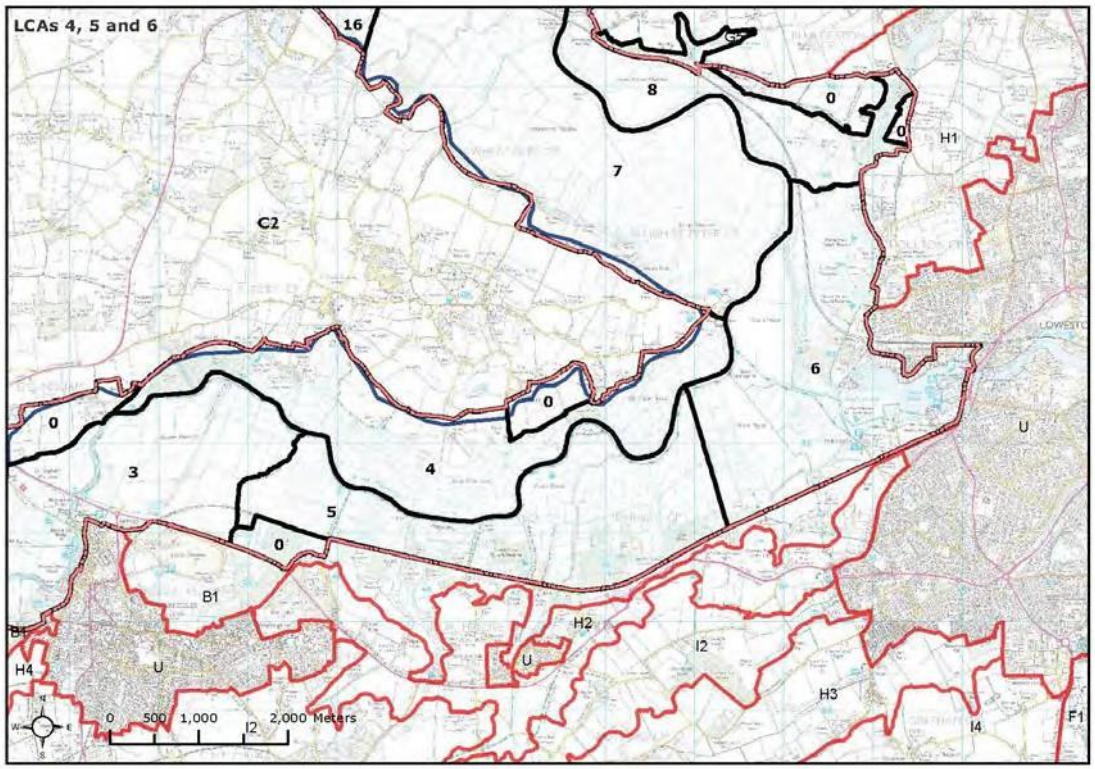
LCA 4: Waveney Valley – Aldeby to Burgh St Peter: LCA 5: Waveney Valley- Worlingham Wall to Boundary Dyke, Barnby: LCA 6: Waveney Valley - Boundary Dyke Barnby to The Fleet, Oulton

Location and landscape character context



Landscape Sensitivity Assessment for Wind Turbines

Criteria	Lower sensitivity	⟷	Higher sensitivity
1.Scenic and special qualities	Some of the special qualities of the Broads are present within these areas, specifically the wide and open landscapes of the marshes within areas 5 and 6. These wide open areas are sensitive to movement and changes to scale as a result of the introduction of wind turbines. The areas have a relatively strong sense of tranquillity away from settlement edges and communication corridors indicating a higher sensitivity to large scale elements which contrast with the mostly tranquil and isolated character. In addition, turbines would introduce a level of aural and visual intrusion in a relatively remote area.		
2.Enclosure and scale	Areas 4, 5 and 6 are comprised of a mix of large and small scale elements (i.e. some large scale rectilinear enclosures and small scale blocks of carr woodland) creating localised variation. Enclosure is formed by the variation in landform (i.e. the adjacent South Norfolk and Waveney ridges outside the Broads Executive Area) and small clusters of carr woodland (i.e. Alder and Stanley carrs in area 4 and North Cove Nature Reserve, Barnby Broad and Old Broad in area 5). In addition, areas of reed rond along the course of the River Waveney provide enclosure within the more open marshes. These areas are sensitive to wind turbine development with landscape features and passing boating traffic providing a relative sense of scale. Elsewhere the areas are considerably more open (large scale marshes i.e. Castle Marshes and Peto's Marsh) which would have a lower sensitivity to wind turbine development due to the reduced sense of scale with no visual boundaries, and few features that relate to human scale.		
3.Landscape and land cover pattern	Areas 4, 5 and 6 provide a varied and intricate pattern of elements creating a mosaic of carr woodland, open marshland and meandering waterways with reed fringed edges. When combined, these elements create a rich and textured surface and this diversity of elements indicates a higher sensitivity to wind turbines. The wooded settlement at the edge of Oulton Broad is characteristic of the area and is sensitive to wind turbine development due to the likely dominance of large scale turbines over traditional features of the area.		
4.Skylines	Skylines are mostly undeveloped in large parts with the exception of area 6 where development at Lowestoft is visible on the south eastern skyline. Gently rising ridgelines in the adjacent South Norfolk and Waveney Districts and wooded ridges filter distant views. These relatively uninterrupted views and undeveloped skylines are sensitive to wind turbine development. Elsewhere, localised modern development forms part of the skyline (i.e. sand and gravel workings in South Norfolk, and overhead power lines and Lowestoft wind turbine (Gulliver) visible from area 5). These features reduce sensitivity and detract from the more naturalistic defined skylines.		
5.Perception and experience of the landscape	Each of the character areas have a tranquil and remote character although there is some localised intrusion on the edges (Lowestoft urban development, and sand and gravel extraction pits in South Norfolk District). Although remote, areas 5 and 6 have provision for access along the river via the Angles Way and local footpaths across the marshes, in addition to the well-used Oulton Broad (recreation). Area 4 is less well served with reduced access while the River Waveney provides boating access through		

