

13. SOUTHERN UPLANDS

Southern Uplands is an upland type located in the south of South Lanarkshire. The type comprises ranges of large scale steep rounded hills separated by deep *Upland Glens* and the *Broad Valley Upland* of the Clyde. Eastern areas are extensively affected by forestry, the M74 communications corridor and latterly by extensive windfarm development. Western and southern areas are much less developed and less afforested, having some aspects of wildness in their character, but also with extensive evidence of past mining around Leadhills. Three landscape character areas are identified: **(i) East of Clyde/ Daer**; **(ii) Lowther Hills (Around Daer Water)**; **(iii) Lowther Hills (West of Clyde/ Daer)**

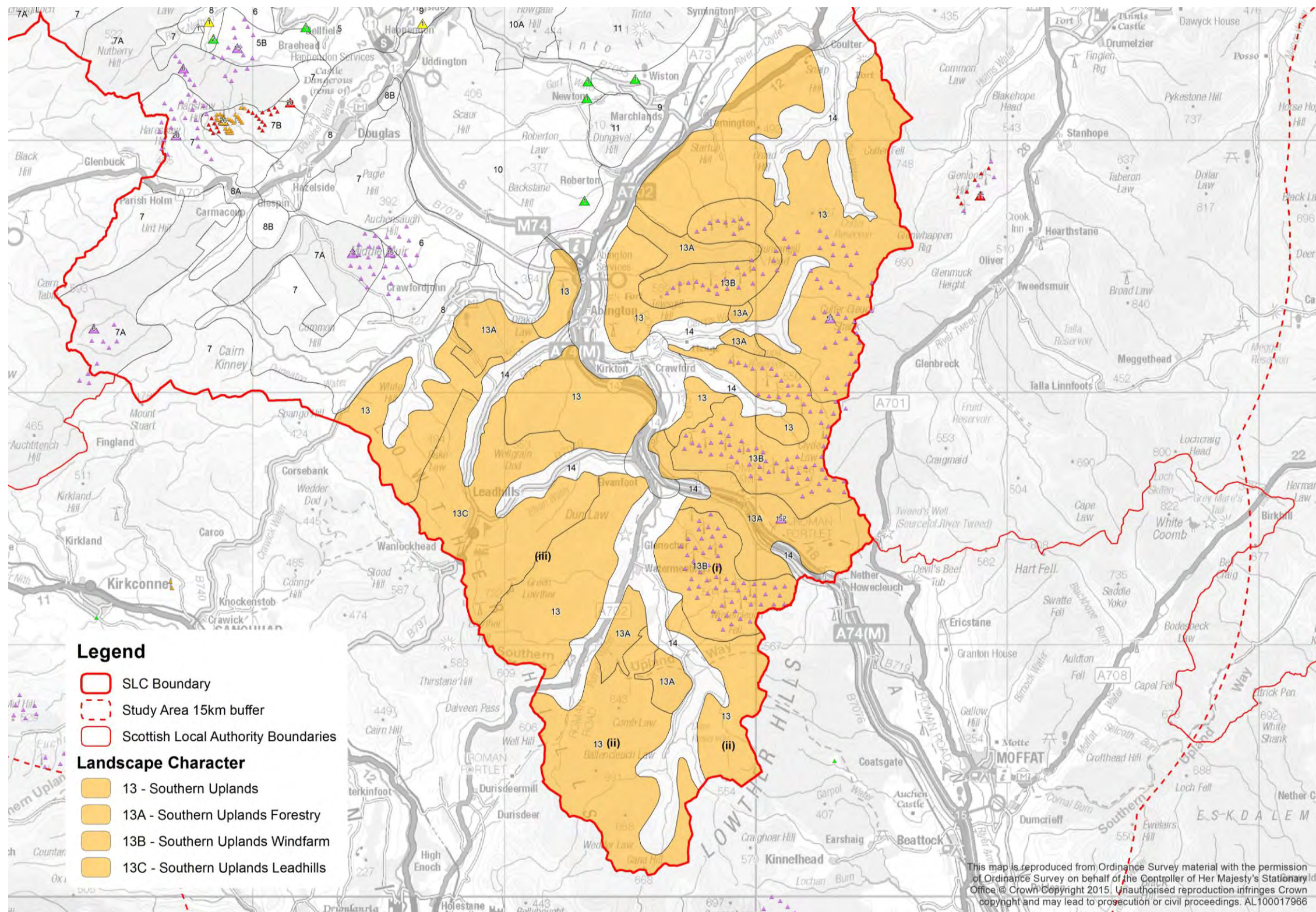


Table 6.1(j) Summary of Landscape Capacity, Cumulative Effects and Guidance for Future Wind Energy Development in Southern Uplands (see also Figures 6.1 to 6.4 for maps)

Key: No Capacity ○ Low Capacity ◐ Medium Capacity ◑ High Capacity ●																	
UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT					PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)							
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments (March 2015)	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Rel't'd to turbine size)					Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	15-<30m	30-<50m	50-<80m	80-<120m	Over 120m				15-<30m	30-<50m	50-<80m	80-<120m	Over 120m	
13. Southern Uplands (i) East of Clyde/ Daer																	
Med	Med/High	Med	Med	◐	◑	◑	◑	◑	Extensive Clyde windfarm development (over 200 turbines at 125m and 142m) occupies most of the LCA. Glenkerie in Scottish Borders lies ca. 3km E of the border. Harestanes (78x 125m) in Dumfries and Galloway is within 10km S of Clyde.	<i>Wind Turbines in Southern Uplands/ Southern Uplands with Wind Turbines/ Southern Uplands with No Wind Turbines</i>	<i>Wind Turbines in Southern Uplands/ Southern Uplands with Wind Turbines/ Occ. Wind Turbines/ Southern Uplands with No Wind Turbines</i>	◐	◐	◐	◐	◐	Landscape Analysis: A large scale landscape with rolling hills separated in places by Upland Glens, which has been significantly affected by forestry and communications along the Clyde corridor. Now substantially developed by Clyde windfarm and extension with only the northern edge remaining relatively undeveloped (this is the Southern Upland Fault and includes Culter Fell, the highest point in South Lanarkshire, and is part of the Upper Clyde Valley and Tinto SLA). Development Capacity: Clyde windfarm dominates most of this LCA. Very limited scope for further development without adversely affecting peripheral landscapes or Culter Fell. Turbines on higher ground should correspond closely with existing turbine scale and location and not extend the windfarm landscape to low ground. Turbines on lower ground should be significantly smaller and well-separated by distance and landform and associated with built development. There is no capacity for development on Culter Fell and environs.
										<i>Max. Numbers in Group</i>		1-3	1-3	1	1-5	1-5	
										<i>Min Group Separation Distances (km)</i>		1-2	2-5	3-5	Adj	Adj	
13. Southern Uplands (ii) Lowther Hills (Around Daer Water)																	
Med	Med/High	Med	Med/High	◐	◐	◐	○	○	No turbine development within LCA but Clyde windfarm is adjacent to the NE part and Harestane is within 3km of the southern tip.	<i>Southern Uplands with No Wind Turbines/ with Wind Turbines</i>	<i>Southern Uplands with No Wind Turbines/ Occ. Wind Turbines/ with Wind Turbines</i>	◐	◐	◐	○	○	Landscape Analysis: This LCA is characterised by large scale rolling hills surrounding the Daer Reservoir and bordering Dumfries and Galloway. The area lies between two very large windfarm developments (Clyde to the north and Harestanes to the south in Dumfries & Galloway). The hills are largely unforested, are relatively remote and undeveloped and lie entirely within the Lowther Hills SLA. The Southern Upland Way passes through this area. Development Capacity: Further development should be strictly limited to maintain differences in character from the much more developed area (i) around Clyde windfarm to the north and maintain a gap between Clyde windfarm and Harestanes windfarm to the south in Dumfries & Galloway. Developments lying between these two extensive schemes would reduce their separation, increasing the potential for visual coalescence of cumulative clusters.
										<i>Max. Numbers in Group</i>		1-3	1-3	1			
										<i>Min Group Separation Distances (km)</i>		1-2	2-5	3-5			

