guidance (NPPG)

33. The National Planning Practice Guidance (NPPG) was published in March 2014 and formally revoked more than 150 planning guidance documents. The NPPG provides revised and updated planning practice guidance to replace the revoked planning guidance documents in order to make planning policy and the NPPF more accessible. The key guidance provided in the NPPG in relation to this chapter includes the following:

- NPPG Guidance Section: Natural Environment<sup>5</sup> – Landscape. Paragraph: 001 Reference ID: 8-001-20140306. This section states that, '*One of the core principles in the National Planning Policy Framework is that planning should recognise the intrinsic character and beauty of the countryside. Local plans should include strategic policies for the conservation and enhancement of the natural environment, including landscape. This includes designated landscapes but also the wider countryside.*'

### Draft Revised National Planning Policy Framework 2018

34. A revised NPPF consultation draft was issued in March 2018. The updated NPPF is focussed mainly on planning matters relating to housing development but, amongst other things, incorporates recent government statements including Greg Clark's Written Ministerial Statement of 18 June 2015 regarding onshore wind energy development.

<sup>4</sup> Department for Communities and Local Government (2012) National Planning Policy Framework

<sup>5</sup> Department for Communities and Local Government (2014) Natural environment

**Local Planning Policy**

35. The Site is located within the jurisdiction of North Kesteven District Council (NKDC), with parts of the 5km Study Area lying within the jurisdiction of Boston Borough Council. The Local Planning Authority (LPA) boundaries are shown in Figure 5.1: Site Location and Study Area of the 2011 LVIA.
36. The North Kesteven District Local Plan has now been replaced by the Central Lincolnshire Local Plan (Adopted April 2017). This LVIA Statement has regard to the following adopted Central Lincolnshire Local Plan policies relating to the landscape and visual environment and renewable energy:
- Policy LP17: Landscape, Townscape and Views
  - Policy LP18: Climate Change and Low Carbon Living
  - Policy LP19: Renewable Energy Proposals
  - Policy LP20: Green Infrastructure Network
  - Policy LP23: Local Green Space and other Important Open Space.
37. No supplementary planning guidance relating to wind energy development and landscape and visual sensitivity / capacity has been identified. Relevant local authority evidence base documents are referred where appropriate below.

**Updated Description of the Site and Surrounding Area (as of April 2018)**

38. Except for some small scale farm building construction and minor growth of trees and hedges locally, no significant changes to the landscape baseline of the Site and Study Area have occurred since 2011. The generally negligible change to the local landscape is apparent when consulting the photographs presented in at **Figure 6: Updated Baseline Photographs**.
39. As in 2011 the landholding (approximately 604 ha) incorporating the Site at East Heckington occupies level ground, lying at around 2m Above Ordnance Datum (AOD), consisting of predominantly arable farmland delineated by ditches and drains, with occasional remnant native species hedgerows and a few small farm woodland blocks.
40. The immediate context of the Site comprises similar flat fenland extending as far as the eye can see. **Photoviews 2, 4, and 6** provided at **Figure 6** illustrate the current landscape context and characteristics of the Site and Study Area compared with that at the time of the 2011 ES.
41. The local landscape remains large scale and relatively uniform in character, reflecting the intensive agriculture land use of the fens, and its flat, expansive landform (see Figure 5.3: Topography of the 2011 ES). The lowland location, level topography and relative homogeneity of landscape elements – large arable fields under broad skies, punctuated occasionally by farm woodlands, settlement and electricity infrastructure – continue to give the fenland its distinctive sense of place.
42. Its visual characteristics are also unchanged: the fenland landscape is open, affording broad vistas and long views. Visibility towards and across the Site from the surrounding fens and adjacent gently sloping ground is extensive and relatively uninterrupted, but views continue to be restricted locally by subtle topographical variations, woodland / tree cover, occasional hedgerows and settlement / buildings, as for example occurs at East Heckington adjacent to the land holding (see **Viewpoint 2**). Minor, insignificant

but noticeable, changes have occurred in certain places due to the growth / new planting of tree planting and hedges, and farm building construction, as for example has occurred (see **Figure 6**):

- in the foreground of **Photoviews 3 and 5** – new farm building and hedge planting (3); and roadside hedgerow and ditch / drain tree growth (5); and
- in the middle ground on skyline of **Photoview 4** – immature hedgerow tree planting growth.

43. The minor landscape changes noted above are insignificant in terms of the baseline assessment of the Site and the Study Area.

**Landscape Character and Value****National Character Units**

44. The Site and Study Area lies entirely within The Fens National Character Area (NCA 46). The Southern Lincolnshire Edge (NCA 47) is situated approximately 5km to the west. Natural England updated the National Character Area Profiles for NCA 46<sup>6</sup> in 2013 and NCA 47<sup>7</sup> in 2014. Based on the updated documents, the character of the host landscape unit – NCA 46 is summarised below.

*The Fens (NCA 46)*

45. This is a distinctive, historic and human influenced wetland landscape lying to the west of the Wash estuary, which formerly constituted the largest wetland area in England. The key characteristics of the area are as follows:
- A large-scale, low-lying, flat, open landscape with extensive vistas to level horizons and huge skies;
  - A hierarchy of river drains and ditches provide a strong influence throughout the area;
  - Drainage from the 17<sup>th</sup> century presented valuable soils which provide conditions conducive to large-scale arable agriculture;
  - Embanked rivers and roddons create local enclosure;
  - Area south of Lincolnshire Wolds is the most recently drained with the Wolds providing a marked 'Upland' horizon to north;
  - The Wash is the largest estuarine system in Britain, supporting internationally important intertidal and coastal habitats;
  - Overall, woodland cover is sparse, with only a few small woodland blocks, occasional avenues alongside roads, isolated field trees and shelterbelts of poplar, willow and occasionally leylandii hedges; and
  - Large, built structures exhibit a strong vertical visual influence, e.g. 'Boston Stump' (St Botolph's Church), Ely Cathedral, wind farms and other modern large-scale industrial and agricultural buildings.
46. The Site lies in the north-western part of the character area (see Figure 5.6a of the 2011 ES). The lowland area of The Fens NCA is defined by a subtle transition from the gently undulating landform of the Kesteven Uplands NCA to the west, and bounded to the north-east by the upland horizon of the

<sup>6</sup> Natural England (2014) National Character Area Profile: 46 The Fens

<sup>7</sup> Natural England (2014) National Character Area Profile: 47 Southern Lincolnshire Edge



Lincolnshire Wolds NCA. The low-lying, flat relief is an entirely man made landscape which, although sparsely settled, contains prominent built development in the form of power lines and large agricultural buildings in addition to dispersed farmsteads and dwellings.

47. Regarding the influence of development and transport infrastructure on countryside character locally, the national character area description states on page 10-11 that:

*‘The medieval pattern of north-south drove lines, between parent and daughter settlements on coast and fen edge respectively, was crossed in the 19th century by the A17 and A47. Since then the settlements in these Townlands have spread along these principal routes to create ribbon developments of smallholdings, modern bungalows, large agricultural barns and food processing buildings’*

48. The proposal would theoretically be visible across the majority of The Fens National Character Area at varying distances. The pattern of visibility is interrupted by large settlements such as Boston to the east and Spalding to the south, and would be further fragmented with distance due to the screening effect of surface objects in a flat landscape. Consequently, in practice the extent of visibility experienced on the ground would be less than indicated by the ZTV on **Figure 5.1** and the updated baseline photographs in **Figure 6**.

#### Local Character Units

49. The Site itself is located entirely within the The Fens – Fenland (13) as described in the North Kesteven Landscape Character Assessment (2007). Detailed baseline descriptions of the relevant local character areas are contained in the 2011 and 2015 LVIA's, a summary of which is provided below for the host landscape character unit – The Fens – Fenland (13).

#### The Fens – Fenland (13)

50. The Site lies on the eastern boundary of ‘The Fens’ landscape character type as defined in the North Kesteven District Landscape Character Assessment. This local character type is a homogenous unit very similar to the corresponding Fens national character unit (NCA 46) as described by Natural England. It comprises one sub-area – Fenland which has the following key characteristics:
- Low lying with very flat relief;
  - Occasional small islands of slightly higher land;
  - Very large, rich arable fields divided up by drainage channels;
  - A hierarchy of rivers drains and ditches creating linear patterns across the landscape;
  - The geometric road pattern follows the drainage pattern with small roads raised above the level of the fields;
  - Generally extensive vistas to level horizons and huge skies;
  - Sparse woodland cover with some occasional trees;
  - Intensively farmed and managed it is almost entirely a man-made landscape;
  - Except for scattered farmsteads and farm buildings the sub-area is unsettled; and

- Prominent power lines and large-scale agricultural buildings.

51. The character unit is predominantly man-made being reclaimed land laid out and maintained with a rectilinear structure of drains / ditches and roads. In addition to the underlying contemporary agricultural landscape, the large scale field pattern and scattered farmsteads with conspicuous farm buildings, there are a number of developed features which characterise the area and form prominent visual elements including:

- A road and associated infrastructure and traffic;
- 400 kV electricity transmission lines and pylons; and
- Large scale drainage channels / canals.

52. These ‘man-made’ elements give ‘The Fens – Fenland’ character unit and the surrounding landscape a partially ‘developed’ character which assists the area in accommodating a wind energy development of the type and scale consented (see **Viewpoints 1 and 2**, and Photomontages 1, 2 and 16 of the 2011 ES). This matter (landscape sensitivity and capacity) is dealt with further in the Evaluation of Landscape and Visual Environment section below.

#### Landscape Value

##### Valued Landscapes

53. Valued landscapes are those areas of land, identified in development plans, designated for their special landscape or scenic qualities. There are no designated landscapes within the 5km Study Area. However, the 2011 LVIA identified a number of ‘valued’ landscapes and historic / designed landscape areas in the wider study area. These are shown on **Figure 2** (the updated version of Figure 5.5 Landscape Planning Context of the 2011 ES). It is worth noting that the closest Area of Outstanding Natural Beauty (AONB) is the Lincolnshire Wolds, located approximately 20km to the north-east of the Site.
54. Regarding undesignated landscape, based on a review of the 2011 and 2015 LVIA's and fieldwork carried out in April 2018, and having regard to relevant best practice guidance in GLVIA3<sup>8</sup>, no demonstrable physical attributes have been identified that would suggest the Site and / or its surroundings should be classified as a valued landscape for purposes of NPPF para 109.

#### Visual Environment

##### Public Access, Recreation Resources and Places of Interest

55. There are a range of landscape and recreation resources and places of interest in the area surrounding the site. These include recreational trails and public rights of way, places of interest/landmarks, land with public access, public highways and navigable waterways as shown in **Figure 3: Updated Public Access Recreation Resources and Places of Interest** (2011 LVIA Figure 5.7) and **Figure 4: Updated Key Landscape and Visual Features and Receptors** (2011 LVIA Figure 5.8). The following are located within the 5km Study Area:
- **National Cycle Route 1**, passing within approximately 4km of the Site near Holland Fen;

<sup>8</sup> GLVIA3 Box 5.1 ‘Range of factors that can help in the identification of valued landscapes’ (p.84)

- No Local Public Rights of Way (PRoW) cross the application Site, however a number cross the 5km Study Area. These are organised into quadrants as illustrated on Figure 5.4 of the 2011 ES. These are:
    - NW Quadrant (South Kyme): **Heck/15/1**, **SKym/3/1**, **Skym/2/1** and **Heck/12/1**.
    - NE Quadrant (Amber Hill): **Ambe/4/1**, **Ambe/3/1**, **Ambe/2/1** and **Kirt/12/1**.
    - SE Quadrant (Swineshead Bridge): **Swhd/13/1**, **Swhd/14/1**, **Swhd/16/1** and **Ambe/8/1**; and **Swhd/15/2** and **Swhd/15/1**.
    - SW Quadrant (Heckington / Great Hale): **GtHa/cs/1** and **Heck/3/1**.
  - Kyme Tower** and **South Kyme Golf Club** located in South Kyme, approximately 4km from the Site, are both publically accessible and therefore considered visual receptors. In addition, Kyme Tower is a landmark feature and therefore makes a contribution to landscape character. **Viewpoint 6** is representative of views from South Kyme;
  - Public Open Space (POS) at **Amber Hill - Amber Hill / Toftstead Primary School playing fields**, **South Kyme – St Mary and All Saints churchyard** and **Holland Fen – recreation area / playing fields**;
  - The **A17**, **A1121**, the **B1395/Sidebar lane**, **Claydyke Bank / Maryland Bank** and **Sutterton Drove** represent the public highways which run through the Study Area; and
  - The **River Witham**, navigable from the Wash up to Woodhall Spa, runs on the north-east edge of the 5km Study Area.
56. These receptors are represented by six representative viewpoints within approximately 5km of the Site which were previously selected, in consultation with North Kesteven District Council, from the 30 representative viewpoints provided in the 2011 LVIA, to assess the effect of the proposed 2015 Variation of Consent scheme on local visual amenity including residential properties. Updated baseline photographs from each of these six viewpoints are presented in **Figure 6**.
57. The visual baseline for these receptors is as described in the 2011 LVIA, an updated summary of which recording the minor changes is provided **Table 1.2** below.

**Table 1.2: Updated Baseline Assessment of Key Representative Viewpoints**

VP Ref	Viewpoint Name	2011 LVIA Baseline Assessment	2018 Update
1	<b>Mill Green Farm, off Clay Bank</b>	View looking south across the application site from the public footpath ( <b>Skym/3/1</b> ) near the farmhouse. The flat, open fenland extends southwards towards East Heckington, which forms an irregular skyline of buildings and associated planting, articulated by overhead power lines and Bicker Fen Wind Farm. Otherwise the large scale and homogeneity of the Fens (NCA 46) / Fenland (NKDC LCA 13) landscape predominates.	Negligible change to the landscape in view / skyline; similar time of year and crop / land management but different lighting conditions; minor clearance of vegetation from culvert / ditch in foreground.
2	<b>East Heckington, A17</b>	View from the A17 at East Heckington looking north across the site, representative of those residential properties in the village with uninterrupted northward views. The flat, open fenland (NCA 46: The Fens /	Negligible change to the landscape in view / skyline; different lighting conditions, time of year and crop; one

		NKDC LCA 13: Fenland) extends northwards displaying its key characteristics of large, open arable fields with little tree or hedgerow cover, under huge skies.	mature tree lost in middle ground, right of frame.
3	<b>Glebe Farm, Sidebar Lane</b>	A similar view to others immediately surrounding the site at this distance (1km approx), representative of those from dwellings on Sidebar Lane. Characteristic fragments of native species hedge are visible, set within the flat, open fenland (NCA 46: The Fens / NKDC LCA 13: Fenland), evidence of the geometric field pattern created by the network of ditches, dykes and occasional boundary hedgerow.	Minor change to the landscape in view – new farm building and hedge planting; similar time of year and crop / land management and skyline but different lighting conditions; clearance of vegetation from ditch in foreground.
4	<b>Amber Hill, Sutterton Drove</b>	View looking south-west from Amber Hill, near the hamlet. The openness of the level fenland is interrupted by one of the few intact hedgerows extant locally, visible on the skyline, framed by tree planting and enclosed buildings at the extremities of the vista. Apart from these characteristic upstanding features, the large scale and homogeneity of the Fens (NCA 46) / Holland Reclaimed Fen (BDC LCA A1) landscape prevails. Potential views of Bicker Fen Wind Farm are blocked by the shelter belt on the left hand side of the frame.	Negligible change to the landscape in view; similar time of year and crop / land management but different lighting conditions; noticeable growth of hedgerow trees on skyline.
5	<b>Swineshead Bridge, A17 / A1121</b>	View from the A17 at Swineshead Bridge is broadly representative of those from residential properties in the village. The open fenland is punctuated by sporadic tree and hedge planting typical of that enclosing local settlement. Notwithstanding these characteristic upstanding features and the main road with its lighting / signage infrastructure, the large scale nature and simple elements and patterns so distinctive of the Fens (NCA 46) / Holland Reclaimed Fen (BDC LCA A1) still defines the character of the landscape.	Minor change to the landscape in view – growth of roadside hedgerow and field boundary tree planting in foreground; similar time of year, crop / land management and lighting conditions.
6	<b>South Kyme</b>	A southward view from Cow Drove looking across the broad, level fenland (NCA 46: The Fens / NKDC LCA 13: Fenland), representative of the prospect from dwellings at the southern edge of South Kyme. Several woodland blocks in the middle ground break up the open vista to produce a varied skyline punctuated by occasional tree and hedge planting and built elements including Bicker Fen Wind Farm.	Negligible change to the landscape in view / skyline; similar time of year and crop / land management but different lighting conditions; minor change to boundary treatment in foreground (plus garden shed) right of frame.