	each of the areas. Although there are some localised intrusions, all landscape character areas would be sensitive overall to wind turbine development in perceptual terms.
6.Historic landscape character	A number of sensitive historic landscape types are apparent; specifically in area 6 which retains 16th and 17th century grazing marshes and where Edwardian waterside development at Oulton Broad is recognised through Conservation Area status. Such small scale features would be sensitive to wind turbine development. Elsewhere, localised features such as Worlingham medieval wall (today a raised tree lined corridor) in the west of area 5 and 17th and 18th century farmsteads on the northern fringes of area 4 are of higher sensitivity to wind turbine development. Some areas of lower sensitivity HLT's are evident, although this is confined to localised areas of large scale rectilinear field patterns which are a result of field boundary removal (e.g. central parts of area 4 and eastern parts of area 5).
7.Visual sensitivities and intervisibility with areas outside the Broads	The open expanse of marshes provides distant views with some intervisibility into adjacent character areas (i.e. South Norfolk District area B1 and C2 and Waveney District area H2) which would indicate a higher sensitivity to wind turbines. Areas of enclosed landscape character adjacent to blocks of carr woodland or rising topography create containment and would therefore have lower sensitivity to wind turbine development.
Discussion on landscape sensitivity	Overall the areas are considered to have a moderate - high sensitivity to wind turbine development in general. This is due to the representation of some of the Broads special qualities within these character areas. Specifically reference is made to the varied landscape pattern and scale, the historic landscape character associated with 16th and 17th century marshes, the winding river corridor and provision for boating, the sense of tranquillity across the marshes and the presence of Edwardian settlement surrounding Oulton Broad. Sensitivity is lowered as a result of localised intrusion at Lowestoft, the sand and gravel pits in South Norfolk District, and areas of large scale 20th century rectilinear field patterns which results in an overall judgement of moderate – high. This judgement also applies to large infrastructure for off shore wind farm schemes, such as pylons.

Sensitivity to different turbine heights

Land within the character areas		**Land outside the Executive Area**	
Small (15-20m)	**M-H**	Small (15-20m)	**M-H**
Medium (20-50m)	**H**	Medium (20-50m)	**M-H**
Large (50-70m)	**H**	Large (50-70m)	**H**
Very large (70m+)	**H**	Very large (70m+)	**H**

	Commentary: Within areas 4, 5 and 6, the introduction of medium, large and very large scale turbines would introduce elements out of scale with the existing features and could become focus points in a relatively undeveloped landscape. It is however noted, that when carefully sited, some areas are less sensitive to small scale turbines of 15-20m to tip height due to existing scale of landscape and elements. ***Landscapes outside the Executive Area*** Relevant character areas and sensitivities are: South Norfolk - C2 Thurlton Tributary Farmland with Parkland: Views open out to the Broads where land rises up from the low lying Waveney Valley. Waveney - B1 Waveney Valley: Rising valley sides (15-20m AOD) evident in views from the Broads. H2 Waveney Tributary Valley Farmland: Gently sloping valley sides providing views out into the Broads with some smaller blocks of woodland. Given the prominence of the adjacent ridges in relation to the Broads landscapes, landscape sensitivity to the largest turbines in the typology is the same as for the areas in the Broads as set out above. Character areas which are partially screened from within the Broads by clusters of woodland (H2) and rising landform indicate a lower sensitivity to wind turbines of smaller scale (small and medium). However, these would need careful consideration with their relationship with the Broads, due to topography, skylines and land cover.

Commentary on different cluster sizes

Single turbine
Small clusters (<5 turbines)
Medium (6-10)
Large (11-25)
Very large (>26)

Land within the character areas		**Land outside the Executive Area**	
Single turbine	**M-H**	Single turbine	**M-H**
<5 turbines	**H**	<5 turbines	**M-H**
6-10 turbines	**H**	6-10 turbines	**H**
11-25 turbines	**H**	11-25 turbines	**H**
>26 turbines	**H**	>26 turbines	**H**

	Commentary: Clusters of turbines would be likely to have greatest impact upon the character of these areas creating a level of visual intrusion in what are relatively undeveloped skylines. As a result, areas 4, 5 and 6 are considered to have the highest level of sensitivity to clusters of turbines due to the complex pattern of elements, largely uninterrupted views and skylines and the tranquil character of the marshes. There is however lower sensitivity to single wind turbines of a small scale although careful siting and design would be needed in relation to existing features which form part of the skyline and historic character. **Landscapes outside the Executive Area** Relevant character areas and sensitivities are: South Norfolk - C2 Thurlton Tributary Farmland with Parkland: Views open out to the Broads where land rises up from the low lying Waveney Valley. Waveney - B1 Waveney Valley: Rising valley sides (15-20m AOD) evident in views from the Broads. H2 Waveney Tributary Valley Farmland: Gently sloping valley sides providing views out into the Broads with some smaller blocks of woodland. Given the prominence of the adjacent ridges in relation to the Broads landscapes, landscape sensitivity to the largest turbine clusters is the same as for the areas in the Broads as set out above. Character areas which are partially screened from within the Broads by clusters of woodland (area H2) and rising landform indicate a lower sensitivity to clusters of up to five turbines. However, these would need careful consideration to their relationship with the Broads, due to topography, skylines and land cover.