Key: No Capacity ○ Low Capacity ◐ Medium Capacity ◑ High Capacity ●																	
UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT			PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)									
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments (March 2015)	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Rel't'd to turbine size)					Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	15-<30m	30-<50m	50-<80m	80-<120m	Over 120m				15-<30m	30-<50m	50-<80m	80-<120m	Over 120m	
13. Southern Uplands (iii) Lowther Hills (West of Clyde/ Daer)																	
Med	Med/High	Med	Med/High	●	●	◐	◑	○	This western area currently has no turbine development. This is reflected across the border in Dumfries and Galloway where there are no turbines on the northeast side of Nithsdale.	Southern Uplands with No Wind Turbines	Southern Uplands with No Wind Turbines/ Occasional Wind Turbines	●	●	◐	◑	○	<p>Landscape Analysis: This LCA is characterised by large scale rolling hills and the historic mining industry around Leadhills/ Wanlockhead. The hills are largely unforested and include a significant viewpoint and small ski area at Lowther Hill. It lies almost entirely within the Lowther Hills SLA. The Southern Upland Way passes through this area.</p> <p>Development Capacity: Further development should be strictly limited to maintain differences in character from the much more developed area (i) to the east and maintain a gap between Clyde windfarm and windfarms in East Ayrshire/ Dumfries & Galloway southwest of Nith valley. A significant windfarm would be likely to exceed recommended capacity.</p>

14. UPLAND GLEN

Upland Glen is an upland type located in the south of South Lanarkshire, entirely within the Southern Uplands. The type comprises deep, steep sided valleys lying between ranges of large scale steep rounded hills. Western glens have main roads into Dumfries and Galloway but others are more isolated. There are reservoirs in some of the glens. Eight landscape character areas are identified: (i) Glengonnar Water; (ii) Elvan Water; (iii) Daer & Potrail Waters; (iv) Clydes Burn/ Evan Water; (v) Midlock Water; (vi) Camps Water; (vii) Culter Water (viii) Cow Gill

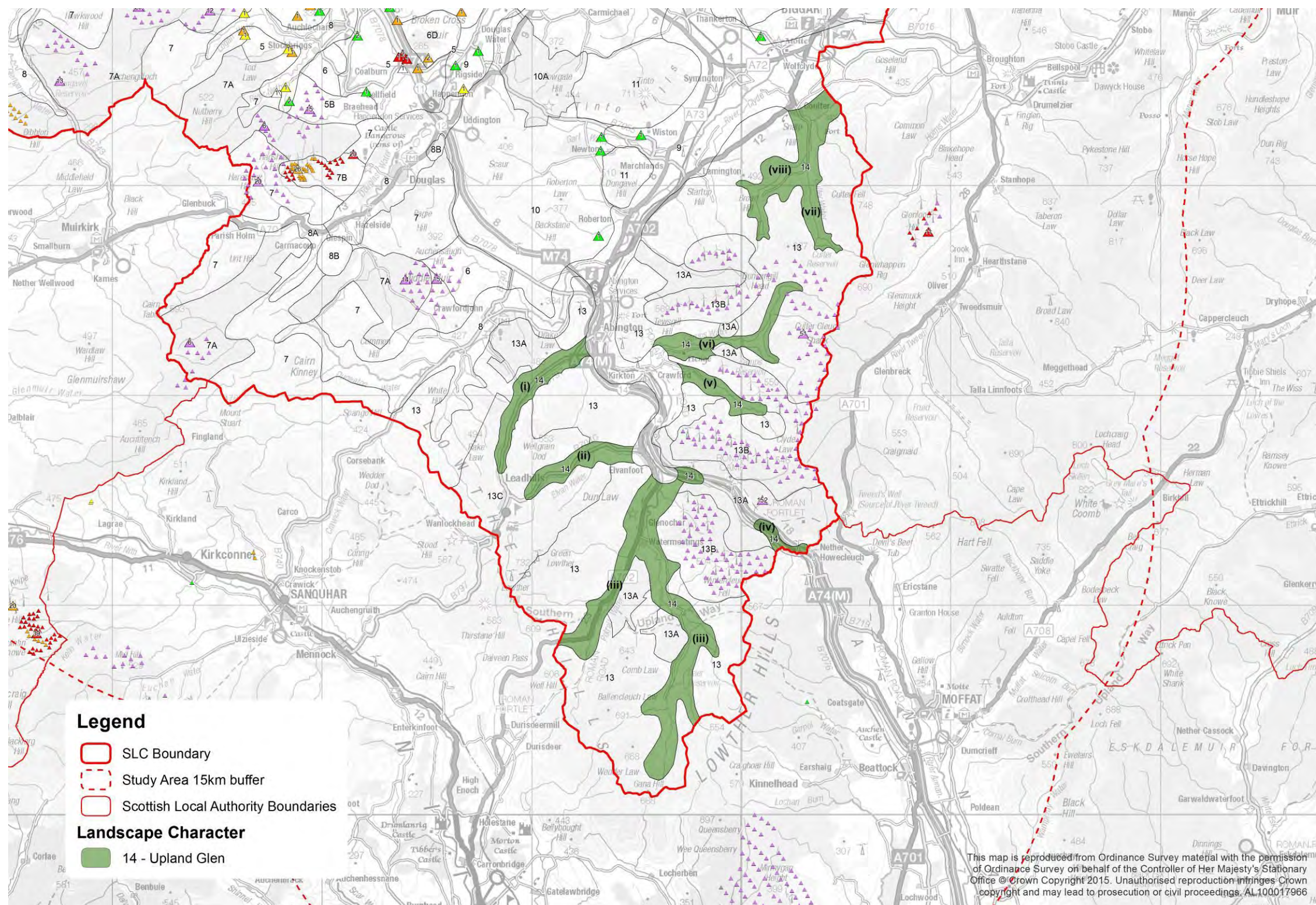


Table 6.1(k) Summary of Landscape Capacity, Cumulative Effects and Guidance for Future Wind Energy Development in Upland Glens (see also Figures 6.1 to 6.4 for maps)