**Summary of Updated Baseline Assessment**

58. **No relevant material changes to the baseline data presented in the 2011 application have been identified.**

## UPDATED EVALUATION OF LANDSCAPE AND VISUAL SENSITIVITY AND CAPACITY

### Landscape Sensitivity and Capacity

59. At the time of writing NKDC do not have an assessment of landscape sensitivity and capacity relating to wind energy development for the LPA area.
60. Based on the updated baseline assessment and associated fieldwork carried out in April 2018, and employing the same approach as 2015 LVIA which had regard to the updated best practice guidance in GLVIA3, it is judged that the value of the local landscape and its susceptibility to the consented development is unchanged from 2011. As a consequence the overall sensitivity of the host landscape: The Fens – Fenland (13) to the consented development is as evaluated in Table 5.4 Landscape Sensitivity and Capacity of the 2011 LVIA, namely '**medium to low**'. The capacity of the host landscape to accommodate the consented development is also unchanged at '**medium to high**' as reported in the 2011 LVIA.

### Visual Sensitivity

61. The sensitivity of the various visual receptors described in the Updated Baseline Assessment section above is as recorded in the 2011 LVIA.

## UPDATED ASSESSMENT OF LANDSCAPE AND VISUAL EFFECTS

62. This section assesses the likely landscape and visual effects of the consented Heckington Fen Wind Park development. The focus of the assessment is on those effects which are predicted to be significant in the context of the EIA Regulations<sup>9</sup>. The findings from the 2011 LVIA are briefly reviewed, followed by an assessment of the consented development against the current baseline situation as of the time of writing – April 2018.
63. It is worth noting that due to the generally negligible change to the landscape and visual baseline since 2011, combined with no change to the sensitivity of landscape and visual receptors (having regard to both value and susceptibility), the consented development is likely to generate the same level and significance of effects during construction and operation (daytime and night time) as predicted in the 2011 LVIA.

### Landscape Effects Update

#### Site Landscape/Features

64. The reassessment of the landscape baseline set out above reveals there has generally been negligible change to the landscape of the Site and the Study Area since 2011. In addition the landscape value and susceptibility to the consented development of the Site and associated features (and therefore the landscape sensitivity) remains the same. As a result the consented development is predicted to cause the same level of effect on the Site landscape / features as reported in the 2011 LVIA which considered overall will be **Negligible** to **Minor** adverse and 'not significant'.

<sup>9</sup> Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017

### Landscape Character Effects

65. Similarly, the large scale, open and 'man-made' character of the host landscape (The Fens – Fenland (13)) is also effectively unchanged and there have been no changes in terms of its landscape value or susceptibility to the consented development (and therefore the landscape character sensitivity) which might influence the potential impact. Consequently the level of effect on the character of the host landscape comprising NCA 46 The Fens and NKDC LCA 13 Fenland will be as reported in the 2011 LVIA, namely **Minor** to **Moderate** adverse and 'not significant'.

### Updated Summary of Landscape Effects

66. Due to the negligible change to the landscape and visual baseline, combined with no change to receptor sensitivity (comprising value and susceptibility), the consented development is predicted to cause the same level of significant and not significant effects with respect to the landscape fabric and character of the Site and surrounding area as that reported in the 2011 LVIA and summarized in **Table 1.4** at the end of this LVIA Statement.

### Visual Effects Update

67. The review of the visual baseline provided above confirms there has generally been negligible change to the visual context of the Site and the Study Area since 2011. Similarly the value of visual receptors and their susceptibility to the consented development (and therefore the visual sensitivity) remains the same. Therefore the consented development is predicted to cause the same level of visual effect as reported in the 2011 LVIA.

### Residential Properties

68. The 2011 LVIA predicted that approximately 52 residential properties surrounding the Site situated within 3km of the nearest turbine will be significantly affected visually by the consented development, comprising Mill Green Farm (off Clay Bank) and Glebe Farm, and dwellings at / on Sidebar Lane; East Heckington, Amber Hill and Sutterton Drove. There is no change to this assessment in relation to the likely effect on the visual amenity of residential properties.
69. It should be noted that the levels of significant visual effect predicted are such that consented development will protect the reasonable visual amenities of these properties and will not cause them to become unattractive places in which to live, a judgement that was tested at the Heckington Fen Wind Park public inquiry and accepted by the planning inspector and the Secretary of State when recommending and granting consent.

### Key Viewpoints and Associated Visual Amenity

70. The 2011 LVIA concluded that the consented development will cause the following visual effects regarding the key representative viewpoints:

#### Viewpoint 1 - Mill Green Farm, off Clay Bank, and Viewpoint 2 - East Heckington, A17

71. A High magnitude of change is predicted at these two viewpoints and associated residential properties and public routes / places etc. which, taking account of the High sensitivity of the receptors, will result in a **Major** to **Moderate** level of adverse effect which will be 'significant'.

*Viewpoint 3 - Glebe Farm, Sidebar Lane, and Viewpoint 4 - Amber Hill, Sutterton Drove.*

72. A Medium to High magnitude of change will arise at these two viewpoints and associated residential properties and public routes / places etc. which, taking account of the High sensitivity of the receptors, will cause in a **Moderate** to **Major** level of 'significant' adverse effect.

*Viewpoint 5 - Swineshead Bridge, A17/A1121.*

73. A Low to Medium magnitude of change will be caused by the consented development at this viewpoint and associated residential properties and public routes / places etc. which considered alongside the High sensitivity of receptors in the case of dwellings, will result in a **Minor** to **Moderate** level of adverse effect which will be 'not significant'.

*Viewpoint 6 - South Kyme.*

74. A Medium magnitude of change will occur at this viewpoint and associated residential properties and public routes / places etc. which, when taking into account the High sensitivity of the receptor will result in a **Moderate** level of adverse effect which will be 'not significant'.

75. There is no change to these assessment findings in relation to the key representative viewpoints.

### **Key Visual Receptors**

#### *Public Rights of Way (PRoW) and Recreational Trails*

76. The 2011 LVIA concluded that the consented development will significantly effect views from / users of a small number of PRoW crossing the Site / land holding and in the immediate surrounding area (up to 2km and occasionally 3km of the nearest consented turbine) due to their high sensitivity and proximity. The footpaths so affected in a 'significant' way will be:

- Heck/15/1 – **Major** adverse.
- SKym/3/1 and SKym/2/1 – **Major** to **Moderate** adverse.
- GtHa/cs/1 and Ambe/4/1 – **Moderate** to **Major** adverse

77. National Cycle Route 1 – the consented development is predicted to cause a medium magnitude of visual change for medium sensitivity receptors using this route at Holland Fen which will be experienced as a **Moderate** to **Minor** adverse visual effect which will be 'not significant'.

78. There is no change to these assessment findings in relation to Recreational Trails and Public Rights of Way. The predicted effect on visual amenity of users of these routes will not be unacceptable in landscape and visual terms and people will not be prevented from using and enjoying them.

#### *Places of Interest/Landmarks and Land with Public Access*

79. The 2011 LVIA predicted that the consented development will significantly effect the views from / users of a small number of places of interest / landmarks and land with public access as follows:

- Kyme Tower – **Moderate** and not significant visual effect. **Viewpoint 6** is representative of views from the South Kyme area.
- South Kyme Golf Club – **Minor** to **Moderate** adverse or less, not significant. See **Viewpoint 6**.

- Amber Hill - Amber Hill / Toftstead Primary School playing fields – **Moderate** adverse effect, not significant. See **Viewpoint 4**.
- South Kyme – St Mary and All Saints churchyard - Minor adverse and not significant effect – **Viewpoint 6** is representative.
- Holland Fen – recreation area / playing fields – **Minor** to **Moderate** adverse effect at most, not significant.

80. There is no change to these assessment findings in relation to Places of Interest/Landmarks and Land with Public Access. The predicted effect on visual amenity of users of these publicly accessible places will be acceptable in landscape and visual terms and people will continue to be able to use and enjoy them.

#### *Public Highways*

81. The 2011 LVIA concluded that the following stretches of public highway adjacent to the Site will be significantly affected visually to a **Moderate** to **Major** level by the consented development due to their proximity and the relatively unrestricted visibility:

- The **A17** passing through East Heckington between Rakes Farm entrance and Elm Grange (see **Viewpoint 2**);
- **Sidebar Lane / B1395** between the Fen Farm group of properties and the junction with the road leading to Mill Green Farm (see **Viewpoint 3**); and
- Short stretch of **Claydike Bank / Maryland Bank** east of the site around The Old Church and 1-4 Maryland Bank.

82. The 2011 LVIA concluded that the remainder of the public highway network in the area surrounding the Site will not be affected to any significant degree. There is no change to these assessment findings in relation to public highways.

#### *Navigable Waterways*

83. Levels of visual effect likely to arise on users of navigable waterways, in particular the River Witham, will remain as reported in the 2011 LVIA – **Minor** to **Moderate** adverse and 'not significant'.

### **Updated Summary of Visual Effects**

84. Due to the negligible change to the landscape and visual baseline, combined with no change to receptor sensitivity (comprising value and susceptibility), the consented development is predicted to cause the same level of significant and not significant visual effects with respect to users of recreational trails, PRoW, places of interest / landmarks, land with public access, public highways and navigable waterways as that reported in the 2011 LVIA and summarized in **Table 1.4** at the end of this LVIA Statement.

## UPDATED ASSESSMENT OF CUMULATIVE EFFECTS

85. This section contains an updated assessment of the likely cumulative effects arising from the consented Heckington Fen Wind Park and other wind energy development projects surrounding the Site. Cumulative landscape and visual effects would potentially occur when one or more wind farm was apparent in views from certain locations or routes. Seen together, two or more wind farms may affect landscape character, views and / or visual amenity. This section should be read in conjunction **Figure 5: Updated Cumulative Assessment Schemes**. Figures 5.4, 5.6a-5.6e and 5.12a of the 2011 LVIA are also useful for comparison purposes.

### Assessment Scope

86. The cumulative assessment has been carried out in accordance with current best practice guidance<sup>10</sup> as set out in the Methodology section above. The scope of the assessment includes operational, consented and 'in-planning' wind energy development projects situated within approximately 20km of the Site, described as – Cumulative Assessment Schemes (CASs), as listed in **Table 1.3** below.

**Table 1.3: Relevant Wind Energy Projects - Cumulative Baseline**

Wind farm Scheme	Status	Approximate distance	No. of turbines	Max Height (to tip)	Figure No.
Bicker Fen	Operational	6km	13	110m	5.5
Northbeck	Withdrawn	12km	1	77m	5.5
Bernard Matthews Pinchbeck	Consented	17km	1	78m	5.5
Holbeach St Marks	Withdrawn	18km	5	132m	5.5
Nocton Fen	Withdrawn	22km	23	150m	5.5
Delph	Withdrawn	23km	9	126m	5.5

87. Four CAS previously in-planning have since been withdrawn (in grey text above), namely Northbeck, Holbeach St Marks, Nocton Fen and Delph. The remaining three CAS to be considered in this LVIA Statement (located within approximately 20km of the consented development) are as follows:
- the operational Bicker Fen wind farm; and
  - the consented Benard Mathews Pinchbeck wind turbine.
88. CAS located further than approximately 20km from the Site are not be likely to give rise to significant landscape and visual cumulative effects due to the underlying topography, landscape character, and separation distances involved.

## Updated Cumulative Assessment

89. The operational Bicker Fen wind farm is the closest CAS (6km) and would be intervisible with the consented development from a number of areas within the wider surrounding area. However, the separation of around 6km provides sufficient distance between the schemes, bearing in mind the flat, expansive man-made landscape and huge skies, to prevent significant cumulative effects arising on landscape character.
90. **Figure 6: Viewpoints 1, 4 and 6** illustrate the views of Bicker Fen from Mill Green Farm, Amber Hill and South Kyme respectively. The separation distance and the interruption to the views caused by intervening woodland and built development is apparent in the views. This serves to restrict visibility of the CAS thus preventing significant cumulative landscape and visual effects from arising with the consented development.
91. The next closest CAS is Bernard Matthews Pinchbeck (consented), a relatively small scale scheme located at over 12km distance. The single wind turbine will have a relatively small presence within the surrounding settled fenland landscape beyond 5km and, therefore, at distances of approximately 12km or more, would cause negligible cumulative landscape and visual effects with the consented Heckington Fen proposal. The remaining CASs listed in **Table 1.3** above have been withdrawn.
92. Notwithsdtanding the flat, open landscape, as a rule, due to the combination of level topography, characteristic tree cover (shelterbelts and woodland blocks), built form and infrastructure / engineered features (embankments, dykes etc.) intervisibility within and / or across the low-lying Fens rapidly becomes restricted with increasing distance from the Site. Working in concert these factors tend to fragment, filter or block visibility and interrupt views, and prevent significant cumulative landscape and visual effects arising.

## Updated Conclusion

93. The cumulative baseline has changed since the 2011 ES in that there are now fewer CAS in planning. Therefore the potential for cumulative landscape and visual effects to arise as a result of Heckington Fen Wind Park is now reduced. That said the updated assessment confirms the conclusion of the 2011 LVIA as summarised below.
94. The consented development would not cause any significant additional cumulative landscape or visual effects in the area surrounding the Site. No significant cumulative effects would arise on the character of The Fens (NCA 46) or the Fenland (NKDC LCA 13). Views from residential properties, places of interest, publicly accessible areas, recreational resources and public rights of way surrounding the application site would not be significantly affected in a cumulative way, including those at Mill Green Farm, Sidebar Lane, East Heckington, Swineshead Bridge, Amber Hill and South Kyme. None of the settlements, places of interest, long distance paths / cycle routes and other landscape resources in the wider study area would experience significant cumulative landscape and visual effects. No public highways in the Study Area would be affected cumulatively to any significant degree, including the B1395 Sidebar Lane and the A17.
95. In summary the consented development would cause the same levels and significance of cumulative landscape and visual effect as reported in the 2011 LVIA.

<sup>10</sup> 'Assessing the Cumulative Effect of Onshore Wind Energy Developments' (2012) Scottish Natural Heritage

## MITIGATION UPDATE

### Strategies to mitigate any potential significant environmental impacts

96. The scope for mitigating the likely landscape and visual effects of wind energy development is very limited. A number of mitigation measures have been incorporated into the design of the consented development including as set out in the 2011 ES: a) the site layout and turbine location iterations as recorded in ES Chapter 3: Site Selection; b) the off-white turbine colour; and c) the replacement grassland / arable crop (over most of the turbine base area) during operation. Other embedded mitigation features include the use of existing access points and tracks where practicable which would minimise onsite landscape impacts and allow the majority of the land to be farmed throughout the lifespan of the wind park.

## UPDATED SUMMARY AND CONCLUSION

97. Having reviewed the baseline situation, and taking account of the updated best practice guidance, it is concluded that the residual landscape and visual effects likely to be caused by the consented development would remain as described in Chapter 5: Landscape and Visual of the 2011 ES, as follows:

*The proposed Heckington Fen Wind Park would cause a small number of significant landscape and visual effects during construction and operation within approximately 2km of the application site. These significant, but not unacceptable, effects would potentially occur at approximately 50 dwellings surrounding the site, short lengths of several public rights of way and highways within approximately 2.5km, occasionally up to 3km in the case of certain public rights of way, and the character of the host landscape within about 1.5km of the nearest proposed turbine. The remaining residential properties, public rights of way and other landscape resources in the study area would not be affected to any significant degree. No designated landscapes, popular recreation resources or places of interest (including features with public access) would be significantly affected.*

98. Bearing in mind the negligible change in the landscape and visual baseline since 2011, and the reduction in numbers of relevant CAS, the consented development is judged likely to cause the same level and significance of effects as reported in the 2011 LVIA. A summary of the predicted significant landscape and visual effects is provided in **Table 1.4** below.

Table 1.4: Updated Summary of Significant Landscape and Visual Effects

2011 Environmental Statement														2018 Environmental Statement			
Stage of Development	Feature (Receptor)	Sensitivity	Description of Potential Effect	Effect Before Mitigation		Summary of Mitigation	Effect After Mitigation							Effect After Mitigation			Change to Conclusion of 2011 LVIA and ES ?
				Magnitude of change	Significance before mitigation		Magnitude of Change	Positive / Negative*	Land-scape Policy (ie. PPS7)*	Direct / Indirect / Secondary/ Cumulative	Short / medium / long term	Permanent/ Temporary	Residual Significance	Magnitude of Change	Positive / Beneficial or Negative / Adverse*	Residual Significance	
O/C/D	Certain residential properties situated within 2.5km of the nearest turbine #1	High	Change to views / visual amenity	High / Medium to High	Major / Moderate to Moderate / Major	N/A	High / Medium to High	N/A	Adverse	Direct	Medium term	Permanent / Reversible	Major / Moderate to Moderate / Major	High / Medium to High	Adverse	Major / Moderate to Moderate / Major	No Change
O/C/D	Landscape character up to 1.5km from nearest turbine #2	Medium to Low	Change to landscape character	Very High / High	Moderate / Major	N/A	Very High / High	N/A	Adverse	Direct and Indirect	Medium term	Permanent / Reversible	Moderate / Major	Very High / High	Adverse	Moderate / Major	No Change
O/C/D	PRoW crossing and adjacent to site up to 1km from nearest #3turbine #3	High	Change to views / visual amenity	Very High	Major	N/A	Very High	N/A	Adverse	Direct	Medium term	Permanent / Reversible	Major	Very High	Adverse	Major	No Change
O/C/D	Rights of way between 1 to 2km (occasionally up to 3km) from nearest turbine #4	High	Change to views / visual amenity	High / Medium to High	Major / Moderate to Moderate / Major	N/A	High / Medium to High	N/A	Adverse	Direct	Medium term	Permanent / Reversible	Major / Moderate to Moderate / Major	High / Medium to High	Adverse	Major / Moderate to Moderate / Major	No Change
O/C/D	Main roads adjacent to the site (within 1km) #5	Low	Change to views / visual amenity	High to Very High	Moderate / Major	N/A	High / Medium to High	N/A	Adverse	Direct	Medium term	Permanent / Reversible	Major / Moderate to Moderate / Major	High / Medium to High	Adverse	Major / Moderate to Moderate / Major	No Change

**Note**

\* In the above summary table the distinction made in the 20112011 ES LVIA between a) how effects are perceived by people, and b) the landscape planning policy aspect, and which was incorporated into Table 5.10 Summary of Significant Landscape and Visual Effects of the ES LVIA (as reproduced in the left hand part of Table 5,3 above), has been brought together into one column on the right of the table under a single combined heading of 'Landscape Policy – Positive/Negative'. This change has been made to simplify the table and avoid confusion; it does not alter any of the assessment findings. This approach is in keeping with the updated best practice guidance on landscape and visual assessment (GLVIA3).