Key: No Capacity ○ Low Capacity ◐ Medium Capacity ◑ High Capacity ●																	
UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT					PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)							
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments (March 2015)	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Rel't'd to turbine size)					Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	15-<30m	30-<50m	50-<80m	80-<120m	Over 120m				15-<30m	30-<50m	50-<80m	80-<120m	Over 120m	
14. Upland Glen: (i) Glengonnar Water; (ii) Elvan Water; (iii) Daer & Potrail Waters; (iv) Clydes Burn/ Evan Water; (v) Midlock Water; (vi) Camps Water; (vii) Culter Water (viii) Cow Gill																	
Med/High	Med	Med/High	Med/High	◑	○	○	○	○	No wind turbines located in Upland Glens. However some areas in the east (eg. Midlock, Clyde) are adjacent to Clyde windfarm and extension.	Upland Glen with no Wind Turbines/ with Wind Turbines	Upland Glen with Wind Turbines/ Occasional Wind Turbines/ no Wind Turbines	◑	○	○	○	○	<p>Landscape Analysis: Narrow valleys with steep sides surrounded by Southern Uplands Hills. Limited settlement and minor roads except for access to Leadhills and Dalveen Pass in the W. Improved land and occasional houses except in upper reaches which grade into the hills and/or have reservoirs. Glens to the west and north lie mainly in the Upper Clyde Valley & Tinto and the Leadhills & Lowther Hills SLAs.</p> <p>Development Capacity: Upland Glens are only suitable for occasional smaller turbines associated with farms or other developments. Avoid more sensitive upland fringe locations in the west. Groupings of 1-3 turbines of 15-30m may be appropriate in some locations. Some areas in the east (Midlock, Clyde) are affected by proximity of Clyde windfarm and extension. Consideration should be given to the effects on Upland Glens of turbines in the neighbouring upland LCAs.</p>

6.3 Landscape Capacity and Cumulative Landscape Effects

This section summarises capacity and cumulative effects for the main regional landscape areas of South Lanarkshire shown in Figure 3.3. Refer to Figure 6.2 for a map of current cumulative wind turbine landscape types and Figure 6.3 for a map illustrating the proposed future limit to wind turbine landscape types, as described in Table 6.1 and summarised in the sections below.

6.3.1 Summary of Capacity and Cumulative Development in the Clyde Basin Farmlands and Inner Clyde Valley

The Clyde Basin Farmlands and Inner Clyde Valley comprise 5 main LCTs: *Urban Fringe Farmland*; *Incised River Valley*; *Broad Urban Valley*; *Rolling Farmland* and *Plateau Farmland*, with a part of the Avon Valley (*Upland River Valley*) in the south east.

Most of the landscape types in the Clyde Basin Farmlands and Inner Clyde Valley have limited underlying capacity for wind turbine development. This is because they are either of unsuitable form and character that would also be technically less suited to larger scale wind energy development (river valleys and *Rolling Farmland*) or because of proximity to significant settlements (*Urban Fringe Farmland*). The *Plateau Farmland* has the highest underlying capacity for development. This is due to its simpler landform, larger scale and in places sparser population.

Currently there are two windfarms of six and five turbines (Blantyre Muir and Lochhead) consented within this regional character area, but also very significant numbers of single or paired turbines of varying scale up to 120m. There are also extensive areas of existing and consented windfarms in upland areas bordering the *Plateau Farmland* (including the two very large scale developments at Whitelee and Black Law). Currently there are several main areas in which wind turbines have become a key feature of the landscape, i.e. a *Landscape with Wind Turbines* and in some cases close to a *Wind Turbine Landscape*:

- *Urban Fringe Farmland* and *Plateau Farmland* between Hamilton, East Kilbride and Strathaven due to the influence of Blantyre Muir windfarm and several smaller single turbines;
- *Plateau Farmland* near the Whitelee and Black Law clusters which are influenced by these windfarms in combination with scattered single turbines;
- In *Plateau* and *Rolling Farmland* around Carstairs where there is a concentration of smaller single and paired turbines;
- The *Plateau Farmlands* either side of the M74 between Larkhall and Rigside along the M74 corridor where there are concentrations of single and paired turbines of larger sizes.

The main areas of *Landscape with Occasional Wind Turbines* include areas of *Urban Fringe Farmland* south of Cambuslang and around Carluke; *Plateau Farmland* and *Upland River Valley* north and east of Strathaven; *Rolling Farmland* around Lanark; *Plateau Farmland* and small areas of *Plateau Moorland* south and east of Forth and areas of *Plateau* and *Rolling Farmland* north of Biggar.

Areas remaining as a *Landscape with no Wind Turbines* include the River Valley landscapes of the Lower and Middle Clyde and its tributaries and areas of *Urban Fringe*, *Plateau* and *Rolling Farmland* either side of the Clyde Valley.

Given the extensive development of a *Wind Turbine Landscape* in the adjacent moorlands to the north and west the strategic objective is to maintain a distinction between the farmland and moorland areas. This should be achieved by retaining substantial areas of *Landscape with Occasional Wind Turbines* and *Landscape with No Wind Turbines* in the Clyde Basin Farmlands and Inner Clyde Valley and avoiding visual coalescence with moorland windfarm-dominated landscapes.

Remaining capacity is limited by cumulative consented development. The maximum size of windfarm that could be accommodated is small or small/medium – preferably a maximum of 5 turbines with turbines no more than ca. 100m height. A significant distance (5-10km) between each such development and from the moorland windfarms would be required to achieve the landscape typology. This would allow intervening landform such as incised valleys; settlements such as East Kilbride and woodlands where possible to reduce significant cumulative impacts. Further considerations should include consideration of effects on settlements and on areas of particular landscape value such as the middle Clyde Valley. The most suitable type to locate wind energy development is the *Plateau Farmland*. Development should be more limited in the *Urban Fringe Farmland* and *Rolling Farmland* for reasons explained in Table 6.1. There is limited potential for 15-50m turbines in the widest parts of the *Incised River Valleys* and the *Upland River Valley* of the Avon; but potentially the landscape could accommodate single larger turbines in the *Broad Urban Valley* section of the Clyde within the Glasgow conurbation.

6.3.2 Summary of Capacity and Cumulative Development in the Moorlands (Clyde & Ayrshire Basin Moorlands and Central Plateau Moorlands)

The two moorland regional character areas lie on the western and north eastern edges of South Lanarkshire. They primarily comprise two LCTs: *Plateau Moorland* and *Rolling Moorland*, with four *Upland River Valleys* penetrating the higher ground in the west and small areas of *Plateau Farmland* around the edges of the moorlands.

The two moorland landscape types have the highest underlying capacity for windfarm development. This is because they are extensive areas of larger scale landscape with simple landforms and open character with few human scale references. The *Upland River Valley* type has a much lower capacity for development due to its valley form, smaller scale and concentration of smaller domestic scale landscape references. The valleys are also likely to be less technically suited to large scale wind energy generation due to lower elevation and windspeeds.

Currently the majority of operational wind turbines in and adjacent to South Lanarkshire are located in the moorland areas, including the two very large scale clusters of developments around Whitelee and Black Law and the cluster of developments around Hagshaw Hill. With the consent of several further windfarms, further concentrations are appearing between Whitelee and Hagshaw Hill and south of Hagshaw Hill.