- #1- Mill Green Farm, off Clay Bank; East Heckington; Glebe Farm, Sidebar lane; and Amber Hill, Sutterton Drove.  
#2- Small tract of The Fens (NCA 46) / Fenland (NKDC LCA 13) / Holland Reclaimed Fen (BDC LCA A1) national / local character area(s) incorporating application site / landholding within approximately 1.5km of nearest consented turbine.  
#3- Definitive Footpath Heck/15/1 lies within 0.5-1km of the nearest consented turbine.  
#4- Sections of Definitive Footpaths. SKym/2/1, SKym/3/1 (including public track to Mill Green Farm), GtHa/cs/1 and Ambe/4/1 lying between 1km and approximately 3km from the nearest consented turbine.  
#5- Short stretches of the A17 and B1395 Sidebar Lane passing the application site within approximately 1km of the nearest consented turbine.



## ANNEX 1: LANDSCAPE AND VISUAL ASSESSMENT METHODOLOGY

### PART 1 – OVERVIEW OF METHOD

#### Introduction

1.1 This annex describes the method used to prepare the Landscape and Visual Impact Assessment Statement (LVIA Statement) for the consented development. The basic structure of the LVIA Methodology is arranged in 'parts' as follows – Part 1 comprises:

- Introduction – aim and purpose of the LVIA
- Best Practice Guidance – key publications
- Assessment Approach – fundamentals / basis of the approach; outline of the process
- Assessment of Significance – how landscape and visual criteria are applied
- Assessment Criteria and Threshold of Significance – judging whether a given effect is significant or not
- Parts 2-7 – supporting information (i.e. relating to: landscape character, LVIA criteria, landscape sensitivity and capacity; photography, visualisations and graphic techniques; limitations, assumptions and terminology)

#### Purpose of LVIA

1.2 The main aim of LVIA is to identify, and bring to the attention of the decision maker, the 'significant' landscape and visual effects that will potentially be caused by and / or result from a proposed development. The Landscape Institute's current guidelines on LVIA<sup>1</sup> state:

*"Landscape and Visual Impact Assessment (LVIA) is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity."*

(GLVIA3, paragraph 1.1, page 4)

1.3 The 2011 LVIA was carried out in the context of the Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000. The end product of EIA is known as an Environmental Statement (ES); the 2011 LVIA formed part of the 2011 ES together with a range of other relevant environmental topics, including for example ecology and cultural heritage, to name two disciplines with close links with landscape.

1.4 Since the 2011 ES, the public inquiry and granting of consent, the Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017 have come into force and have replaced the previous 2000 EIA Regulations in their entirety. This LVIA Statement has been prepared in the context of the 2017 EIA Regulations, in accordance with relevant best practice as set out below.

#### Best Practice Guidance

1.5 The LVIA Statement is consistent with the following best practice guidance:

- Landscape Institute and Institute of Environmental Management and Assessment (2013) 'Guidelines for Landscape and Visual Impact Assessment 3rd Edition' (GLVIA3)
- University of Newcastle for Scottish Natural Heritage (2002) 'Visual Assessment of Windfarms: Best Practice'
- Scottish Natural Heritage (2012) 'Assessing the Cumulative Effect of Onshore Wind Energy Developments'
- Natural England (2014) 'An approach to Landscape Character Assessment'

1.6 The LVIA also had regard to / cognisance of:

- The Countryside Agency (2004) 'Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity'
- Landscape Institute Advice Note 01/11: Photography and Photomontage in Landscape and Visual Impact Assessment

#### Assessment Approach – Fundamentals

1.7 This LVIA Statement has been prepared according to the principles contained in current best practice guidance, in particular GLVIA3. The EIA Directive and UK Regulations require projects to be assessed for the 'significance' of their likely effects, not just the identification and description of those effects. The fundamentals of the LVIA approach are set out below with references to the current guidelines.

#### Professional judgement, objectivity versus subjectivity, clarity and transparency

1.8 LVIA uses professional judgement that includes a combination of objectivity and subjectivity:

*"Professional judgement is a very important part of LVIA. While there is some scope for quantitative measurement of some relatively objective matters, for example the number of trees lost to construction of a new mine, much of the assessment must rely on qualitative judgements, for example about what effects the introduction of a new development or land use change may have on visual amenity, or about the significance of change in the character of the landscape and whether it is positive or negative".*

(GLVIA3, paragraph 2.23, page 21)

*"When judging how significant a particular change is "there is a need for the judgements that are made to be reasonable and based on clear and transparent methods so that the reasoning applied at different stages can be traced and examined by others."*

(GLVIA3, paragraph 2.24, page 21)

#### What landscape is

1.9 A key point of reference for this LVIA Statement is Article 1 – Definitions of the European Landscape Convention (ELC)<sup>2</sup> which states:

*"Landscape' means an area, as perceived by people, whose character is the result of the action and interaction of natural and / or human factors."*

<sup>1</sup>Landscape Institute and IEMA, 2013, Guidelines for Landscape and Visual Impact Assessment – Third Edition'

<sup>2</sup>Council of Europe, 2000, 'European Landscape Convention'

*(European Landscape Convention, 2000, page 5 – quoted in GLVIA3, paragraph 2.2, page 14)*

- 1.10 An important aspect of landscape is that it is a resource in its own right and inclusive and public in nature:

*“Landscape is about the relationship between people and place. It provides the setting for our day-to-day lives. The term does not mean just special or designated landscapes and it does not only apply to the countryside. Landscape can mean a small patch of urban wasteland as much as a mountain range, and an urban park as much as an expanse of lowland plain. It results from the way that different components of our environment - both natural (the influences of geology, soils, climate, flora and fauna) and cultural (the historical and current impact of land use, settlement, enclosure and other human interventions) - interact together and are perceived by us. People’s perceptions turn land into the concept of landscape.”*

*(Swanwick and Land Use Consultants, 2002:2 – quoted in GLVIA3, paragraph 2.2, page 14)*

- 1.11 Landscape varies in appearance from place to place, the result of varying patterns of different elements which combine to give each area its particular ‘character’. Landscape character can be summarised as:

*“A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.”*

*(LCA 2002, page 9).*

- 1.12 In the context of LVIA, landscape is understood to include urban areas and the coast. Thus ‘townscape’ and ‘seascape’ are related areas of landscape and visual assessment for which specific guidance is available, particularly with respect to seascape. GLVIA3 is concerned with the landscape in the broad sense, stating in relation to this issue:

*“This guidance is equally applicable to all forms of landscape and does not separate townscape and seascape out for special treatment.”*

*(GLVIA3, paragraph 2.6, page 16)*

### **What landscape is not**

- 1.13 Regarding the historic environment and cultural heritage it is important to note that LVIA is concerned with the contemporary landscape. GLVIA3 states:

*“Landscape professionals should make good use of existing historic landscape information, and collaborate with historic environment specialists, who will be collating or recording such information for the cultural heritage part of the EIA. This collaboration will allow the landscape baseline information to reflect a full understanding of the historic characteristics and features of today’s landscape.”*

*(GLVIA3, paragraph 5.10, page 76)*

- 1.14 GLVIA3 emphasises that the historic environment is a separate discipline requiring assessment by suitably qualified professionals:

*“The sharing of relevant baseline information should not be confused with the need for separate cultural heritage appraisals such as historic landscape characterisation and assessment or historic townscape appraisal, or there will be a danger of both double handling and inappropriate judgements by non-experts. It is particularly important that responsibilities are clear in considering any effects on the settings and views for historic buildings, Conservation Areas and other heritage assets.”*

*(GLVIA3, paragraph 5.11, page 77)*

### **Understanding the proposal**

- 1.15 GLVIA3 stresses the importance of understanding a proposed development in order to properly assess the likely significant effects.

*“The assessment of likely effects must be based on a description of the development that is sufficiently detailed to ensure that the effects can be clearly identified, although the level of detail will vary from project to project.”*

*(GLVIA3, paragraph 4.2, page 50)*

- 1.16 GLVIA3 goes on to say:

*“Within the defined parameters the level of detail of the proposals must be such as to enable proper assessment of the likely environmental effects and consideration of the necessary mitigation. It may be appropriate to consider a range of possibilities, including a reasonable scenario of maximum effects, sometimes referred to as the ‘worst case’ situation.”*

*(GLVIA3, paragraph 4.3, page 50)*

- 1.17 Regarding the availability of information on the project and the limitations of assessment GLVIA3 states:

*“Where the landscape professional considers that key data on project characteristics is lacking, it will be necessary to add a caveat to the assessment.”*

*(GLVIA3, paragraph 4.4, page 51)*

### **Impacts, effects and significance**

- 1.18 Environmental effects are changes that arise from the development being assessed. GLVIA3 recommends the consistent use of the terms impact and effect and that the terms be clearly defined at the outset.

#### **Impact versus effect**

- 1.19 For the purpose of this report the term ‘impact’ is defined as the action being taken, whereas the term ‘effect’ is defined as the change resulting from that action (GLVIA3, paragraph 1.15 page 8).

#### **Significance and level of effects**

- 1.20 Significance is “a measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental project” (GLVIA3, Glossary, page 158). The criteria for establishing the ‘level’ of effect and whether they are ‘significant’ or ‘not significant’ are described in the following passages and sections, and at **Part 2**.

- 1.21 It is important to note that in this LVIA Statement, as in the 2011 ES, the term 'level of effect' (not significance of effect) is used to describe the product or landscape and / or visual change. Thus what is referred to in GLVIA3 as 'significance of effect' is described in **Appendix 1: Landscape and Visual** and other ES chapters as 'level of effect'. The reason for this is to a) maintain parity of terminology across the ES as a whole and b) to avoid confusion when establishing whether a particular effect is 'significant' or 'not significant' in the context of this EIA.

#### *Scope of effects and significance*

- 1.22 The central aim of LVIA is to identify the *significant* effects that are *likely* to result from a proposed development.

*"The Directive is clear that the emphasis is on the identification of **likely significant** effects. This should embrace all types of effect and includes, for example, those that are positive/beneficial and negative/adverse, direct and indirect, and long and short term, as well as cumulative effects.*

(GLVIA3, paragraph 1.17, page 9)

#### *Proportionality and significance*

- 1.23 Proportionality is an important aspect of EIA and LVIA. GLVIA3 states that:

*"Identifying significant effects stresses the need for an approach that is in proportion to the scale of the project that is being assessed and the nature of its likely effects. Judgement needs to be exercised at all stages in terms of the scale of investigation that is appropriate and proportional."*

(GLVIA3, paragraph 1.17, page 9)

#### *Significant versus not-significant*

- 1.24 GLVIA3 highlights the importance of identifying which effects are 'significant' and which are 'not significant' in the context of this EIA.

*"The Regulations require that a final judgement is made about whether or not each effect is likely to be significant." (IEMA, 2011b: 61)*

(GLVIA3, paragraph 3.32, page 40)

- 1.25 The issue of significance and the level of effects and how they are assessed is dealt with below and at **Part 3**.

#### *Landscape and visual effects are assessed separately*

- 1.26 The ELC definition of landscape supports the need to deal with the landscape resource and visual resource (and therefore landscape and visual effects) separately. GLVIA3 states that the role of LVIA is to:

*"... address both effects on landscape as a resource in its own right and effects on views and visual amenity."*

(GLVIA3, paragraph 2.18, page 19)

- 1.27 GLVIA3 goes on to say:

*"The distinction between these two aspects is important but often misunderstood, even by professionals. LVIA must deal with both and should be clear about the difference between them. If a professional assessment does not properly define them or distinguish between them, then other professionals and members of the public are likely to be confused."*

(GLVIA3, paragraph 2.22, page 21)

#### *Landscape and visual effects may be reversible or irreversible.*

- 1.28 An important consideration in LVIA is whether a proposed development is 'reversible' or 'irreversible'. A particular attribute of wind energy development compared with new housing or roads, for example, is that it is reversible. In other words the physical elements can be removed at the end of their operational life and the land restored to its former state, a matter / operation that can be secured by means of an appropriate planning condition at the consents stage. Regarding reversibility GLVIA3 states:

*"Reversibility is a judgement about the prospects and the practicality of the particular effect being reversed in, for example, a generation. This can be a very important issue – for example, while some forms of development, like housing, can be considered permanent, others, such as wind energy developments, are often argued to be reversible since they have a limited life and could eventually be removed and/or the land reinstated."*

(GLVIA3 paragraph 5.52, page 91)

#### **Landscape resource**

- 1.29 In order to understand the effects of the development on the landscape resource it is necessary to consider the character of the landscape in addition to physical features:

*"Landscape results from the interplay of the physical, natural and cultural components of our surroundings. Different combinations of these elements and their spatial distribution create the distinctive character of landscapes in different places, allowing different landscapes to be mapped, analysed and described. Character is not just about the physical elements and features that make up a landscape, but also embraces the aesthetic, perceptual and experiential aspects of the landscape that makes different places distinctive."*

(GLVIA3, paragraph 2.19, page 21)

- 1.30 Landscape assessment therefore involves several threads relating to the likely effects on:

- the landscape fabric – physical elements / features;
- landscape character – the appearance of the landscape; and
- valued landscapes – designated landscape.

#### **Visual resource**

- 1.31 The visual resource is made up of specific views and visual amenity.

*"When the interrelationship between people and the landscape is considered, this introduces related but very different considerations, notably the views that people have and their visual amenity – meaning the overall pleasantness of the views they enjoy of their surroundings."*

(GLVIA3, paragraph 2.20, page 21)

- 1.32 Visual assessment therefore is concerned with two aspects of the visual environment namely the likely effects on:

- views of the landscape enjoyed by people from specific locations; and
- the visual amenity (public and private) provided by the landscape.

#### Identification and description of effects

- 1.33 In accordance with the EIA Regulations a LVIA must give consideration to whether the likely significant landscape and visual effects:

*“result directly from the development itself (direct effects) or from consequential change resulting from the development (indirect and secondary effects)...*

*are additional effects caused by the proposed development when considered in conjunction with other proposed developments of the same or different types (cumulative effects);*

*are likely to be short term or to carry on over a long period of time;*

*are likely to be permanent or temporary, in which case their duration as above, is important;*

*are judged to be positive, beneficial or negative adverse in their consequences for landscape or for views and visual amenity (this is sometimes referred to as the ‘valency’ of the effect but as this word has a formal definition relating to chemistry it is best avoided).”*

(GLVIA3, paragraph 3.22, page 36)

- 1.34 In addition it is important to consider the reversibility of effects (GLVIA3 paragraph 5.52, page 91), as referred to earlier above.

#### Nature of receptor and effects

- 1.35 To assess the significance of effect it is necessary to establish both the size and scale of change (magnitude) to landscape and views / visual amenity and the susceptibility (sensitivity) of the subject of change (the receptor):

*“LVIA in common with other topics in EIA, tends to rely on linking judgements about the sensitivity of the receptor and about the magnitude of the effects to arrive at conclusions about the significance of the effects. These terms are effectively a shorthand way of describing the wider array of factors that underlie the **nature of the receptor** likely to be affected (sensitivity) and the **nature of effects** likely to occur (magnitude).”*

(GLVIA3 paragraph 3.24, page 37)

##### Nature of receptor (sensitivity)

*“Landscape professionals should assess the nature of a landscape or visual receptor’s sensitivity by combining judgements about its susceptibility to change arising from the specific proposal with judgements about the value attached to the receptor.”*

(GLVIA3 paragraph 3.24, page 38)

##### Susceptibility to change and landscape sensitivity / capacity

- 1.36 For any tract of landscape, for instance a particular character area, ‘sensitivity to’ and ‘capacity for’ change can only be assessed in relation to a specific type of development:

*“Since landscape effects in LVIA are particular to both the specific landscape in question and the specific nature of the proposed development, the assessment of susceptibility must be tailored to the project. It should not be recorded as part of the baseline but should be considered as part of the assessment of effects.”*

(GLVIA3 paragraph 5.42, page 89)

##### Nature of effect (magnitude of change)

*“When considering the nature of a predicted effect its magnitude should be determined by combining judgements about matters such as the size and scale of the change, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short or long term in duration.”*

(GLVIA3, paragraph 3.24, page 38)

##### Professional judgement

*“It is important to note that in this approach each judgement already combines several separate judgements.”*

(GLVIA3, paragraph 3.24, page 38)

#### Significance of effects

- 1.37 Assessment of the significance of effects is a primary aim of EIA. GLVIA3 states:

*“The EIA Directive and UK Regulations refer to projects likely to have **significant** effects of the environment. This means identifying and describing the effects of a project is not enough in itself. They must also be assessed for their significance”*

(GLVIA3, paragraph 3.23, page 37)

- 1.38 GLVIA3 continues:

*“In reporting on the significance of the identified effects the main aim should be to draw out the key issues and ensure that the significance of the effects and the scope for reducing any negative/adverse effects are properly understood by the public and the competent authority before it makes its decision. This requires clear and accessible explanations.”*

(GLVIA3, paragraph 3.35, page 41)

- 1.39 The process and criteria for assessing the level of effects and their significance is described below and at **Part 3**.

#### Mitigation and Enhancement

- 1.40 Consideration of mitigation measures to help prevent / avoid, reduce or offset / remedy likely significant effects is a central aim of EIA. GLVIA3 identifies three categories of mitigation as follows:

*“primary measures, developed through the iterative design process, which have become integrated or embedded into the project design*

*standard construction and operational management practices for avoiding and reducing environmental effects;*

*secondary measures, designed to address any residual adverse effects remaining after primary measures and standard construction practices have been incorporated into the scheme.”*

*(GLVIA3, paragraph 4.21, pages 57-58)*

1.41 Figure 4.4 on page 60 of GLVIA3 illustrates the mitigation hierarchy.

1.42 GLVIA3 emphasises the distinction between mitigation and enhancement stating:

*“While mitigation is linked to significant adverse landscape and visual effects, enhancement is not a requirement of the EIA Regulations. It means proposals that seek to improve the landscape resource and the visual amenity of the proposed development site and its wider setting, over and above its baseline condition.”*

*(GLVIA3, paragraph 4.35, page 63)*

## Assessment Process

1.43 The main aim of LVIA is identify those landscape and visual effects likely to be ‘significant’ in terms of making planning decisions as well as identifying mitigation measures to prevent / avoid, reduce and where possible remedy or offset any significant effects. Regarding the process of assessment GLVIA3 states.

*“LVIA, in common with other topics in EIA, tends to rely on linking judgements about the sensitivity of the receptor and about the magnitude of the effects to arrive at conclusions about the significance of the effects. These terms are effectively a shorthand way of describing the wider array of factors that underlie the nature of the receptor likely to be affected (sensitivity) and the nature of the effect likely to occur (magnitude). Further background to this is given in Box 3.1 (page 39). Landscape professionals should assess the nature of a landscape or visual receptors sensitivity by combining judgements about its susceptibility to change arising from the specific proposal with judgements about the value attached to the receptor. When considering the nature of a predicted effect its magnitude should be determined by combining judgements about matters such as the size and scale of the change, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short or long term in duration. It is important to note that in this approach each judgement already combines several separate judgements”*

*(GLVIA3, paragraph 3.24, page 37 [refer also para 3.25 to 3.7, page p37-39])*

1.44 To assess the significance of landscape and visual effects it is necessary to establish A) the nature and / or sensitivity of the receptor(s) and B) the nature of effect and / or magnitude of likely change. The key elements of the assessment process are set out below, separately for the landscape resource and visual environment.

## Judging overall significance of landscape effects

1.45 With respect to assessing the significance and level of landscape effects GLVIA3 states:

*“There are no hard and fast rules about what makes a significant effect, and there cannot be a standard approach since circumstances vary with the location and landscape context and with the type of proposal. At opposite ends of a spectrum it is reasonable to say that:*

*major loss or irreversible effects, over an extensive area, on elements and/or aesthetic and perceptual aspects that are key to the character of nationally valued landscapes are likely to be of the greatest significance*

*reversible negative effects of short duration, over a restricted area, on elements and/or aesthetic and perceptual aspects that contribute to but are not key characteristics of the character of landscapes of community value are likely to be of the least significance and may, depending on the circumstances, be judged as not significant.*

*where assessments of significance place landscape effects between these extremes, judgements must be made about whether or not they are significant, with full explanations of why these conclusions have been reached.”*

*(GLVIA3, paragraph 5.56, page 92-93)*

## Judging overall significance of visual effects

1.46 As with landscape effects, GLVIA3 states there are no ‘hard and fast rules’ regarding visual significance:

*“In making a judgement about the significance of visual effects the following points should be noted:*

*Effects on people who are particularly sensitive to changes in views and visual amenity are more likely to be significant;*

*Effects on people at recognised and important viewpoints or from recognised scenic routes are more likely to be significant;*

*Large-scale changes which introduce new non-characteristic or discordant or intrusive elements into the view are more likely to be significant than small changes or changes involving features already present within the view.”*

*(GLVIA3, paragraph 6.44, page 116)*

## Cumulative effects

1.47 GLVIA3 defines cumulative effects as being those that:

*“result from additional changes to landscape and visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future.”*  
[Gavin David emphasis]

*(GLVIA3, paragraph 7.2, page 120)*

1.48 The principle of proportionality in relation to cumulative effects is emphasised in GLVIA3 which states:

*“It is always important to remember that the emphasis on EIA is on **likely significant** effects rather than on comprehensive cataloguing of every conceivable effect that might occur.”*

*(GLVIA3, paragraph 7.5, page 121)*

1.49 GLVIA3 follows closely current cumulative assessment guidance issued by SNH in relation to wind energy development<sup>3</sup>. The SNH guidance distinguishes between landscape and visual cumulative effects:

*“Cumulative landscape effects as effects that ‘can impact on either the physical fabric or character of the landscape, or any special values attached to it’ (SNH, 2012: 10);*

*“Cumulative visual effects as effects that can be caused by combined visibility, which ‘occurs where the observer is able to see two or more developments from one viewpoint’ and/or sequential effects which ‘occur when the observer has to move to another viewpoint to see different developments’ (SNH, 2012: 11).*

1.50 Regarding cumulative visual effects SNH guidance distinguishes between 1) those ‘combined’ effects which are experienced ‘in combination’ and / or ‘in succession’ and 2) ‘sequential’ effects which are experienced ‘frequently’ and / or ‘occasionally’ (GLVIA3, Table 7.1, page 131).

1.51 GLVIA3 advises using the same approach for assessing cumulative impact significance as with the initial project assessment (GLVIA3, paragraph 7.37, page 131).

*“Higher levels of significance may arise from cumulative visual effects related to:*  
*developments that are in close proximity to the main project and are clearly visible together in views from the selected viewpoints;*  
*developments that are highly inter-visible, with overlapping ZTVs – even though the individual developments may be at some distance from the main project and from individual viewpoints, and when viewed individually not particularly significant, the overall combined cumulative effect on the viewer at a particular viewpoint may be more significant.”*

‘Significant’ Effects

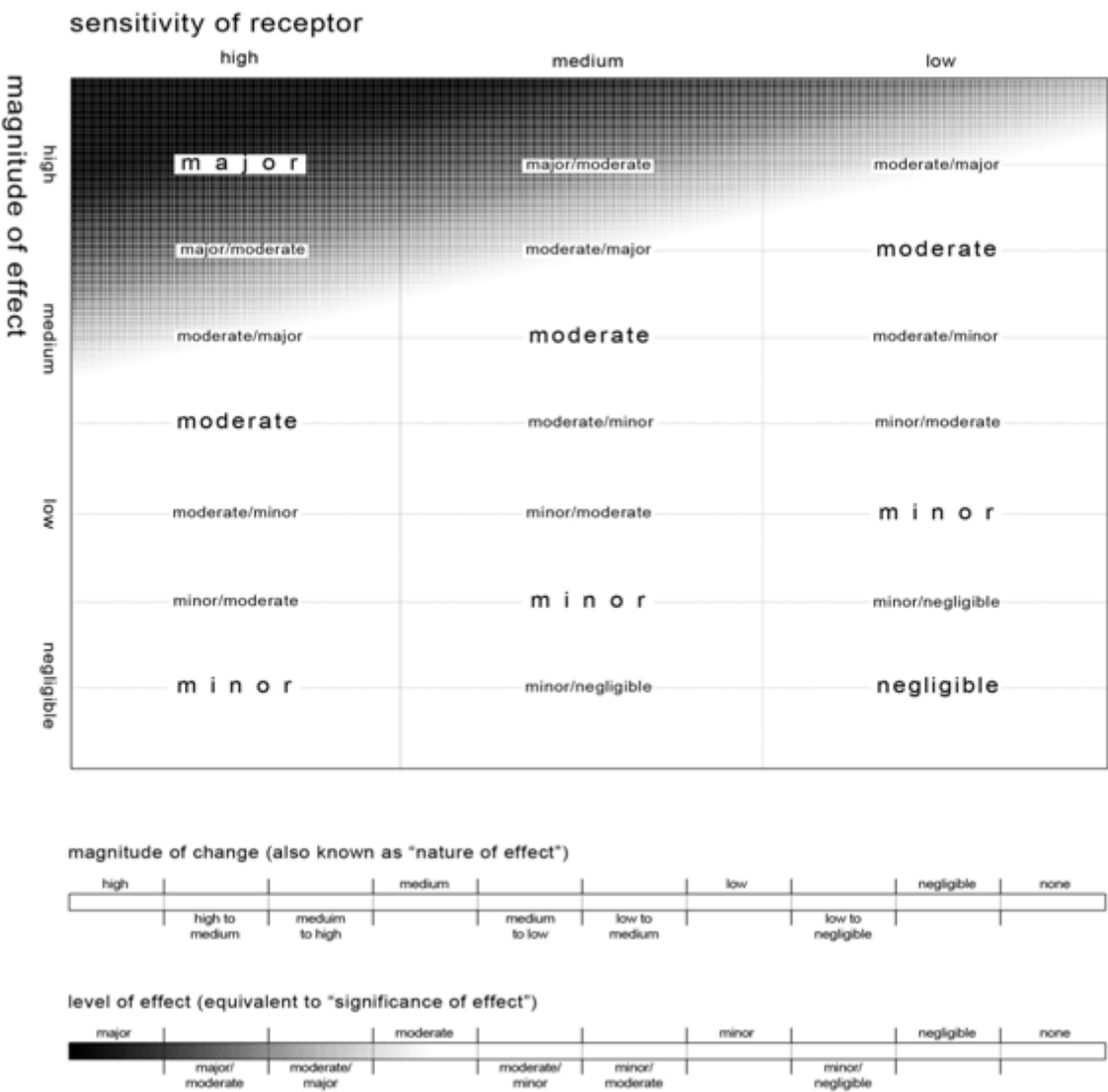
1.52 Regarding the assessment of significance and determining whether the likely effects are ‘significant’ or ‘not significant’ GLVIA3 states that:

*There are no hard and fast rules about what effects should be deemed ‘significant’ but LVIA’s should always distinguish clearly between what are considered to be the significant and non-significant effects. Some practitioners use the phrase ‘not significant in EIA terms’ to describe those effects considered to fall below a ‘threshold’ of significance but this can potentially confuse since the phrase has no specific meaning in relation to the EIA Regulations (IEMA, 2011b: 61).*  
*(GLVIA3, paragraph 3.32, page 40)*

1.53 For the purposes of this LVIA Statement, and in the context of the EIA Regulations 2017<sup>4</sup> the threshold at which a landscape or visual effect is considered to be ‘significant’ is illustrated by the shaded area in the diagram below which is an extract of the information provided at **Part 4**. In summary an effect of ‘moderate’ level significance or lower is considered to be ‘not significant’, whereas an effect of more than ‘moderate’ will be ‘significant’. Being on the cusp of significance, ‘moderate’ level effects are carefully scrutinised in order to ensure that no potentially ‘significant’ effects are overlooked. In certain, exceptional circumstances, at the discretion of the assessor, a ‘moderate’ effect may be judged ‘significant’.

<sup>3</sup>Scottish Natural Heritage, 2012, ‘Assessing the Cumulative Effect of Onshore Wind Energy Developments’

Framework for Establishing Level and Significance of Effects



Note – The magnitude scale used above is based on the five-point scale presented in **Part 3**.

1.54 It should be noted that the above diagram is intended as a guide to assessment only and that significance will vary depending on individual circumstances, the type and scale of development proposed and the baseline situation. The gradation of levels of magnitude of change and significance of effects represents a continuum; the assessor must use professional judgement when determining the extent of the effect and whether it is significant or not in landscape planning terms, in the context of the current EIA Regulations. It is important that the criteria used and judgments made are coherent and clearly articulated, so that the assessment process is cogent and transparent.

Assessment Criteria

1.55 The assessment criteria used in this LVIA Statement are set out at **Part 3**. Criteria are provided for the main categories of landscape and visual assessment namely:

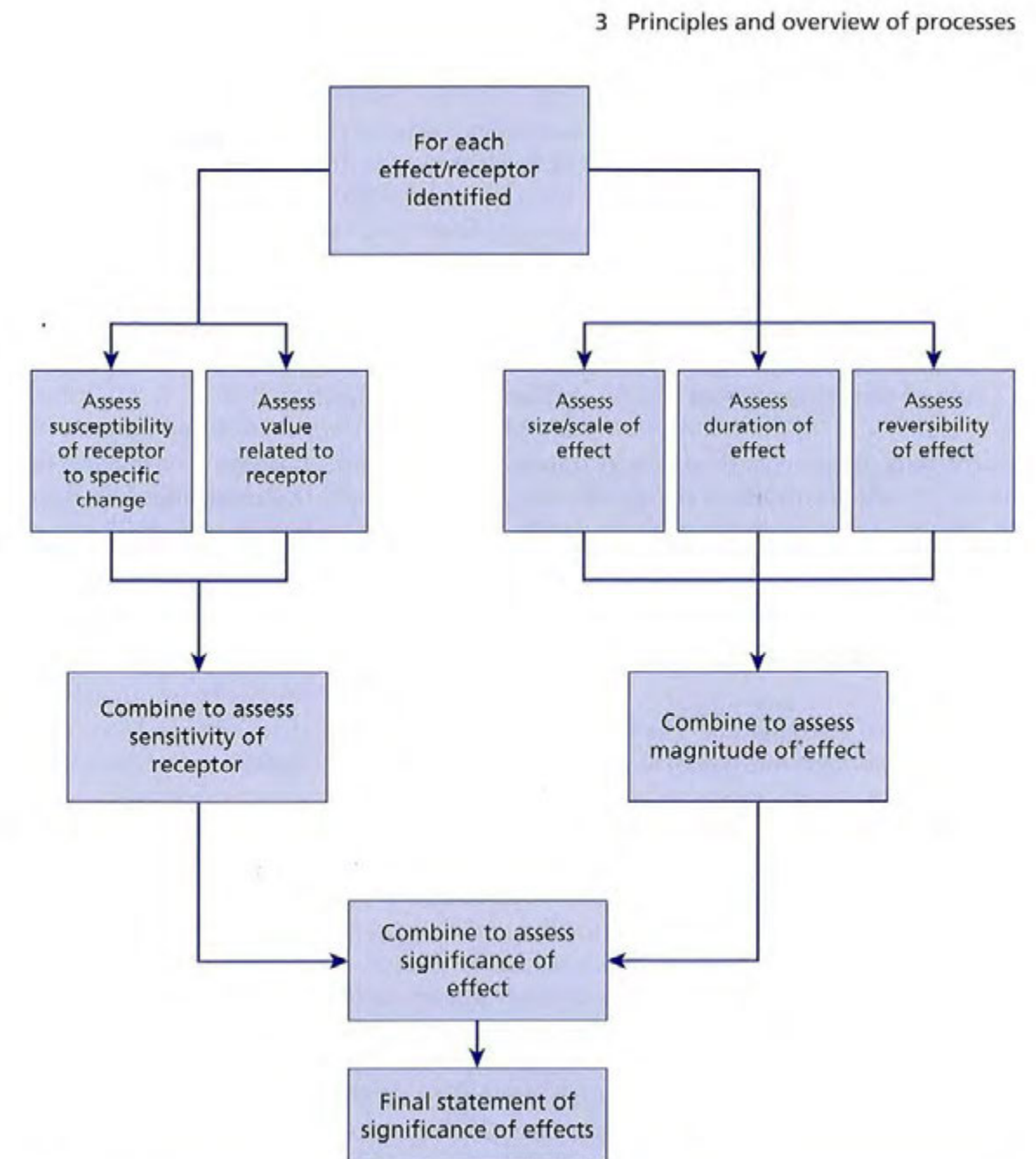
- Landscape fabric (elements / features such as trees, hedges, grassland, water-bodies, green infrastructure etc.)

<sup>4</sup> Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017



- Landscape character (the pattern of the landscape defined as character areas / types)
- Landscape value (the value attached to areas of landscape and features by society)
- Nature of landscape receptor (landscape sensitivity to and capacity for wind energy development)
- Nature of visual receptor (visual sensitivity of observers, views and viewpoints / locations)
- Nature of landscape and visual effect (magnitude of change i.e. to landscape features, character, valued landscapes, views and visual amenity)
- Cumulative assessment (nature / magnitude of cumulative change)
- Level of landscape and visual effect (on landscape fabric, features, landscape character, valued landscapes, views and visual amenity)
- Significance of landscape and visual effects (whether significant or not significant in the context of this EIA)

1.56 GLVIA3 Figure 3.5 (page 39) illustrates the assessment rationale / process as a flow diagram, a copy of which is reproduced here.