Considering operational and consented turbines, much of the moorlands are characterised by wind turbines:

- *Plateau Moorland* areas around Whitelee and Black Law windfarms are a *Wind Turbine Landscape*;
- Most of the *Rolling Moorland* between the Avon Valley and the Douglas Valley is a *Landscape with Wind Turbines*, with the area around Hagshaw Hill, Nutberry, Galawhistle and Dalquhandy and the Kype Muir/Auchrobert area *Wind Turbine Landscapes*;
- South of the Douglas Water the *Rolling Moorland* areas and small area of *Plateau Moorland*, where three windfarms (Penbreck, Middle Muir and Andershaw) are consented, there are areas of *Landscape with Wind Turbines*.

The strategic objective for the moorlands should be to ensure that further extension of the *Wind Turbine Landscape* type is limited and that further developments in the *Rolling Moorlands* are sufficiently separated for the type not to exceed a *Landscape with Wind Turbines*.

Remaining capacity is limited by the current extent of consented development. Remaining undeveloped areas are mainly in the *Rolling Moorland* type which has a landscape character less suited to larger developments than *Plateau Moorlands*. The most suitable windfarm typology that could be accommodated is no larger than medium – preferably with no more than 15-20 turbines. Furthermore there should be a significant distance (5-10km) between each such development cluster including existing windfarms. This distance reflects the horizontal scale of the main ridges and separating valleys, allowing intervening landform and forestry where possible to reduce significant cumulative impacts and for windfarms to follow the ‘rhythm’ of the landscape.

Further considerations limiting development should include the avoidance of an overdeveloped skyline effect on adjacent lower areas such as the *Upland River Valleys* and *Plateau Farmlands*, keeping a distinct distance from areas of particular landscape or recreational value such as key viewpoints.

Current operational and consented windfarms lie broadly within the preferred typology, although developments in the *Rolling Moorlands* are closer together and/or larger clusters than is envisaged by the strategy, and some valley locations are beginning to be affected.

The design and location of small scale developments relative to the main windfarms requires careful consideration so as not to lead to an extension of cumulative effects, blurring landscape character boundaries and leading to areas of *Wind Turbine Landscape* extending beyond the moorlands.

6.3.3 Summary of Capacity and Cumulative Development in the Southern Uplands Foothills

The Southern Uplands Foothills is a transitional area lying between the Clyde Basin Farmlands and the Southern Uplands. It comprises 5 main LCTs: *Foothills*, *Broad Valley Upland*, *Prominent Isolated Foothills*, *Plateau Farmland* and *Rolling Farmland*.

The *Prominent Isolated Foothills* have little or no underlying capacity for wind turbine development without significant compromise to their existing distinctive character. The

Rolling Farmland, *Plateau Farmland*, *Broad Valley Upland* and *Foothills* character types have some underlying capacity for wind turbine development. Currently there are no existing or consented windfarms within this area. The closest operational windfarms are at Middle Muir just over 2km south west; Hagshaw Hill and Nutberry some 5km to the west and Black Law and Muirhall some 10km distant in the north, with Clyde windfarm within 4km to the south. Currently the Southern Uplands Foothills are mainly a *Landscape with no Wind Turbines*. There are a few consented smaller turbines, mainly within the *Plateau Farmland* area creating areas of *Plateau Farmland with Occasional Wind Turbines*.

The Southern Uplands Foothills (SUF) is the most extensive regional landscape area remaining substantially undeveloped. A significant area comprises types that have little or no capacity for windfarm development, although the *Farmlands* and the *Foothills* have some capacity. The SUF creates a buffer between surrounding ‘hotspot’ areas where cumulative change is high (i.e. areas around Whitelee, Black Law, Kype Muir/ Auchrobert, Hagshaw Hill/ Galawhistle and Clyde), and currently helps to conserve distinctiveness in the South Lanarkshire landscape. The importance of maintaining and enhancing such areas is underlined in SPP¹³, and SNH has developed guidance which recognises this as an objective in areas where there are cumulative development issues¹⁴. In practical terms limiting cumulative visual coalescence across this area with turbine development in the north, south and west, means limiting development to turbines under 30m in height and limiting the numbers and group sizes of these.

6.3.4 Summary of Capacity and Cumulative Development in the Pentland Hills

The extent of this area in South Lanarkshire is limited, with most of the Pentland Hills extending into the Lothians and the Borders. It is mainly one LCT, *Old Red Sandstone Hills*, with small peripheral areas of *Plateau Farmland* and *Plateau Moorland*.

Currently there are a handful of smaller turbines located on the periphery of this area, although the western edge is affected by the presence of Muirhall windfarm which lies within 1-2km, to the west of the A70. Most of the area is a *Landscape with No Wind Turbines*. In West Lothian the consented 22 turbine Harburnhead windfarm, also to the west of the A70 will extend the influence of turbines along the western edge of this area.

Wind turbine development within this limited area of hills could lead to significant landscape change and cumulative impacts with windfarms and turbines to the west as well as affecting views of the Pentland Hills from the Central Belt. It is recommended that no wind turbines greater than 30m are permitted, particularly on the more sensitive south eastern side of the hills; and that the hilltops and ridges are kept free of turbines. This would help conserve the distinctive landscape and skyline of the Pentland Hills and protect sensitive landscape and visual receptors (see SPP and SNH references below). This area merges with the Southern Uplands Foothills area to the south and west (see 6.3.3 above).

¹³ SPP para 194

¹⁴ SNH (June 2015) *Spatial Planning for Onshore Wind Turbines – natural heritage considerations guidance* para 1.2.1

6.3.5 Summary of Capacity and Cumulative Development in the Southern Uplands

This regional area covers the southern part of South Lanarkshire and comprises principally the *Southern Uplands* LCT, an extensive range of large scale rolling hills that extends well beyond the boundary of South Lanarkshire into Scottish Borders and Dumfries & Galloway. The other types within the area include the southern end of the *Broad Valley Upland* (Upper Clyde Valley) and a number of narrow *Upland Glens* lying between the hills. An area of *Upland River Valley* (Duneaton Water) borders the northwestern edge.

The *Southern Uplands* type has underlying capacity for wind energy development. This is because it comprises extensive areas of larger scale landscape with simple landforms and open character with few human scale references. The *Upland Glen* type has little capacity for development due to its tight enclosure. The other two valley landscapes have similarly lower capacity.

Currently the very large Clyde windfarm dominates the Southern Uplands to the east of the Clyde and Daer, with cumulative effects extending beyond South Lanarkshire with the medium size Glenkerie windfarm in Scottish Borders to the east and the very large Harestanes windfarm in Dumfries & Galloway to the south. Fundamental landscape change in this area has been accepted, creating an extensive *Landscape with Wind Turbines*, with areas either side of the M74 effectively a *Wind Turbine Landscape*. Clyde Extension to the northeast of Clyde has been consented, extending eastwards into Scottish Borders and will significantly extend the areas of *Wind Turbine Landscape* and *Landscape with Wind Turbines*.

Areas to the west of the Clyde and surrounding the Daer Water currently remain largely as *Landscape with no Wind Turbines*. The strategic objective should be to ensure that the cumulative effect of further development in or close to the Southern Uplands does not lead to cumulative effects across the area and into Dumfries & Galloway or East Ayrshire, creating a much more extensive *Landscape with Wind Turbines*. There should be a significant distance, preferably in excess of 10km between upland windfarms. This distance represents the separation between two ridges and valleys in this landscape type, or between two main hill groups, using intervening landform where possible to reduce significant cumulative impacts. The western and southern parts of the Southern Uplands should become no more than a *Landscape with Occasional Wind Turbines*.

Further considerations should include the avoidance of an overdeveloped skyline on adjacent lower areas such as the *Upland Glens*, *Broad Valley Uplands* and *Upland River Valleys*. Furthermore a visual separation should be kept from areas of particular landscape or recreational value such as the Leadhills valley, Culter Fell area and Southern Uplands Fault on the northern edge of the range, above the Clyde Valley.

6.4 Overall Assessment of Capacity and Cumulative Development

6.4.1 Summary of Landscape Character, Sensitivity and Capacity

The landscape of South Lanarkshire is highly varied: from intimate enclosed wooded river valleys and farmlands on the urban fringe, through extensive farmlands to ranges of large

scale rolling hills with a wild, open aspect and little settlement. There is a highly varied underlying capacity for wind energy development throughout the area and, in areas suitable for wind energy development, the differing landscape characters would accommodate different wind energy development types ranging from single turbines to very large scale windfarms.

The landscape character types with the greatest capacity for development are the upland areas in the north eastern, western and south eastern edges of South Lanarkshire; principally the *Plateau Moorlands*, *Rolling Moorlands* and *Southern Uplands*. These landscapes are of a larger scale and have a simple form and landcover, with fewer reference features of human scale such as houses and groups of trees. There are fewer visual receptors and some areas have a lower visibility due to intervening topography. The uplands are generally suited to larger scale turbines and windfarm developments. Differences in capacity within these areas are dependent on topography and landscape value. Some areas have a more defined hill topography, unsuited to the largest scale of blanket windfarm development, such as seen at Whitelee. Other areas have a high landscape value due to designations, scenic qualities, higher wildness values or their popularity for recreation.

As described in 6.3 above, the upland landscape types have been extensively developed or are consented for development, and their capacity for further development is thus limited.

In contrast with the upland landscapes, the upland fringe landscapes of the Southern Upland Foothills have a very limited capacity for development due to their transitional character, more settled nature and key feature of *Prominent Isolated Foothills* including Tinto Hill, a key prominent landscape feature and panoramic viewpoint.

The lowland landscapes have a lower capacity than the uplands due to their smaller scale, more varied and patterned landscape and presence of human scale references such as settlements, farmhouses, hedges and tree belts. They are also more visually sensitive, being closer to settlements and main transport routes. They are better suited to smaller scale developments and smaller turbines.

The following sections summarise the underlying landscape capacity for wind energy development throughout South Lanarkshire and cumulative issues associated with current (**March 2015**) levels of development. Four categories of area are discussed, providing an analysis of landscape resource and current capacity:

- 1) **Areas with Highest Underlying Landscape Capacity:** landscapes whose characteristics would most easily accommodate extensive, large scale wind energy development without unacceptably adverse effects.
- 2) **Areas with Limited Underlying Landscape Capacity:** landscapes whose characteristics would accommodate a more modest and less extensive scale of wind energy development without incurring unacceptably adverse effects.
- 3) **Areas with Little or No Underlying Landscape Capacity:** landscapes which, due to their sensitive characteristics and value, can accommodate only the smallest scale of wind energy development, or none at all.

- 4) **Areas of Significant Cumulative Development:** areas overlapping all of the above categories in which there is a significant level of operational or consented development relative to capacity, which limits future capacity for development

Reference should be made to the summary diagram in Figure 6.4 in which the four types of area are shown. Further detailed analysis of LCTs and LCAs within these areas and guidance for proposed developments is given in Table 6.1 above.

6.4.2 Areas with the Highest Underlying Landscape Capacity

There are five areas identified in Figure 6.4 which have the highest underlying landscape capacity for wind energy development. These areas are capable of accommodating the largest scale of wind energy development both in the extent of windfarm and the height of turbine. These are concentrated in upland areas on the borders of South Lanarkshire:

- 1) Whitelee Moor, the eastern part of an extensive area of *Plateau Moorland*, fringed with *Plateau Farmland* located in the northwest, on the boundary with East Renfrewshire and East Ayrshire between East Kilbride and the Avon valley.
- 2) Black Law and Worm Law, the southern part of an extensive area of *Plateau Moorland* fringed with *Plateau Farmland* located in the northeast, on the boundary with North Lanarkshire and West Lothian.
- 3) Dungavel Hill, Kype Muir, Nutberry Hill and Hagshaw Hill: *Rolling Moorland* on the western boundary with East Ayrshire lying between the Avon Water in the north and Douglas Water in the south.
- 4) Cairn Table to Crawfordjohn: *Rolling Moorland* and *Plateau Moorland* between the M74 corridor and the western boundary with East Ayrshire and Dumfries & Galloway, lying mainly between the Douglas Water in the north and the Duneaton Water in the south.
- 5) Southern Uplands east of the Clyde and Daer; an extensive area of *Southern Upland* hills and *Upland Glens* on the boundary with Scottish Borders.



Photograph: Part of Calder Water and Whitelee windfarms on the large scale, simple Plateau Moorland landscape

The higher capacity is due to a number of landscape and visual factors including: larger scale of landscape and fewer scale references; simple landforms and landuse patterns; lack of settlements and transport routes and lower landscape value. However it should be noted that there are distinctive landscape features within these broad areas e.g. Culter Fell/ Southern Upland Fault and Cairn Table. Most of these areas are extensively forested and have been exploited in places for coal or other minerals. Areas 1, 2 and 5 have already been extensively developed for wind energy, supporting very large commercial windfarms (principally Whitelee, Black Law and Clyde). There are increasing numbers of existing or consented windfarm developments within areas 3 and 4. This is discussed further in section 6.4.5 below covering areas of significant cumulative development.

6.4.3 Areas with Limited Underlying Landscape Capacity

Limited Underlying Landscape Capacity denotes areas that have underlying capacity for a modest scale of wind energy development including occasional well-separated smaller scale wind farms and single/ paired turbine developments of varied turbine size.

This category covers the majority of South Lanarkshire. These are predominantly lowland or upland fringe areas but also include some significant upland areas. There is nevertheless variation across the areas covered, in terms of capacity and the type of wind energy development that could be accommodated, depending on particular characteristics and sensitivities of LCTs and individual LCAs.

The *Plateau Farmlands* concentrated in the Clyde Basin Farmlands to the north are both the most extensive LCT and, within the Areas with Limited Underlying Landscape Capacity, the *Plateau Farmlands* LCT broadly has the greatest underlying capacity across the range of development types including wind farms up to 5 turbines. Other associated types include *Urban Fringe Farmland*, *Rolling Farmland* both of which have slightly lower underlying capacity due to factors including a higher landscape character sensitivity and visual sensitivity.