**Figure 3.5** Assessing the significance of effects



**PART 2 – METHOD FOR ASSESSING LANDSCAPE CHARACTER EFFECTS****Introduction**

**1.57** This part of the annex is provided specifically in relation to landscape character in support of the Methodology section above. The text, diagram and 5 examples are intended to explain the way in which changes to landscape character are assessed and how significant effects are identified.

**1.58** The concept of landscape character is summarised in the following table.

**Landscape Character**

<p>“Landscape character is a distinct and recognisable pattern of elements that occur consistently in a particular type of landscape. Particular combinations of geology, landform, soils, vegetation, land use, field patterns and human settlement create character. Character makes each part of the landscape distinct, and gives each its particular sense of place. ... A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.”<sup>5</sup></p>
<p>Landscape Character Assessment describes:</p> <ul style="list-style-type: none"> <li>• “The elements that make up the landscape in the study area including: <ul style="list-style-type: none"> <li>-Physical influences – geology, soils, landform, drainage and water bodies:</li> <li>-land cover, including different types of vegetation and patterns and types of tree cover:</li> <li>- the influence of human activity, including land use and management, the character of settlements and buildings, and pattern and type of fields and enclosure</li> </ul> </li> <li>• The aesthetic and perceptual aspects of the landscape – such as, for example, its scale, complexity, openness, tranquillity or wildness:</li> <li>• The overall character of the landscape within the study area, including any distinctive Landscape Character types or areas that can be identified, and the particular combinations of elements and aesthetic and perceptual aspects that make each distinctive, usually by identification as key characteristics of the landscape”<sup>6</sup></li> <li>• and includes Townscape and Seascape</li> </ul>
<p>Landscape Character Types – “These are distinct types of landscape that are relatively homogeneous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur, they share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern. For example, chalk river valleys or rocky moorlands are recognisable and distinct landscape character types.”<sup>7</sup></p>
<p>Landscape Character Areas – “These are single unique areas and are the discrete geographical areas of a particular landscape type.”<sup>8</sup> For instance The Cotswolds is a broad character area.</p>

**Example 1**

**1.59** It is necessary to assume a landscape setting for a proposal – in this case down land. A wind farm is placed within it. The wind farm exerts a locally characterising effect. A wind farm landscape will be created in the area where the wind farm is the strongest and dominant characteristic. In this area, the wind farm will be the principal element / feature which determines landscape character with the surrounding landscape elements being sub-dominant by comparison. Moving outwards and away from the site, the wind farm will exert a lessening effect upon landscape character with the

surrounding down land increasing in characterising influence, becoming co-dominant in the adjacent mixed landscape sub-type, and then reasserting its overall dominance farther afield.

**Example 2**

**1.60** Example 2 considers a down land landscape type with two sub-types – wooded down land and arable down land. In this case the wind farm’s characterising effects are limited to the ‘wind farm in down land’ landscape and (diminishing with distance) the ‘wooded down land with wind farm’ sub-types. The characterising effect does not extend into the adjacent arable down land sub-type. Thus, within the down land two new landscapes will be created: a ‘wind farm in down land’ landscape type and a ‘wooded down land with wind farm’ landscape sub-type, which will coexist with the original wooded down land landscape sub-type. In this zone people’s perception of the recognisable pattern of consistently occurring landscape elements is affected.

**Example 3**

**1.61** Example 3 is similar to Example 2, but indicates the change when a wind farm is placed on or close to the boundary of two landscape units.

**Example 4**

**1.62** Example 4 starts with an assemblage of 6 landscape units. A wind farm is located on, or close to the boundary of two of the units. The characterising effects are as in Example 3. Because of the position of the wind farm, the effect extends some way into landscape units 3 and 4, but not as far as units 1, 2, 5 & 6. In other words, the distinct and recognisable pattern of landscape elements that occurs consistently in units 1, 2, 5 & 6, and how they (units 1, 2, 5 & 6) are perceived by people is not affected.

**Example 5**

**1.63** Example 5 explores possible landscape and visual effects that may or may not arise across units:

**1.64** Location A – the observer is positioned within a part of the landscape that is subject to significant landscape effects deriving from the wind farm. At the same time, the wind farm gives rise to a significant visual effect.

**1.65** Location B – a significant visual effect may still occur when looking in the direction of that part of the landscape which accommodates the wind farm but the observer is beyond the zone of characterising effects where significant landscape change may occur.

**1.66** Location C – the observer may be sufficiently distant from the wind farm such that she/he is not only outside the zone of characterising effects / significant landscape change but also beyond the range of significant visual effects.

**1.67** Observers positioned at B & C are aware of looking at a ‘wind farm landscape’ sub-type and a ‘landscape with wind farm’ sub-types but are not located in either.

<sup>5</sup>Swanwick, C. and LUCfor The Countryside Agency/Scottish National Heritage, 2002, ‘Landscape Character Assessment – Guidance for England and Scotland’ (LCA 2002), page 9

<sup>6</sup> GLVIA3, paragraph 5.4, page 74

<sup>7</sup>LCA 2002, page 9

<sup>8</sup> Ibid, page 9

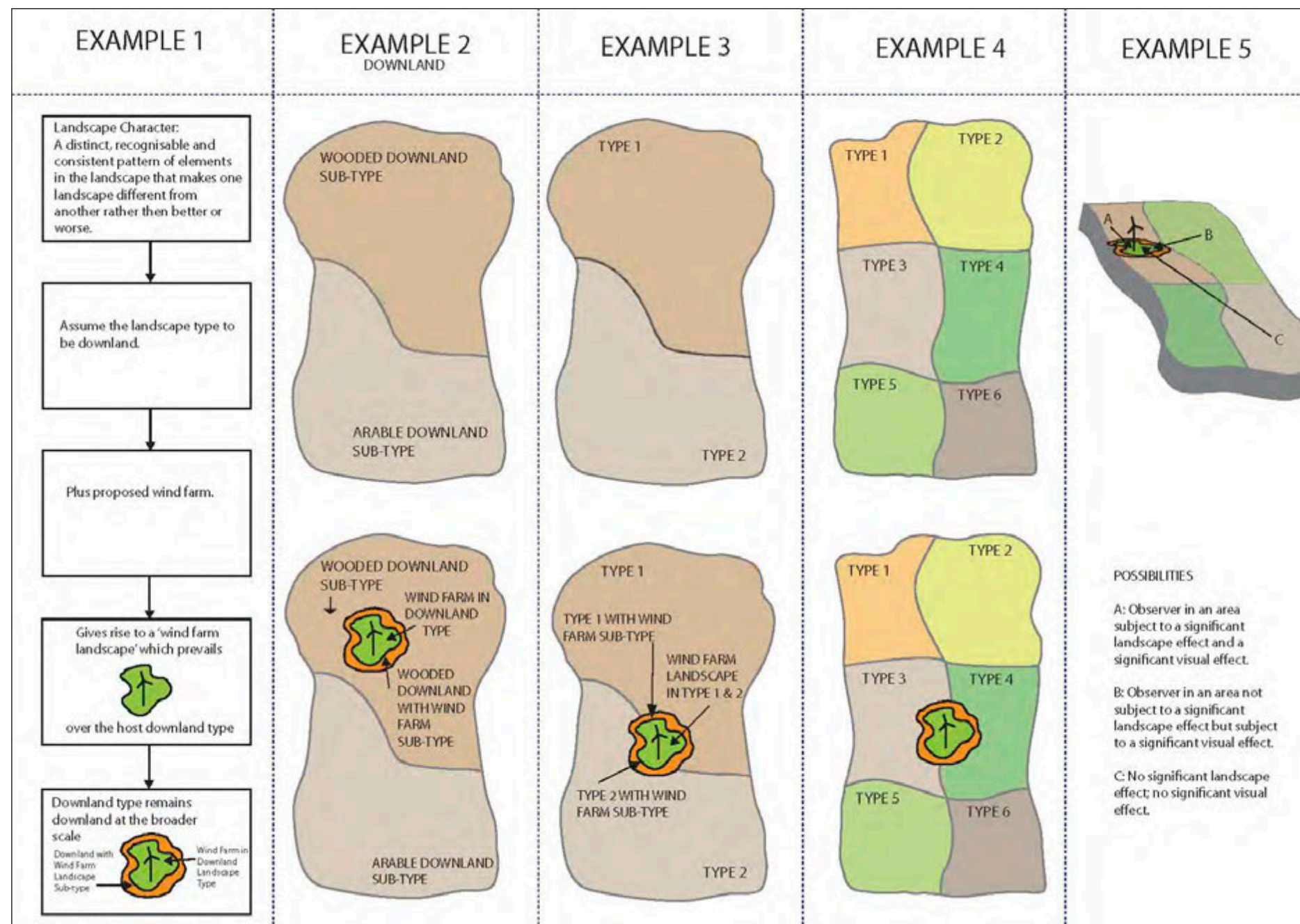
1.68 It may be asked: ‘why is it possible to experience a significant visual effect looking at a wind farm but not be located in an area subject to a significant landscape effect? When an assessor is carrying out landscape character identification and assessment, she/he executes the work from a series of locations within the environment. In identifying the distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, she/he does this by having regard to the environment ‘in the round’, that is to say in a 360° context, and not solely viewing in a single direction. Thus it is possible to be in a position whereby, in the 360° scheme of things, a wind farm may be a visible, but not be a determinative or even substantive element within the pattern of elements that gives rise to the character of the area in which the viewpoint is located. Notwithstanding, the observer might, by limiting her/his gaze to the direction of the wind farm, consider it to be a visually significant change in that limited sector of the view – see Observer B above. In other words, it is not significant

with respect to the perceived landscape character at the observation point albeit it may be visually significant looking in one particular direction. See diagram below illustrating the examples described above.

### Acknowledgements

1.69 The approach to assessing potential effects on landscape character used in the LVIA Statement, as described above, has been adapted from one developed by Jeffrey Stevenson Associates (JSA). JSA have considerable experience in the LVIA of wind energy development, both at the planning application and public inquiry stages, and are acknowledged experts in this discipline. The JSA methodology is based on current best practice guidance on LVIA for the UK.

### Landscape Character Effects Diagram



## PART 3 – LANDSCAPE AND VISUAL IMPACT ASSESSMENT CRITERIA

### Introduction

1.70 The landscape and visual resource of an area can be affected both directly and indirectly. Visual impacts are always direct because when an object is not in view by implication there can be no impact; impacts on visual amenity also depend on visibility and are therefore also direct. Landscape impacts on the other hand can be either direct or indirect. Change which affects the landscape fabric / physical features (i.e. vegetation, buildings and landform), or the character area / unit in which the site is located, is generally a direct landscape impact, whereas an impact arising on the character of adjacent landscape character areas / units is indirect. Furthermore, a character change may be physical (i.e. the removal or addition of a landscape element within the host character unit) or perceived (i.e. affecting the aesthetic and / or perceptual attributes of landscape character). Indirect impacts are generally considered to be intrinsically less significant than direct ones.

1.71 Main factors to consider as part of the landscape and visual assessment process include:

- Nature of receptor – sensitivity of landscape and / or visual resource
- Nature of effect – magnitude of landscape and / or visual change
- Cumulative effect – landscape and / or visual change in conjunction with other development
- Level of effect – gravity of landscape and / or visual change
- Significance of effect – whether an effect is ‘significant’ or ‘not significant’ in context of this EIA
- Adverse, beneficial or neutral effect – whether change is negative and / or positive
- Mitigation – measures to prevent / avoid, reduce and offset or remedy adverse effects
- Level and significance of residual effect – landscape and / or visual effects remaining after mitigation

### Assessment Criteria

1.72 Landscape and visual effects are assessed by measuring the nature of effect (magnitude of change) against the nature of the receptor (sensitivity). Simply put the level of effect, and whether it is significant or not, is a function of magnitude of change and sensitivity of receptor. Each of these three factors (magnitude, sensitivity, level and significance) is determined by a combination of quantitative (objective) and qualitative (subjective) assessment using professional judgement, informed by best practice guidance.

### Nature of Effect – Magnitude of Change

1.73 The *magnitude* of change to landscape, views and visual amenity is evaluated according to a five-point scale: High, Medium, Low, Negligible and None. The effect of a particular proposal will depend on a number of factors including:

- Nature and scale of proposed development
- Size and scale of landscape and / or visual change compared with existing situation
- Geographic extent of the area potentially affected

- Duration and reversibility of effect

1.74 The criteria for assessing magnitude of landscape change are set out below.

Magnitude of Change to Landscape Fabric	
None	No change to landscape fabric
Negligible	Indiscernible or barely discernible, change to physical landscape elements and / or perceived landscape character – project components have a negligible presence in the wider landscape.
Low	Low amount of change to physical elements and / or perceived landscape character – project components are present in the landscape, but weakly so and generally perceived as a background component of the wider landscape; reversible development will tend to cause lower amounts of landscape change than irreversible development.
Medium	Medium amount of change to physical elements and / or perceived landscape character – project components are relatively prominent in the landscape and have a moderate presence in the wider landscape; development that is reversible will tend to cause lower amounts of landscape change than irreversible development.
High	High amount of irreversible change to physical elements and / or perceived landscape character – project components are prominent in the landscape, are generally experienced as a determining factor of local character and have a strong presence in the wider landscape; reversible development will tend to cause lower amounts of landscape change than irreversible development.

1.75 When assessing landscape character effects as set out in **Part 2** above it is necessary to consider the nature and scale of change to underlying character as set out below.

Magnitude of Landscape Character Change	
None	No change to landscape character.
Negligible	a barely discernible change to underlying landscape character; a very minor alteration to the key characteristics of the baseline landscape and / or aesthetic, perceptual and experiential aspects of landscape character.
Low	an apparent but minor change to underlying landscape character; a minor alteration to the key characteristics of the baseline landscape and / or aesthetic, perceptual and experiential aspects of perceived landscape character; reversible development will tend to cause lower amounts of landscape character change than irreversible development.
Medium	a readily apparent change to underlying landscape character; partial / moderate alteration to the key characteristics of the baseline landscape and / or aesthetic, perceptual and experiential aspects of landscape character; development that is reversible will tend to cause lower amounts of landscape character change than irreversible development.
High	an immediately apparent, irreversible change to underlying landscape character; a major alteration to the key characteristics of the baseline landscape and / or aesthetic, perceptual and experiential aspects of landscape character; reversible development will tend to cause lower amounts of landscape character change than irreversible development.

- 1.76 To assist in the assessment of character effects it is useful to consider the ‘presence’ of a proposed development in 360 degree views bearing in mind the landscape context in the round.

Landscape ‘Presence’	
Weak	The development is not prominent in views and when visible generally perceived as a minor element of the wider landscape, experienced in the round.
Moderate	The development is relatively prominent in views, but in general appears as subservient to, or in equilibrium with, the underlying landscape characteristics and is generally perceived as one of several determining factors of landscape character, when experienced in the round.
Strong	The development is mainly prominent in views and generally perceived as the determining factor of landscape character, when experienced in the round.

- 1.77 When assessing visual change it is necessary to consider various factors including the following:

- Nature of existing view (panoramic, framed, channelled, interrupted, fragmented etc.)
- Intervening distance (between observer and proposed development)
- Extent of view occupied by development (full, partial, glimpse etc.)
- Proportion of development visible (all, most, part, none)
- View experience (fleeting / transient or part of sequence along defined route)

- 1.78 For the purposes of this assessment of wind energy development views have been classified according to four distance ‘ranges’ as follows.

View Range	Distance threshold	Reasoning
Close	Less than 2km	At close range the wind energy proposals (when visible) will tend to appear as ‘prominent’ features in the landscape and visual receptors are likely to experience between medium and high magnitude of change when compared with existing views.
Medium	Between 2km – 5km	In medium range views the wind energy proposals (when visible) will tend to appear as ‘relatively prominent’ features in the landscape and visual receptors are likely to experience between low and medium to high magnitude of change compared to the existing situation.
Medium to Long	Between 5km – 15km	In medium to long range views the wind energy proposals (when visible) will tend to appear as ‘present’ features in the landscape and visual receptors are likely to experience between medium to low and negligible magnitude of change compared to the existing situation.
Long	More than 15 km	In long range views the wind energy proposals (when visible) will read as part of the wider landscape and visual receptors will tend to experience between low and negligible magnitude of change compared to the existing situation.

Scottish Natural Heritage and University of Newcastle (2002) ‘Visual Assessment of Windfarms: Best Practice’ (Table 3, page 10)

- 1.79 The above Scottish Natural Heritage guidance is based on the visibility of turbines with a tower height of over 70m and rotor diameters of over 80m (maximum height approximately 110m). It is appreciated that turbine sizes are increasing and that blade-tip heights of 125-130m are becoming commonplace.

Consequently, these distance bands are an approximate guide to wind turbine prominence, intended to be used as an aid to landscape and visual assessment. They are not supposed to be rigidly adhered to, or used in a formulaic way.

- 1.80 The criteria for establishing the magnitude of visual change are set out below.