Photograph: The Blantyre Muir Turbines seen across Urban Fringe Farmland

Other areas in this category include *Incised River Valley* and *Broad Urban Valley*. As valley landscapes they have limited underlying capacity for wind turbines, with the *Incised River Valley* having the more limited capacity due to its small scale, steep sides and higher landscape value (almost all being covered by the Lower Clyde & Calderglenn and Middle Clyde SLAs). The steepest and narrowest sections of river valley are considered to have no capacity (see 6.4.4 below). *Broad Urban Valley* is limited in area but has higher underlying capacity due to its urban fringe, often industrial, character.

The *Foothills* LCT is a transitional type lying between the Clyde Basin Farmlands, the Western Plateau and the Southern Uplands. This type is in a sensitive location, surrounded by key transport corridors and prominent landscape features such as Tinto Hill and the Southern Uplands Fault.

There are five main upland LCTs within limited underlying capacity:

- 1) *Plateau Moorland*: smaller areas of this LCT are separated from the two main areas described in 6.4.2 above by intervening areas of *Plateau Farmland*. The areas are also lower in elevation and merge visually with more settled landscapes. This reduces their capacity for development to a level similar to that in the *Plateau Farmlands*.
- 2) *Upland River Valleys* lie between the *Plateau Moorlands*, *Rolling Moorlands* and the northern edge of the *Southern Uplands*. They are a smaller scale landscape and vary from being relatively open in their lower reaches to a more confined form in their upper reaches. There are settlements and transport routes in all of the LCAs. Due to their smaller scale, settled nature and transitional location between the uplands and lowlands they have higher landscape sensitivity and value which reduces capacity for larger scale development such as windfarms or larger turbines. The *Upland River Valleys* are affected to some extent by large scale wind energy development in the surrounding hills.
- 3) *Broad Valley Uplands* cover the upper section of the River Clyde and its main tributaries. There are similarities with the *Upland River Valley* LCT, but the location of the Clyde is central to South Lanarkshire. The upper section descends from the Southern Uplands, weaving between the *Foothills*, *Prominent Isolated Hills* and the Southern Upland Fault. Major transport routes; including the M74, West Coast Railway, A702 and A73 follow the route. Capacity is low due to elevated landscape sensitivity and value.
- 4) *Southern Uplands* in the Lowther Hills around Leadhills and the Daer Reservoir are the same type as the *Southern Uplands* in which Clyde windfarm is located, but have a lower capacity. This is due particularly to their landscape value, being less forested, higher, with a higher scenic quality and more remote qualities. There is capacity for the occasional smaller scale windfarm in the hills or smaller single/ paired turbines in lower areas.
- 5) *Upland Glens*, which lie between the hills of the *Southern Uplands* are smaller in scale and relatively confined, with notable settlement and transport routes in some. They do not have capacity for larger scale development such as windfarms or larger turbines. Nevertheless they are affected to some extent by development in the surrounding hills.

6.4.4 Areas with Little or No Underlying Landscape Capacity

There are a number of locations which have no underlying capacity, or capacity only for the smallest scale of wind energy development. This is due to high landscape sensitivity, high value and/ or limited extent.

The areas are relatively limited but include all of the *Prominent Isolated Hills* and some of the narrower or more sensitive valley landscapes. In the former, which includes Tinto Hill, wind energy development would affect key valued landscape features and be highly visible. The tops of two prominent *Foothill* areas; Biggar Common/ Quothquan Law and Broomy Law, have no capacity for similar reasons. In the valleys the landscape character and terrain is generally unsuited to wind energy developments and woodland cover is often covered by conservation designations.

Other prominent hilltops within wider areas of hills also fall into this category: Cairn Table at the western boundary with East Ayrshire and Culter Fell on the eastern boundary with Scottish Borders. Both are significantly higher than the surrounding hilltops, extensively visible and are key panoramic viewpoints.

The most extensive area with little or no underlying capacity is the *Old Red Sandstone Hills*, Pentland Hills LCA. Parts of this LCA have the large scale and simple landform suitable for wind energy development but also have minimal levels of development, good recreational access and form a characteristic skyline. It is the context of these hills as part of a larger unbroken range of hills, some 30km long, with landscape designation in all local authority areas that particularly underpins its value. Draft SNH guidance on spatial planning¹⁵ underlines the importance of gaps between areas of cumulative development and key landscape features which cross the border between planning authorities.

Section 6.4.6 below discusses the Pentland Hills and adjacent Southern Uplands Foothills in the context of its position as an area with no significant development lying between areas of significant cumulative development described in 6.4.5.

6.4.5 Areas of Significant Cumulative Development

SPP recommends that planning authorities are clear about likely cumulative impacts arising from the considerations set out at paragraph 169, which may limit the capacity for further development. One of the development management considerations at paragraph 169 is cumulative landscape and visual impacts.

Figure 6.4 identifies areas where, in **March 2015**, there is significant cumulative operational and consented wind turbine development. The cumulative areas overlap with landscapes with varied underlying capacity for development, and simply reflect that there is significant cumulative development relative to the underlying capacity of the landscape.

The boundaries shown in Figure 6.4 are indicative. Development proposals require to address detailed criteria in Table 6.2 to demonstrate that landscape capacity within, or

¹⁵ SNH (March 2015) *Spatial Planning for Onshore Wind Turbines – natural heritage considerations guidance (Consultation Draft)* para 1.6.3

adjacent to, these areas would not be exceeded as a result of adding a proposed development to existing and consented cumulative development.

Eight cumulative areas are identified. These areas in themselves do not specify capacity or a limit to development. Table 6.2 below describes the areas and key criteria for locating further developments and assessing cumulative effects. Capacity and guidance is also detailed for the coincident LCTs and LCAs in Table 6.1. This should be taken into consideration when assessing residual capacity for further wind energy development within the areas shown, or in adjacent landscapes.

The Areas of Significant Cumulative Development detailed in Figure 6.4 and Table 6.2 are based on the most up to date information on operational and consented schemes at the time this study was completed for consultation (i.e. March 2015). However the database has changed in the intervening period between the start of consultation and final publication, with the addition of newly consented schemes including small scale and single

turbine proposals as well as larger wind farms, and will continue to change in future. Areas of Significant Cumulative Impact are therefore likely to extend, or occur outwith the areas shown in the report, as new developments come forward. It is therefore possible that in future other areas not currently detailed in Figure 6.4 and Table 6.2 could meet the definition of Areas of Significant Cumulative Development.

The capacity study therefore represents a ‘snapshot’ in time at March 2015. As is the case with all cumulative assessments, proposed schemes will require to be assessed on the basis of available up-to-date information on consented and operational schemes at the time of application.