Magnitude of Visual Change	
None	No change to views or visual amenity.
Negligible	Observers generally experience negligible or no change to views and visual amenity – project components tend to be indiscernible or go unnoticed in the wider landscape and / or 360 degree views.
Low	Observers generally experience a low amount of change to views and visual amenity – project components are present in the landscape but tend to be perceived as a background component of all round views; reversible development will tend to cause lower amounts of visual change than irreversible development.
Medium	Observers generally experience a medium amount of change to views and visual amenity – project components are relatively prominent in the landscape, but tend to appear as subservient to, or in equilibrium with, the landscape characteristics in all round views; development that is reversible will tend to cause lower amounts of visual change than irreversible development.
High	Observers generally experience a high amount of change to views and visual amenity – project components are prominent in the landscape and tend to be perceived as a determining factor of all round views and / or the broad landscape experience; reversible development will tend to cause lower amounts of visual change than irreversible development.

- 1.81 Note that the five-point scale of magnitude used above forms the basis of the significance framework diagram presented in this document above and below at **Part 4**.

### Nature of Receptor – Sensitivity of Landscape and Visual Resource

- 1.82 The nature or *sensitivity* of a specific landscape or visual receptor depends on two main factors:

- its susceptibility to the type of change proposed; and
- its value to people / the public.

- 1.83 Excluding landscape character, which is evaluated separately, receptors are either: 1) physical landscape elements or features, such as hills, trees, hedges and buildings, or 2) people as observers living in or using the landscape. These people may be going about their day-to-day lives, or working and recreating, travelling along footpaths and roads; others may be on holiday and / or visiting places and using tourist routes. Landscape character sensitivity (character areas and types) is subject to a specific set of criteria which is dealt with separately below. The susceptibility to change and value of a particular receptor is dependent on a range of factors including:

- Type and status of resource (public / private, urban / rural, residential / recreational)
- Nature and context of use (public / private, indoor / outdoor, active / passive)
- Level of ‘importance’ of resource (local, regional, national etc.)



- Quality and value to people of resource (conservation / popularity status)
- Public access / outdoor recreation / heritage status (PRoW, POS, access land etc.)
- Dynamic or static (moving or stationary receptor, i.e.. at home versus travelling to work)
- Vehicular or non-vehicular (enclosed or exposed to the outdoor environment)

1.84 Unless specified otherwise the sensitivity of landscape and visual receptors is classified on a three-point scale (low, medium, high) as set out in the tables below.

Landscape Receptor Sensitivity (Features and Places / Designations)		
Receptor	Rationale	Sensitivity
Absence of distinctive landscape characteristics and scenic qualities; presence of landscape detractors; undesignated countryside and landscape features	High tolerance to change – everyday landscapes including locally valued landscape and features tend to be reasonably tolerant to change arising from wind turbine development.	Low
Some distinctive landscape characteristics and scenic qualities; few landscape detractors; locally designated / valued countryside and landscape features	Medium tolerance to change – regionally / locally valued landscape and / or features of medium scenic quality are moderately susceptible to change arising from wind turbine development.	Medium
Strong / distinctive landscape characteristics and scenic qualities; absence of landscape detractors; nationally designated / valued countryside and landscape features	Low tolerance to change – nationally valued landscapes and / or distinctive landscape features of high scenic quality are highly susceptible to change arising from wind turbine development.	High
Major roads / transport routes; Places of work (B2, B8 use class); Indoor sports and leisure facilities; Undesignated landscape features without public access.	Observers in vehicles or people involved in daily activities are generally less / the least sensitive to visual change.	Low
Minor roads designated as national trails / cycle routes, tourist routes and main roads within nationally important landscapes (e.g. NSAs or National Parks); Outdoor sports facilities / golf courses; B1 work places / commercial properties.	Observers enjoying the countryside / landscape from vehicles on quiet routes or those involved in sporting activities / active outdoor recreation are in general moderately sensitive to visual change.	Medium
Residential property; Rights of way / recreational trails; Principal tourist routes within nationally important landscapes (e.g. NSAs or National Parks); Areas of land and water with public access; Protected landscape / cultural heritage features with public access.	Observers enjoying the countryside / landscape either from their homes and tourist areas / routes, and / or pursuing quiet outdoor recreation are usually more / the most sensitive to visual change.	High

Visual Receptor Sensitivity (People, Routes and Places / Designations)		
Receptor	Rationale	Sensitivity
Major roads / transport routes; places of work (B2, B8 use class); indoor sports and leisure facilities; undesignated landscape features without public access.	Observers in vehicles or people involved in daily activities and outdoor sports are generally less sensitive to visual change	Low
Minor roads designated as national trails / cycle routes and local roads crossing common land, access land and National Trust land, plus main roads within nationally important landscapes (e.g. NSAs, AONBs or National Parks); outdoor sports facilities; B1 work places / commercial properties.	Observers enjoying the countryside / landscape from workplaces and in vehicles on quiet routes or those involved in active outdoor recreation are in general moderately sensitive to visual change	Medium
Residential property; rights of way / recreational trails; countryside with public access such as common land, access land and National Trust land; protected landscape features with public access (i.e.. SAMs).	Observers enjoying the countryside / landscape either from their homes or pursuing quiet outdoor recreation are usually more sensitive to visual change	High

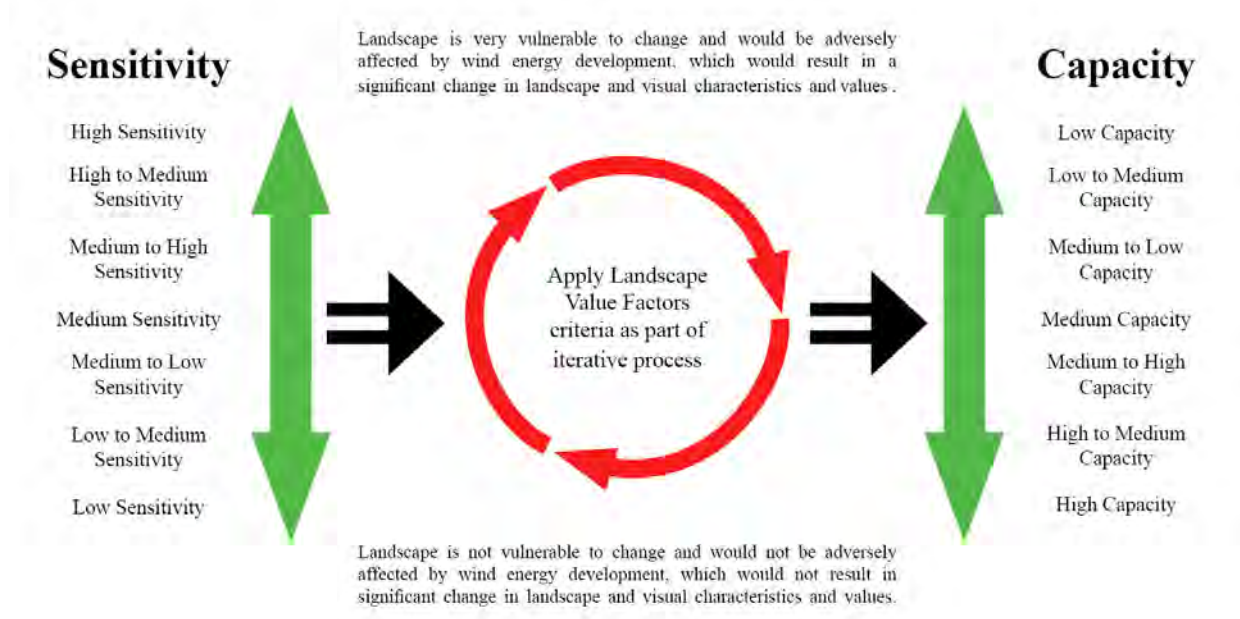
1.85 The sensitivity of landscape character to wind energy development is evaluated by applying appropriate criteria at a character unit level as recommended in current draft best practice guidance issued by Natural England, as summarised below and described more fully below at **Part 5**.

Landscape Sensitivity / Capacity		
Landscape Character Factors	Visual Factors	Landscape Value Factors
Scale	Skylines	Scenic Quality
Landform	Settings	Wildness and Tranquillity
Landcover, Complexity & Aesthetic	Visibility	Historic Environment
Enclosure	Views	Cultural Associations
Human Influence	Population	Amenity and Recreation
Landscape Quality (Condition)	Scope for Mitigation	Landscape Designations

Source – Landscape Sensitivity criteria informed by Topic Paper 6 (2002), adapted from 'Assessing the Environmental Capacity for On-Shore Wind Energy Development' – Consultation Draft (2009) Natural England – Table 1: Landscape Criteria, pages 14–16.

1.86 The landscape sensitivity of an area to wind energy development is established by applying the above landscape character and visual factors criteria. Evaluating the capacity of the landscape to accommodate wind energy development is a related exercise which is assessed using the landscape character and visual sensitivity as a starting point (the 'overall landscape sensitivity'), and by applying the landscape value factors criteria using the iterative process summarised in the diagram below.

1.87 More information on the process of evaluating the sensitivity and capacity of particular tracts of landscape is provided as part of the LVIA Statement. Typically the assessment would draw on existing landscape sensitivity / capacity studies, where they exist at a local or regional level, and supplement them as required with a bespoke, site specific study should this be identified as necessary at the scoping stage.



Source – adapted from 'Wind Energy Development in Northern Ireland's Landscapes: SPG to accompany PPS18' (2010 Northern Ireland Environment Agency) – page 24.

Significance and Level of Effect

- 1.88
- The purpose of an EIA is to determine, in a transparent way, a project's likely *significant* environmental effects and in doing so distinguish between those effects that are judged to be 'significant' and those that are considered 'not significant'. It is accepted that, due to the type and scale of development, the consented wind park will inevitably give rise to some significant visual and landscape effects. However, it should be stressed that, not all effects arising will be significant in the context of the EIA Regulations and this particular EIA. Furthermore, a significant effect will not necessarily mean that the impact is unacceptable in planning terms. What is important is that the likely effects are transparently assessed and understood in order that the determining authority can bring a balanced, well-informed judgement to bear when making the decision. This judgement should be made on an objective basis using an accepted approach / method and criteria.

- 1.89
- The level of effects on landscape, views and visual amenity are evaluated according to a five-point scale: Major, Moderate, Minor, Negligible or None / Neutral. A description of the criteria for gauging the level of effects is provided in the table below. It is important to note that effects can be beneficial as well as adverse. Notwithstanding the question of subjectivity and positive attitudes towards wind energy as recorded in various public opinion surveys, it is assumed in this LVIA Statement that effects will be adverse unless stated otherwise.

Level of Effect	Landscape Resource	Visual Resource / Amenity
Major	Where the proposed changes will be sufficiently large or uncharacteristic to substantially and irreversibly alter a nationally important landscape feature and / or valued aspect of landscape or character	Where the proposed changes will be sufficiently uncharacteristic or intrusive to substantially and irreversibly alter a nationally important view, or view of acknowledged high scenic quality
Moderate	Where the proposed changes will be out of scale with the underlying character of an area or noticeably and irreversibly alter a landscape feature or valued aspect of landscape or character, but not to a substantial degree, or materially so	Where the proposed changes to views will be out of scale with the existing view, or noticeably and irreversibly alter visual amenity, but not to a substantial degree, or materially so
Minor	Where proposed changes will be slightly at variance with the underlying character of an area and / or landscape features	Where proposed changes to views will be intermittent and / or at slight variance with the existing view / visual amenity
Negligible	Where proposed changes will have an indiscernible, or barely discernible effect on character and / or landscape features	Where proposed changes will have an indiscernible, or barely discernible effect on views / visual amenity
None	No effect	No effect
Neutral	Where there is a balance of positive and negative landscape impacts or perceived benefits and disbenefits	Where there is a balance of positive and negative visual impacts or perceived benefits and disbenefits

- 1.90
- For the purposes of this assessment, those effects indicated as being more than 'Moderate' significance (i.e. 'Moderate / Major', 'Major / Moderate' and 'Major'), as shaded in the Significance Matrix at **Part 4** below, are regarded as significant in the context of the EIA Regulations<sup>9</sup>. Effects of 'Moderate' and lesser significance have been identified in the assessment, but in general are not considered significant in the context of EIA. However, as 'Moderate' level effects are on the cusp of being 'significant' or not, they are closely scrutinised to ensure that no likely significant effects are overlooked. Note that the eight-point scale of magnitude used in the significance matrix is based on the five-point scale presented previously, the three extra criteria being the intervals between medium to high, medium to low and low to negligible.

- 1.91
- It should be noted that the matrix at **Part 4** is intended as a guide to assessment only and that significance can vary depending on individual circumstances and the baseline situation, for example the presence of landscape designations and / or visual detractors. This is particularly true with landscape character effects, for instance in assessing whether (or not) a proposed development will (1) give rise to a new landscape character type in its own right where the wind turbines will become the defining landscape characteristic and / or (2) give rise to a new landscape sub-type in which a proposed development will be a major contributory element in defining character. In the first case the resulting effect will normally be greater than 'moderate' and therefore significant. In the second

<sup>9</sup> Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017

case the effect will normally be ‘moderate’ or less and the assessor must use professional judgement to determine both the level of effect and whether it is significant or not in the context of EIA.

Assessment of Cumulative Effects

1.92 Current guidance for cumulative landscape and visual assessment is contained in Scottish Natural Heritage (2012) ‘Assessing the Cumulative Effect of Onshore Wind Energy Developments’. Cumulative landscape and visual effects are those which potentially occur when one or more wind energy schemes are visible from certain locations or routes. Seen together two or more wind energy developments may affect landscape character, valued landscapes, views and / or visual amenity. Potential cumulative effects can be ‘combined’, for example occurring ‘simultaneously’ at a settlement or popular vantage point, or ‘sequential’ arising along a road or recreational trail. Sequential effects may occur ‘frequently’ or ‘occasionally’, or somewhere in between. Combined effects may be experienced either in ‘combination’ or ‘succession’. Objects are considered to be perceived ‘in combination’ when they are visible in the same 90 degree field of view. When it is necessary to turn one’s head right or left to view objects in other directions / fields of view, they are held to be seen ‘in succession’. Successive visibility of cumulative schemes will tend to generate lower levels of cumulative landscape and visual change than those seen ‘in combination’.

Magnitude of Cumulative Change

1.93 The criteria set out below are provided as an aid to assessing the level of cumulative landscape and visual change and whether it is significant or not. The significance of effect is established in the usual way by assessing the nature (magnitude) of cumulative change against the nature (sensitivity) of the receptor. It should be noted these criteria are intended as a guide to assessment only and the professional judgment of an experienced, qualified practitioner is required to properly assess cumulative landscape and visual effects.

Magnitude of Change	Reasoning
Negligible	The introduction of the wind energy proposal will make a negligible contribution to the cumulative situation and its addition equates to a ‘no change’ situation.
Low	The wind energy proposal will make a minor contribution to the overall cumulative situation. Its addition will be only slightly apparent in the wider landscape, so that large scale wind energy schemes become prominent or relatively prominent in up to a quarter (90 degrees) of 360 degree views.
Medium	The introduction of the wind energy proposal makes a notable contribution to the cumulative situation. Its addition will be readily apparent in the wider landscape, so that large scale wind energy schemes become prominent or relatively prominent in between a quarter and an half (90-180 degrees) of 360 degree views.
High	The wind energy proposal will make an immediately apparent contribution to the cumulative situation such that wind energy development becomes unavoidably present in the wider landscape, to the extent that large scale wind energy schemes are prominent or relatively prominent in more than half (180 degrees) of 360 degree views.