Table 6.2. Description and Guidance for Areas of Significant Cumulative Development (see Figure 6.4 for locations)

Cumulative Area	Description	Key Development Guidance/Criteria
1	The <i>Plateau Moorland</i> and <i>Plateau Farmland</i> of Whitelee Moor on the border with East Ayrshire and East Renfrewshire, between East Kilbride and the Avon Water on which 66 turbines of Whitelee windfarm and associated developments including Calder Water and West Browncastle are located, with many more Whitelee turbines across the boundary to the west. This creates an extensive area of <i>Wind Turbine Landscape</i> , surrounded by a <i>Landscape with Wind Turbines</i> .	<ol style="list-style-type: none"> 1. Avoid extension of a Wind Turbine Landscape into the surrounding <i>Plateau Farmland</i> and <i>Upland River Valley</i> areas and avoid significant increase in visual effects on Strathaven and East Kilbride by ensuring that there is sufficient setback/ screening of the main area of turbines, including use of landforms and trees, from these landscape character types and from single turbine developments located within them. 2. Avoid visual coalescence with cumulative areas 2 and 6 by limiting the extent of the main area of cumulative development and by limiting development of single turbine/ small scale developments to retain a <i>Landscape with Occasional Wind Turbines</i> in the intervening areas of <i>Plateau Farmland</i>, <i>Rolling Farmland</i> and <i>Upland River Valley</i>.
2	An area of <i>Urban Fringe Farmland</i> and <i>Plateau Farmland</i> between East Kilbride, Hamilton and Strathaven in which the six 115m turbines of Blantyre Muir and 14 other single or paired turbines between 15m and 80m tall are located, creating a <i>Landscape with Wind Turbines</i> , separated from area 1 by a <i>Landscape with Occasional Wind Turbines</i> .	<ol style="list-style-type: none"> 1. Maintain separation of turbines to ensure there is no development of areas of <i>Wind Turbine Landscape</i>. 2. Give careful consideration to the position, scale and cumulative effects of developments close to the surrounding settlements including East Kilbride, Hamilton, Chapelton, Glassford and Strathaven. 3. Avoid visual coalescence with cumulative area 1 by limiting development and maintaining a <i>Landscape with Occasional Wind Turbines</i> in the <i>Plateau Farmland</i> and <i>Urban Fringe Farmland</i> between the two cumulative areas.
3	The <i>Plateau Moorland</i> and <i>Plateau Farmland</i> between Carluke and the Pentland Hills on the northeast border with North Lanarkshire and West Lothian, containing most of Black Law windfarm, together with several other consented windfarms and turbines located either within South Lanarkshire or within the other local authorities but close to the boundary (Tormywheel, Pates Hill, Harburnhead, Pearie Law and Muirhall). This is separated from cumulative area 4 by an area of <i>Landscape with Occasional Wind Turbines</i> .	<ol style="list-style-type: none"> 1. Maintain separation between windfarms and turbines within the <i>Plateau Moorland</i> to prevent extension of a <i>Wind Turbine Landscape</i> east of Climpy. 2. Maintain setback of main areas of turbines to avoid extension of a <i>Wind Turbine Landscape</i> into the surrounding <i>Plateau Farmland</i> and prevent further significant effects on the settlements of Carluke and Forth. 3. Avoid visual coalescence with cumulative area 4 by limiting development in the <i>Plateau Farmland</i>, <i>Rolling Farmland</i> and <i>Plateau Moorland</i> between the two areas to a <i>Landscape with Occasional Wind Turbines</i>. 4. Prevent further extension of the <i>Landscape with Wind Turbines</i> into the Pentland Hills.

Cumulative Area	Description	Key Development Guidance/Criteria
4	The <i>Plateau Farmland</i> and <i>Rolling Farmland</i> (together with small fragments of <i>Plateau Moorland</i>) surrounding Carstairs and Carnwath in which nearly 30 single or paired turbines of varied height between 15m and 80m are located, creating an area of <i>Landscape with Wind Turbines</i> .	<ol style="list-style-type: none"> 1. Maintain separation of turbines to ensure there is no development of areas of <i>Wind Turbine Landscape</i>. 2. New turbines should relate well to form and height of existing turbines in closest proximity. 3. Avoid visual coalescence with cumulative area 3 by limiting development to a <i>Landscape with Occasional Wind Turbines</i> in the <i>Plateau Farmland</i>, <i>Rolling Farmland</i> and <i>Plateau Moorland</i> between the two areas of <i>Landscape with Wind Turbines</i>. 4. Give careful consideration to the position, scale and cumulative effects of developments close to the surrounding settlements including Carstairs, Carstairs Junction and Carnwath.
5	A small area of <i>Plateau Farmland</i> north of Biggar, between Black Mount and Biggar Common, in which some 15 turbines under 30m are located. Due to the small size of the turbines this remains a <i>Landscape with Occasional Wind Turbines</i> .	<ol style="list-style-type: none"> 1. Avoid confused/ cluttered visual images with existing turbines by limiting turbine size to 30m. 2. Limit development level to a <i>Landscape with Occasional Wind Turbines</i>.
6	<p>A very extensive area south of the Avon Valley and either side of the M74 between Larkhall and Rigside including two distinct areas of landscape character and development type:</p> <ul style="list-style-type: none"> • <i>Rolling Moorland</i> with several operational or consented windfarms (Bankend Rig, Dungavel, Kype Muir and Auchrobert); • <i>Plateau Farmland</i> and <i>Rolling Farmland</i> with dozens of single or paired turbines and small windfarms, all with turbine heights varying from between 15m and 120m height. <p>These developments create an extensive area of <i>Landscape with Wind Turbines</i> crossing from upland fringe into upland. This includes an area of <i>Wind Turbine Landscape</i> around Kype Muir and Auchrobert.</p>	<ol style="list-style-type: none"> 1. Maintain separation between windfarms and turbines to avoid creating further areas of <i>Wind Turbine Landscape</i>. 2. Avoid visual coalescence with cumulative area 1 by limiting single turbine/ small scale developments in the intervening area of <i>Rolling Farmland</i>, <i>Plateau Farmland</i> and <i>Upland River Valley</i> (Avon Water). 3. Avoid physical or visual coalescence with cumulative area 7 by limiting developments in the intervening areas of <i>Upland River Valley</i> (River Nethan) and <i>Rolling Moorland</i>. 4. Give careful consideration to the position, scale and cumulative effects of developments close to the surrounding settlements including Larkhall, Stonehouse, Blackwood/Kirkmuirhill and Lesmahagow. 5. Give careful consideration to the setting of Lanark, New Lanark world heritage site and the Falls of Clyde by limiting the eastward extension of the <i>Landscape with Wind Turbines</i> to its current location on the crest of the <i>Rolling Farmland</i>.
7	An area of <i>Rolling Moorland</i> and <i>Plateau Farmland</i> between Douglas Water and the Nethan valley with over 85 turbines in four windfarms: the operational Hagshaw Hill and Nutberry windfarms together with the consented Galawhistle and Dalquhandy windfarms. These windfarms create an area of <i>Wind Turbine Landscape</i> .	<ol style="list-style-type: none"> 1. Avoid physical or visual coalescence with cumulative area 6 by limiting developments in the intervening areas of <i>Upland River Valley</i> (River Nethan), <i>Rolling Moorland</i>, <i>Plateau Farmland</i> and <i>Plateau Moorland</i>. 2. Limit further significant extension of the cumulative area into adjacent <i>Upland River Valley</i> (Douglas Water) landscape to the south and southeast. 3. Give careful consideration to the position, scale and cumulative effects of developments close to the surrounding settlements including Coalburn and Douglas.
8	The <i>Southern Uplands</i> and <i>Upland Glens</i> east of the Clyde and Daer and adjacent to Scottish Borders, in which the 206 turbines of Clyde windfarm and its consented extension are located. This creates a mixture of <i>Wind Turbine Landscape</i> and <i>Landscape with Wind Turbines</i> , depending on topography and the degree of separation of turbine groups.	<ol style="list-style-type: none"> 1. Other windfarms should be clearly separated from Clyde windfarm 2. Limit further significant northward wind turbine development to avoid extension of <i>Landscape with Wind Turbines</i> into the Southern Upland Fault area or onto Culter Fell and to avoid visual coalescence with Glenkerie windfarm to the northeast in Scottish Borders. 3. Limit further significant southward development to maintain clear visual and physical separation from Harestanes windfarm in Dumfries and Galloway. 4. Any proposed windfarm to the west of Clyde windfarm should be separated from the latter by at least 10km, or two ridges and valleys. 5. Avoid further extension of the <i>Landscape with Wind Turbines/ Wind Turbine Landscape</i> of Clyde windfarm down slopes into <i>Upland Glen</i> areas.