Level and Significance of Cumulative Effects

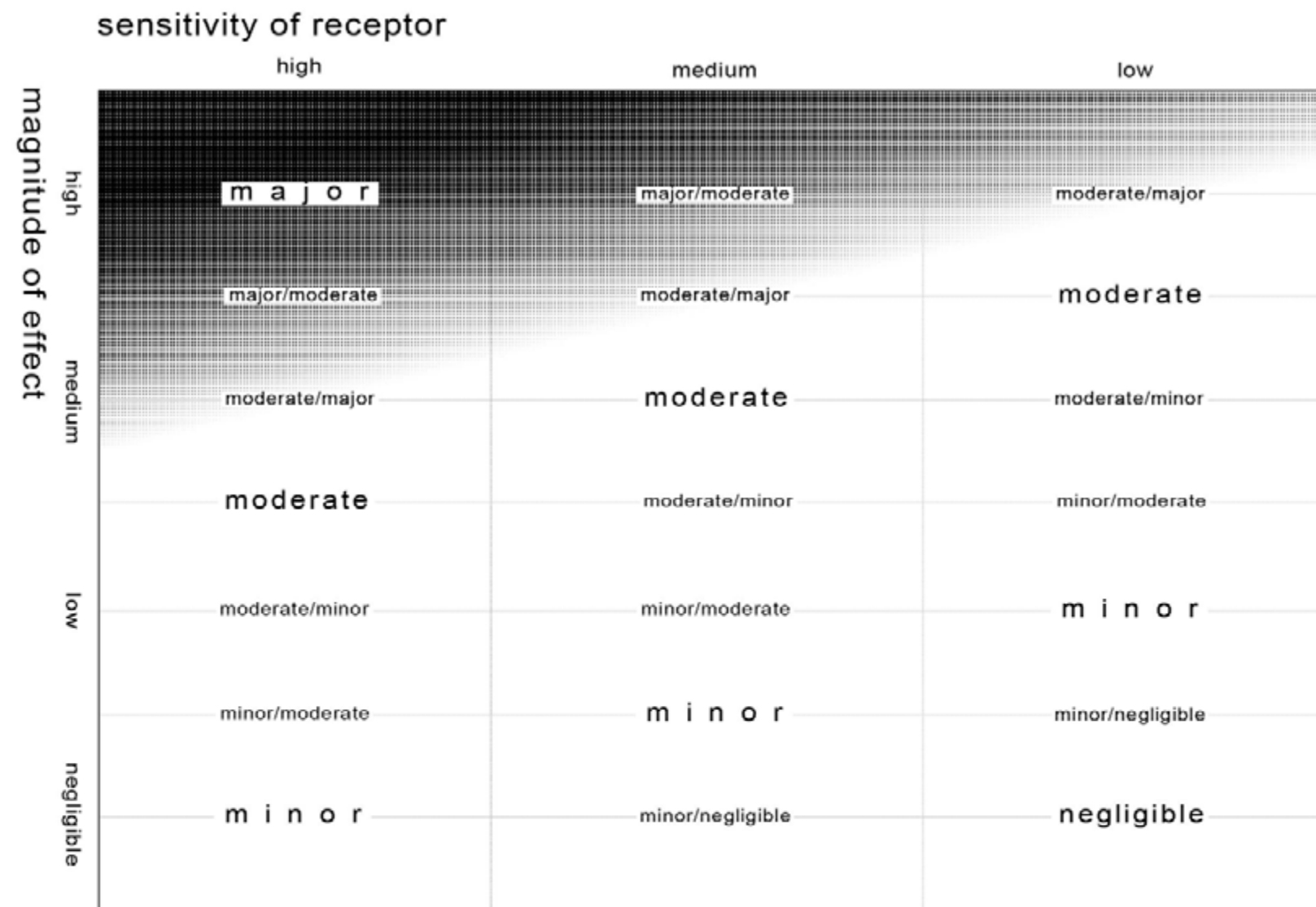
1.94 A significant cumulative effect will normally occur where the introduction of a wind energy development into a landscape with one or more existing and / or proposed wind energy schemes in the surrounding area results in a level of change to the extent that landscape character and / or visual amenity are defined by the presence of wind energy development. If the proposal by itself is assessed as having a significant effect on the landscape or visual resource, for example from a particular location or route, it does not necessarily follow that a significant cumulative effect will also arise. For a cumulative effect to occur, significant or otherwise, there needs to be an ‘additional’ effect on the landscape and views / visual amenity over and above that resulting from the proposal alone. The form of words recommended by current best practice guidance for describing this is ‘additional cumulative change’<sup>10</sup>.

<sup>10</sup>Scottish Natural Heritage, 2012, ‘Assessing the Cumulative Effect of Onshore Wind Energy Developments’ (paragraph 70, page 16)

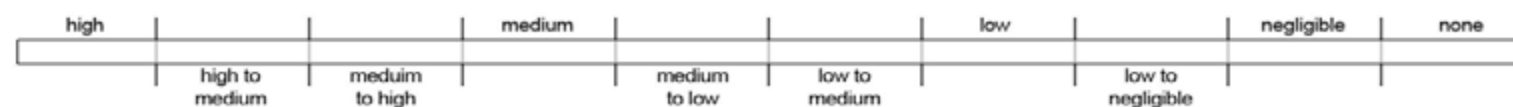


**PART 4 – SIGNIFICANCE MATRIX**

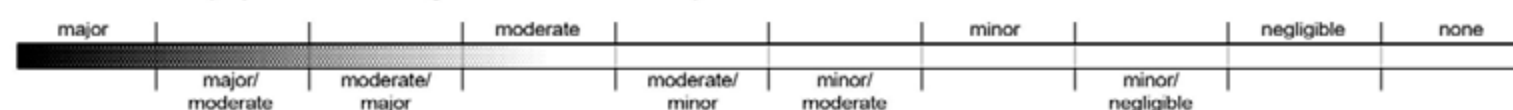
- 1.95 The significance of a likely effect is a product of the magnitude of change (nature of effect) and the sensitivity of the receptor (nature of receptor). The diagram below provides a framework for establishing the degree of significance and whether the effect is judged 'significant' or not. The shaded area indicates where the landscape or visual effect will be 'significant' in the context of the EIA Regulations 2017.



magnitude of change (also known as "nature of effect")



level of effect (equivalent to "significance of effect")



**Note:** Landscape and visual effects occur across a continuum of magnitude ranging from maximum (high) to minimum (negligible /none).

For assessment purposes the significance of effect is classified approximately using a five-point scale of major, moderate, minor, negligible and none.

Intermediate effects (those falling in between the main five categories) are measured using two intervals between each main category.

For example the interval between major and moderate is divided into major/moderate and moderate/major with the former being slightly greater than the latter.

The accompanying graphics illustrate this for the spectrum of effects between major and none.

Effects assessed as moderate or lower are not considered to be material to the planning decision and so are classified as 'not significant' in planning terms; those greater than moderate are considered a material consideration and therefore fall within the 'significant' category.

**PART 5 – LANDSCAPE SENSITIVITY AND CAPACITY CRITERIA**

1.96 The landscape evaluation criteria set out below take into account the recommendations contained in Topic Paper 6 and were developed at a series of focused workshops organised by Natural England over a period of several months during 2009 as part of the process of preparing its recently published guidance regarding on-shore wind energy development – ‘Making Space for Renewable Energy: Assessing On-Shore Wind Energy Development’ (Natural England 2010). The landscape sensitivity and capacity criteria are adapted from ‘Assessing the Environmental Capacity for On-Shore Wind Energy Development’ – Consultation Draft (2009) Natural England – Table 1: Landscape Criteria, pages 14–16. The criteria are intended for use in the evaluation of landscape character in relation to wind energy development.

Criterion	Reasoning
<b>Landscape Character Factors</b>	
Scale	A large scale landscape, such as extensive rolling uplands or expansive plains, where the turbines are be in proportion with the landscape, is likely to have a lower sensitivity and greater capacity for wind energy development than a small scale landscape where turbines can appear to dominate.
Landform	Landform that is smooth and convex, or flat and uniform will generally have a lower sensitivity and greater capacity for wind energy development than dramatic or rugged landform. This is because the former types of landform tend to be less prominent and less distinctive in character.
Landcover and Aesthetic Aspects	Simple, regular, uncluttered landscapes with sweeping lines and extensive areas of consistent ground cover are likely to have a lower sensitivity and higher capacity for wind energy development than areas with more complex, irregular or intimate landscape patterns (for example ancient, irregular field systems).
Enclosure	Landscape that is more enclosed by landform and / or landcover may have a lower sensitivity and greater capacity for wind energy development than open areas and / or those with less enclosure, depending on landscape scale and complexity and other factors such as views / visibility and skylines / settings.
Human Influence	A high degree of human influence on the landscape will generally mean that it has a lower sensitivity and greater capacity to accommodate wind energy development. Turbines are likely to be less conspicuous in brownfield or industrial landscapes already affected by built structures such as masts, pylons or chimneys, provided there are no visual conflicts where the structures are seen in close proximity. Commercial forestry also introduces a human influence to upland landscapes and so will generally have higher capacity.
Landscape Quality (condition)	Areas where the condition and integrity of landscape patterns, elements and features are relatively good will have a higher sensitivity and less capacity for wind energy development than areas where condition is poor.
<b>Visual Factors</b>	
Skylines and Settings	Landscapes that do not form a distinctive backdrop or context tend to have a lower sensitivity and greater capacity for wind energy development than those with strong visual features and focal points such as hilltop monuments, church spires or designed landscape features, which may form important skylines, landmarks or settings for settlements.
Visibility and Views	Landscapes that are visually contained by topography, trees or woodlands and hence have limited inward and outward views will have a lower sensitivity and greater capacity 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. Extensive close or middle range views from scenic routes, well-known vistas or tourist viewpoints will decrease a landscape's capacity for wind energy development.
Population	The more sparsely populated an area the smaller the number of visual receptors and the lower the sensitivity of the character unit
Scope for Mitigation	The main opportunity for mitigation of landscape and visual effects of windfarms is through their location within a landscape with the capacity to accommodate them. Beyond this mitigation measures are, as far as possible, incorporated into the layout through an iterative design process. Where further mitigation is possible, for example through sympathetic screen planting close to view locations / property boundaries, this will generally be carried out, but this is not considered to be an attribute of character and therefore will not affect landscape sensitivity.
<b>Landscape Value Factors</b>	
Scenic Quality	Scenic quality, that is of visual appeal due to important views, visual interest and variety, contrasting landscape patterns, or dramatic topography, will generally increase the sensitivity and decrease the capacity to accommodate wind energy development. Land of high scenic quality occurs within designated landscapes (World Heritage Sites, National Parks, National Scenic Areas, Areas of Outstanding Natural Beauty and Heritage Coasts) but also elsewhere. The approaches to and settings of areas of high scenic quality will have reduced capacity where there is continuity of landscape character, quality and ecological interests extending outside the designated area.
Wildness and Tranquillity / Perceptual Aspects	The presence of a relatively wild and/or tranquil character (due to remoteness, freedom from disturbance and factors such as openness and perceived naturalness) will increase the sensitivity and reduce the capacity of a landscape to accommodate wind energy development. The introduction of wind turbines may alter perceptions of wildness and tranquillity, introducing movement, sound and light effects and possibly bringing a more industrial character.
Historic Environment	The presence of sites and areas containing archaeological, historical or built environment features that are highly valued for their historic environment interest will increase landscape sensitivity and decrease capacity for wind farms, particularly where these features may directly affected by construction works and/or access tracks; or where or enjoyment and the ability to interpret these features may be diminished.
Cultural Associations	Specific cultural (i.e. historical, folklore, literary or artistic) associations relating to the landscape may result in an increased sensitivity and decreased capacity for wind energy development if the character or perceptions of the landscape concerned are likely to be significantly degraded.
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 will have a higher sensitivity and less capacity for wind energy development due to potential effects on a site's accessibility and/or on the quality of the recreational experience enjoyed by the public.
Landscape Designations	Areas designated at the national level for their landscape value (e.g. National Parks, NSAs and AONBs) will normally have a low capacity for wind energy development due to their high sensitivity. Local designations are likely to have a lower landscape capacity than undesignated areas.

## PART 6 – GRAPHICS TECHNIQUES

### Introduction

**1.97** This part of the annex deals with the method and techniques used to produce the LVIA Statement graphics, particularly photography and preparation of ZTVs. No photomontages are included in this LVIA Statement; where visualisations are referred to 2011; ES Figure 5.11 Photomontages and Wirelines should be consulted.

### Zone of Theoretical Visibility (ZTV)

**1.98** The Zone of Theoretical Visibility (ZTV) is the theoretical area from which part or all of the development site and / or the proposal is potentially visible. The extent of the ZTV broadly defines the study area for the landscape and visual impact assessment (LVIA). ZTVs are produced in accordance with current best practice guidance<sup>11</sup>. GIS view shed analysis is used based on Ordnance Survey (OS) Land-Form PROFILE® digital terrain model (DTM) data with 10m grid resolution with an assumed observer eye height of 1.7m. Curvature of the earth is also taken into account.

**1.99** Preliminary 'bareground' ZTV plans are prepared for scoping and initial assessment purposes using terrain only. For LVIAs, two versions of the ZTV 'with screening' are generally produced: one showing visibility to 'hub-height'; the other to 'blade tip', both of which take into account the screening effects of woodland blocks and buildings included in OS Vectormap® District. Woodland and building features, with assumed heights of 15m and 8m accordingly, are combined with the DTM to create a 'digital surface model' (DSM) on which the two versions of ZTV 'with screening' are based.

**1.100** It should be noted that the ZTVs 'with screening' do not take account of certain visually significant features such as engineered structures and incidental vegetation including small woodlands, hedgerow trees, hedges and roadside planting. As these landscape features are likely to screen or partially obscure the development in many views, the 'with screening' ZTVs represent the 'worse-case scenario' visibility. Consequently, in practice, there will be many locations within the ZTV where views of the proposals will not be possible. This is particularly true in relation to many properties, rights of way and roads which are enclosed by earth banks, walls, tall hedges, garden vegetation, mature trees and incidental woodland etc.

### Procedure for taking photographs from photomontage viewpoints

**1.101** Photography and visualisation procedures in this LVIA accord with the current guidance, in particular that set out in:

- Landscape Institute Advice Note 01/11: Photography and Photomontage in Landscape and Visual Impact Assessment.
- Scottish Natural Heritage, 2014, 'Visual Representation of Wind farms: Good Practice Guidance – Version 2.1'.

**1.102** Photograph locations for photomontages and character views (where included) are selected in order to:

- Meet with local planning authority requirements;
- Provide a fair representation of the development proposals and its landscape context; and
- Contain at least four visible reference points of existing features ('locators') that can be used to verify the proposal location later in the photomontage process.

**1.103** As far as possible photographs are taken in favourable weather conditions and clear visibility. Inevitably a few photos are taken in cloudy and hazy weather which illustrates typical variations in atmospheric conditions and visibility. An SLR type digital camera is used with a 50mm equivalent lens and then displayed at a scale which is equivalent to a 70mm single frame image as recommended in Landscape Institute Advice Note 01/11 (paragraph 4.2, page 4). The same exposure setting is used for all the frames for each panorama.

**1.104** Where possible the wind park site is placed in the middle of the view with frames taken either side to give the landscape context. A compass is used to ensure the wind park was located at the centre of the panorama. The panoramas are photographed with the horizon in the centre using a level tripod which is rotated on the same grid co-ordinate to ensure individual frames are aligned. In certain circumstances the panorama centre is rotated so as to include conspicuous features in the view, such as existing windfarms.

**1.105** The actual panorama splay for photomontage purposes is 75 degrees. However, in the field, wider panoramas are photographed to provide broad coverage of the landscape to be assessed including cumulative assessment schemes.

### Method for production of photomontages

**1.106** Panoramic images are created by combining the digital photographs cylindrically using Adobe Photoshop graphics software. Any image enhancements that are made to colour, brightness and/or contrast are applied across the panoramic image to an acceptable standard to ensure that the image quality is optimised.

**1.107** A 3D computer model of the wind park proposal is generated using ReSoft WindFarm software based on OS Land-Form PROFILE® DTM data with 10m grid resolution. The arrangement and size of the turbines (blade diameter and hub height) are modelled in accordance with the application drawings. Curvature of the earth is also taken into account.

**1.108** The location of the photomontage viewpoints are recorded in GB National Grid coordinates when the photographs are taken. 'Locators' are used to assist in constructing the photomontage. Typical locators include buildings, structures, landmarks and conspicuous landform and, where possible, are visible to the naked eye. The view direction, viewing angle, pitch and included angle of the panoramic view are set by matching the locators in the image to the modelled locator's setup within WindFarm to visually represent the proposal within the view accurately and to scale.

<sup>11</sup>Scottish Natural Heritage, 2006, 'Visual Representation of Windfarms: Good Practice Guidance'

**Presentation and 'viewing distance'**

- 1.109 The computer model is rendered as a 'solid model' perspective and saved as an image file thus creating the photomontage. Each image is presented on an A3 wide format sheet (330 x 120mm) showing the existing view and the predicted view, plus viewpoint location, distances to the turbines, and specific camera information. To correctly simulate views in the field the A3 panoramic image should be viewed at a distance of 33cm from the eye which is roughly equivalent to 1 foot. Single frame images should be viewed at a distance of 50cm (just over 18 inches) from the eye.
- 1.110 With cognisance of SNH Guidance - Visual Representation of Windfarms, Consultation draft (2013), a selection of panoramic images are also presented on A1 wide format sheet showing the predicted view. A1 views have the advantage of allowing a wider extent of stitched panorama to be included in the resultant wider image, avoiding the need to hold separate A3 sheets together.

## PART 7 – TERMINOLOGY AND DEFINITIONS, ASSUMPTIONS AND LIMITATIONS

### Terminology and Definitions

1.111 In relation to ‘*impacts, effects and significance*’ GLVIA3 states:

*“This guidance generally distinguishes between the ‘impact’, defined as the action being taken, and the ‘effect’, defined as the change resulting from that action, and recommends that the terms should be used consistently in this way.” (GLVIA3, paragraph 1.15, page 9)*

1.112 When carrying out this LVIA, therefore, the following terms and definitions have been used. *Impact* is specific and refers to the process and / or action being taken, for example the removal of a tree and / or the planting of new hedgerow. An *effect* is the result of the impact, which in this example could be one less tree (negative) and / or one more hedgerow (positive) for instance, which in turn will impact on the appearance of the landscape causing an effect (both negative and positive) on character.

1.113 The *level* of the effect is a function of the nature of effect (‘magnitude’ of change) measured against the nature (‘sensitivity’) of the receptor – magnitude and sensitivity are defined above in the main body of this annex. Magnitude of change is measured on a sliding scale of negligible, low, medium to high, whereas level of effect is expressed in terms of major, moderate, minor, negligible or none or neutral.

1.114 The term ‘level of effect’ is synonymous with ‘significance of effect’ as defined in GLVIA3.

1.115 GLVIA3 defines *significance* as:

*“... a measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental topic.” (GLVIA3, Glossary, page 158)*

1.116 The reason for the departure from best practice guidance in this respect is twofold a) maintain parity of terminology across the ES as a whole and b) to avoid confusion when establishing whether a particular effect is ‘significant’ or ‘not significant’ in the context of this EIA.

1.117 For the purposes of this LVIA a significant landscape or visual effect is one which is judged ‘significant’ in the context of the EIA Regulations as set out in **Part 4** above. It is important to note that a significant landscape or visual effect does not necessarily equate with unacceptable harm or unacceptability in planning terms.

1.118 A ‘substantial’ change is one that will materially affect the landscape and visual resource which may, or may not, be significant depending on the circumstances.

1.119 “Field of view’ is the horizontal and / or vertical extent of the prospect in view as depicted in the visualisations, defined by the angle subtended between the extremities of view frame.

1.120 ‘Angle subtended’ means the angle measured between two extremities when viewed from a location, typically between the outer turbines (horizontal) or the blade tip and ground level (vertical).

1.121 ‘Visual amenity’ is understood to be the visual benefit or pleasantness provided by the environment as enjoyed in views, which provides an attractive visual setting or backdrop for the enjoyment of activities for people living, working, recreating, visiting or travelling through an area. The emphasis of the assessment is on public amenity but the private amenity of residential properties and places of work is also considered. The visual environment of a particular property or area is made up of both

specific views and general visual amenity experienced in the round. These two elements are assessed together from specific viewpoints.

1.122 ‘Residential amenity’ is understood to involve a combination of sensory factors which inform the living conditions of a property including the visual, sound / noise and olfactory (smell) environments.

1.123 The term ‘presence’ is used to help describe and gauge the magnitude of change to landscape character on a scale of weak, moderate and strong. This is not a substitute for the assessment criteria, but rather an aid to assessing the magnitude and significance of character effect.

### Assumptions and Limitations

1.124 The planning system functions to regulate the use and development of land in the public interest. In keeping with this aim and purpose the focus of this LVIA is the potential affect on publicly available views of the landscape and the visual amenity it provides as opposed to the private sphere. The planning system is not there to regulate or protect private interests such as views from, or visual amenity of, individual properties. Public and private interests may coincide when the quantity of private properties affected become a collective issue, such as views of a valued landscape enjoyed by substantial numbers of people (see GLVIA3. Paragraph 6.36, page 114).

1.125 It should be noted that it was beyond the scope of this LVIA to gain access to individual dwellings or gardens and the nearest public access point was used for visual assessment purposes.

1.126 The recorded magnitude of change and significance of effect are ‘worst case’, relating to those predicted to occur during the winter months when deciduous vegetation is devoid of screening foliage, as experienced by a dispassionate observer.

1.127 For the benefit of doubt, it is assumed in this LVIA that effects will be perceived as adverse unless stated otherwise. This precautionary approach reflects the current planning policy position which, whilst supporting sustainable forms of development, seeks to maintain the status quo in landscape terms as set out in the National Planning Policy Framework (NPPF).

1.128 The Zone of Theoretical Visibility (ZTV) of a proposed wind park is based on terrain, built form and large blocks of woodland. It does not take into account the screening effect of incidental vegetation such as hedges, hedgerow trees, garden and roadside planting, shelterbelts, tree-lined watercourses and engineered structures such as road and railway embankments, and therefore represents the worst-case scenario visibility. For the purposes of this assessment the extent of the ZTV is assumed to be broadly the same for the construction phase as with the operational phase.

1.129 Windfarms are normally sited in elevated and exposed locations to best exploit the wind resource. This combined with their height invariably means that the turbines break the skyline in views from the surrounding area. Due to the expansive, flat landscape context the consented wind park will be viewed breaking the skyline from most vantage points. This factor has been taken into account when assessing impact magnitude and significance of effects.

1.130 The same applies to the dynamic nature of windfarm development with its rotor movement and variable horizontal alignment or ‘yaw’ which changes according to wind speed and direction. For the purposes of assessing potential effects it is generally assumed that the yaw angle will be such that the rotor is always facing the observer / viewpoint, as depicted in the photomontages included in the 2011 LVIA. However, in practice yaw angle is dictated by wind direction and the prevailing wind at any particular location will also be a consideration when assessing potential effects.





100

11/11/2016

100


The ZTV has been calculated from a view height of 1.7m to the blade tip height using GIS software. The digital terrain model used is OS Land-Form PROFILE® of 10m resolution. The ZTV shows those areas of open space, water bodies and transport corridors from where the proposed turbines are likely to be visible at ground level. It does not take into account views from upper storeys of residential and other properties in the study area. This ZTV takes into account screening effects of some intervening elements such as woodland and buildings. Each of these are given assumed heights of 15m and 8m respectively. It does not take into account screening effects of incidental vegetation and roadside planting, including hedges, hedgerow trees and tree belts. Visibility to hub includes visibility to blade tip

**Title:** Site Location and Study Area with ZTV and Viewpoints



Drawn by

checked by: M

Approved by: 

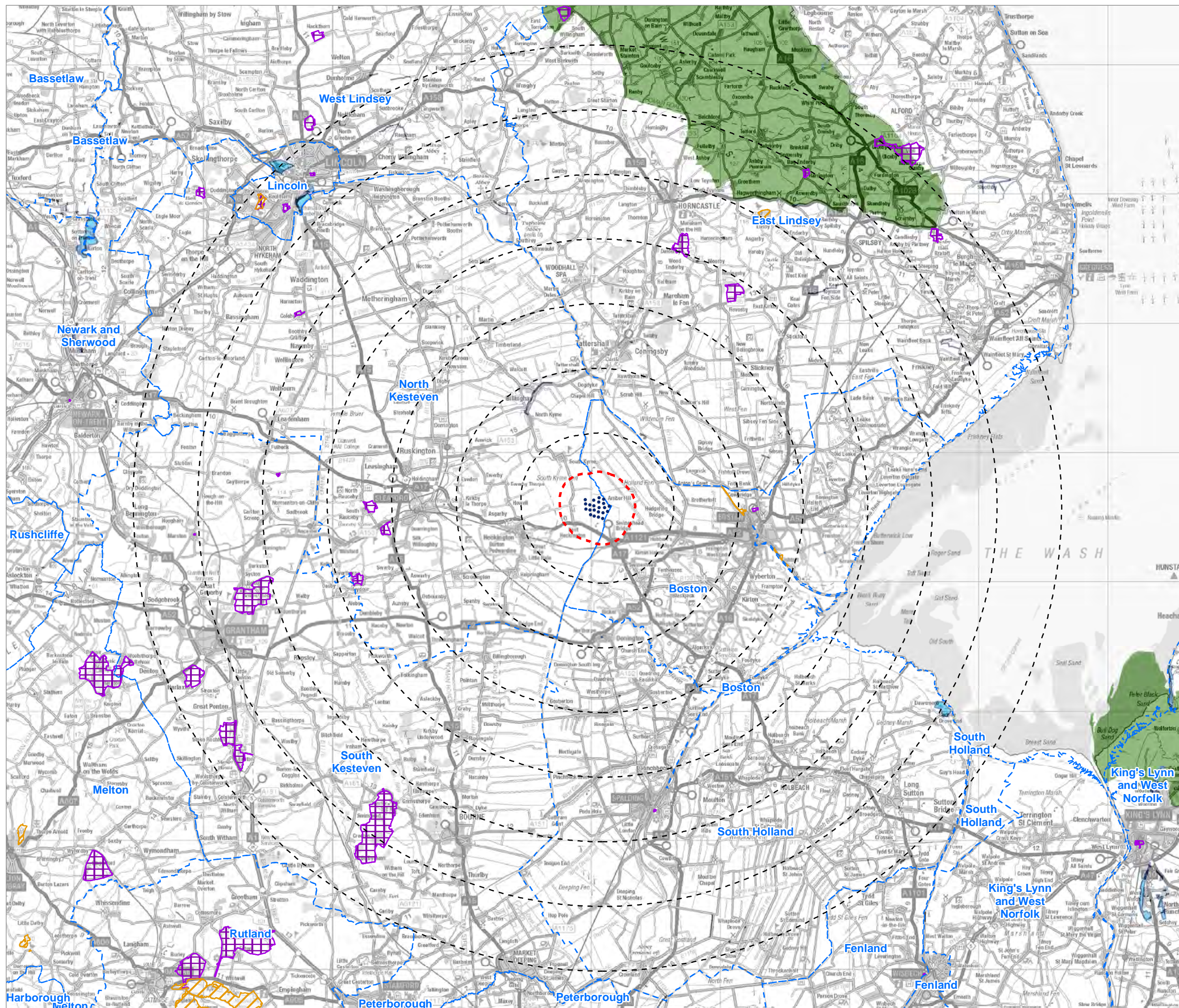
**Date:** Jan 2015

### Heckington Fen Variation of Consent



## Legend

- Heckington Fen Turbine Location
- 2km Distance Band From Turbines
- 5km Distance Band From Turbines
- Local Planning Authority Boundary
- Common Land
- Registered Parks and Gardens
- AONB
- Country Park



There are no material changes to the baseline conditions from 2011

**Figure 2**

**Title:** Updated Landscape Planning Context (2011 LVIA Figure 5.5)



0 7.5 km  
Scale: 1:275,000 @ A3

Drawn by: Checked by: Approved by:

**Ref:** 4038\_T0509\_01 **Date:** May 2018

**Heckington Fen Wind Park  
Variation of Consent 2018**

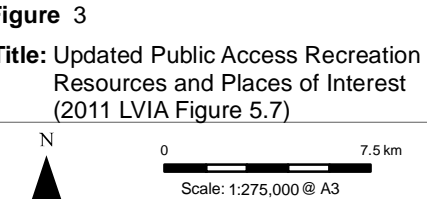
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Legend

- 2km Distance Band From Turbines
- 5km Distance Band From Turbines
- Registered Parks and Gardens
- Open Access
- National Trust
- Common Land
- Country Park
- National Nature Reserve
- Forestry Commission
- Places of Interest
- National Cycle Route
- Long Distance Paths
  - Viking Way
  - MacMillan Way

There are no material changes to the baseline conditions from 2011



Ref: 4038\_T0510\_01 Date: May 2018

Heckington Fen Wind Park Variation of Consent 2018

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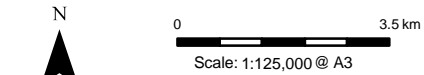


Legend

- Heckington Fen Turbine Location
- 2km Distance Band From Turbines
- 5km Distance Band From Turbines
- National Nature Reserve
- Forestry Commission
- Open Access
- Common Land
- Registered Parks and Gardens
- Country Park
- Local Landmarks
- Places of Interest
- Bicker Fen Substation
- High Voltage Infrastructure
- Bicker Fen Turbine Locations
- Navigable Waterway
- Water Rail Way
- National Cycle Route
- Long Distance Paths
  - Viking Way
  - MacMillan Way

There are no material changes to the baseline conditions from 2011

Figure 4  
Title: Updated Key Landscape and Visual Features and Receptors (2011 LVIA Figure 5.8)



Drawn by:      Checked by:      Approved by:

Ref: 4038\_T0511\_01      Date: May 2018

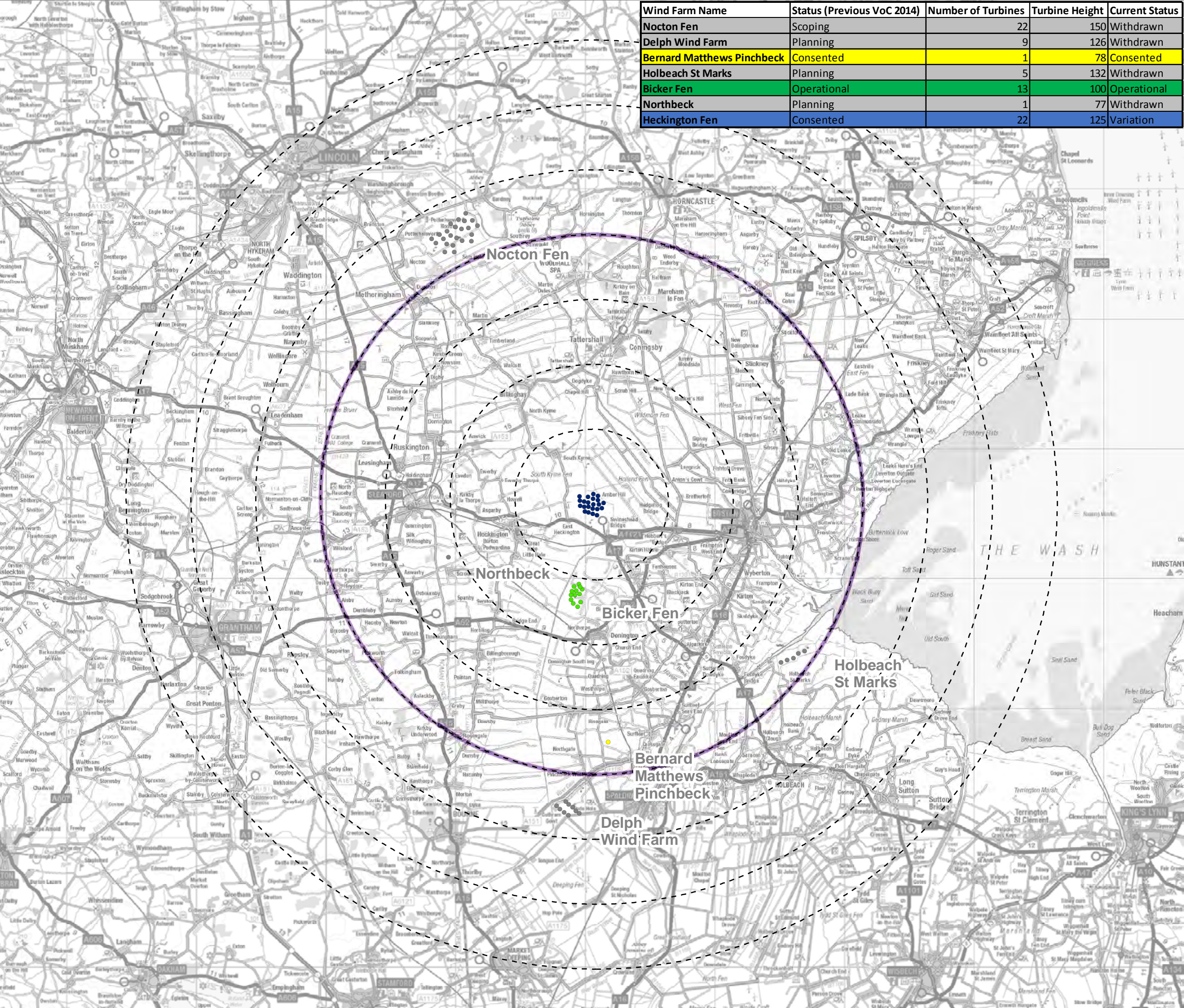
Heckington Fen Wind Park  
Variation of Consent 2018

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Public Open Space:

- 1 - Amber Hill/Toftstead Primary School Recreation Area/Playing Fields
- 2 - St Mary and All Saints Churchyard, South Kyme
- 3 - All Saints Churchyard, Holland Fen
- 4 - Heckington Recreation Area/Playing Fields
- 5 - Swineshead Recreation Areas/Playing Fields
- 6 - Helpringham Recreation Area/Playing Fields
- 7 - Ewerby Recreation Area/Playing Fields
- 8 - Donington (Cowley Secondary School) Recreation Area/Playing Fields
- 9 - Billingham Recreation Area/ Playing Fields
- 10 - Peter Paine Sports Centre





Wind Farm Name	Status (Previous VoC 2014)	Number of Turbines	Turbine Height	Current Status
Nocton Fen	Scoping	22	150	Withdrawn
Delph Wind Farm	Planning	9	126	Withdrawn
Bernard Matthews Pinchbeck	Consented	1	78	Consented
Holbeach St Marks	Planning	5	132	Withdrawn
Bicker Fen	Operational	13	100	Operational
Northbeck	Planning	1	77	Withdrawn
Heckington Fen	Consented	22	125	Variation



Legend

- Heckington Fen Turbine Location
- 5km Distance Band
- Bicker Fen Turbine Location
- BM Pinchbeck Turbine Location
- Withdrawn Turbine Location
- 2015 Variation of Consent LVIA Cumulative Assessment Study Area (20km)

Figure 5  
Title: Updated Cumulative Schemes

N  
0 7.5 km  
Scale: 1:275,000 @ A3

Drawn by: Checked by: Approved by:

Ref: 4038\_T0501\_01 Date: May 2018

Heckington Fen Wind Park





Consented Baseline



Updated Baseline - 17 April 2018





Consented Baseline



Updated Baseline - 17 April 2018





Consented Baseline



Updated Baseline - 17 April 2018





Consented Baseline



Updated Baseline - 17 April 2018









Consented Baseline



Updated Baseline - 17 April 2018