Photograph: Wind Turbines near Carstairs in Cumulative Area 4



Photograph: Wind Turbines in Cumulative Area 6 in the foreground and Whitelee windfarm (Cumulative Area 1) on the horizon, seen from Black Hill near Lesmahagow



Photograph: Clyde Windfarm in the Southern Uplands (Cumulative Area 8) seen from near Leadhills

6.4.6 Southern Upland Foothills and Pentland Hills

In strategic terms the established and evolving pattern of development should be taken into consideration as it reflects a clear rationale driven partly by landscape, visual and amenity issues (sensitive or valuable landscapes, proximity to settlements and recreational areas) and partly by technical and economic issues (available land, available grid capacity, wind speed). The strategy for number, size and distribution of further developments should be considered very carefully in this context in order in to maintain differences in character between the uplands and the lowlands.

In addressing SPP's reference to potential limits posed by areas of cumulative development, consideration should be given to preserving areas in which no or minimal development is yet located or consented when such areas provide significant gaps between cumulative clusters of wind turbines. This approach will reinforce distinctiveness between landscapes. Currently the area focused around the Southern Upland Foothills and the Pentlands provides separation between several large cumulative clusters.

The Southern Uplands Foothills and Pentland Hills between the M74, A70 and A702, together with the northern edge of the Southern Uplands Fault just south of the A702, lies between areas of cumulative development 3, 4, 6, 7 and 8 and three of the areas of highest underlying capacity. It includes the key landmarks of Tinto Hill and Black Mount, the loop of the upper Clyde and the southwestern terminus of the Pentland Hills, which extend in an unbroken chain 30km northeast to the city of Edinburgh. The area currently has no windfarms although there are over 30 consented turbines, predominantly under 30m tall with 15 concentrated in cumulative area 5.

This area comprises a mix of LCTs: *Foothills, Rolling Farmland, Plateau Farmland, Broad Valley Upland, Prominent Isolated Foothills and Old Red Sandstone Hills*. Many of these are of higher value and sensitivity and include extensive areas of local landscape designations (Pentland Hills and Black Mount SLA and Upper Clyde Valley and Tinto SLA) with very limited capacity for development.



Photograph: The prominent Tinto Hill, the Foothills and the northern edge of Southern Uplands seen from near Lesmahagow

It is proposed that there should be no significant windfarm development in the area shown in Figure 6.4. The reasons for this are threefold:

- 1) Limited capacity for wind turbine development in key landscape types
- 2) The desire to maintain distinctiveness of landscape character across South Lanarkshire by ensuring differences between areas are not blurred or overwhelmed by wind energy development.
- 3) The strategic objective of avoiding visual or physical coalescence of cumulative development by maintaining a large gap between the most significant areas of cumulative wind energy development.

These reasons are supported by SPP and SNH's spatial planning guidance as discussed in 6.3.3 above. This specific area is reiterated in the Glasgow and Clyde Valley capacity study¹⁶.

Only single or small groups of turbines below 30m in height will be acceptable in this area, and some areas such as prominent hilltops should be kept free of all turbines.

6.5 Capacity for Further Development

There is limited remaining capacity for wind energy development in South Lanarkshire. This is due to the following factors:

- 1) Most of the landscape areas with the highest underlying capacity have already been substantially developed or consented;
- 2) Other landscape areas have more limited capacity for development without the potential for an unacceptable level of landscape change, due to combined consideration of landscape character, visual sensitivity and landscape value as well as the potential for cumulative effects with neighbouring cumulative clusters;
- 3) Some areas have little or no scope for development due to their sensitive characteristics and higher landscape value.

This section summarises guidance for acceptable future landscape change due to wind energy development across South Lanarkshire. This is based on landscape and visual factors only, which must also be considered along with other opportunities and constraints in the Spatial Framework and Supplementary Guidance. The potential for further development is described with reference to the detailed assessment described previously.

6.5.1 Areas with Most Remaining Capacity

The greatest scope for further development lies within the *Rolling Moorlands* on the western side of South Lanarkshire, although this has become more limited by recent consents. Here development comprising clearly separated small/medium or medium scale

¹⁶ LUC (2014) *Landscape Capacity Study for Wind turbine Development in Glasgow and the Clyde Valley*

windfarms could be accommodated as a *Landscape with Wind Turbines*. It would be important to ensure that proposed windfarms have sufficient separation from one another and from consented or operational adjacent developments in the *Rolling Moorlands*, *Plateau Moorlands*, *Southern Uplands* and adjacent farmlands and valleys, such that they do not coalesce to form a wider *Windfarm Landscape* as prevails in the parts of the *Plateau Moorlands* and *Rolling Moorlands*. Siting, design and topographic separation will also be important in reinforcing the effects of distance in achieving visual separation.

There is scope for a smaller windfarm in the *Southern Uplands* Lowther Hills LCA, or for occasional single turbines in the fringes of this area.

6.5.2 Areas with Limited Remaining Capacity

In the Clyde Basin Farmlands, limited further development could be accommodated in the *Plateau Farmlands* and to a lesser extent the *Rolling Farmlands*, making these areas a mixture of *Landscapes with Occasional Wind Turbines* and *Landscape with Wind Turbines*. Windfarm typology should be restricted to small or small/medium developments of no more than 5 turbines, or smaller single/ paired turbines. These should be widely separated from one another and from large windfarms in neighbouring uplands, also utilising topography, woodlands and settlements as visual separation. Limited further smaller developments can be accommodated in the *Urban Fringe Farmlands* surrounding East Kilbride and Carluke, that are currently largely undeveloped.

There may be limited scope for extension of larger operational windfarms in upland areas as an alternative to locating new smaller windfarms in lowland or upland fringe areas. However the siting of additional turbines must avoid physical or visual coalescence with windfarms and concentrations of turbines in neighbouring landscapes, or the crossing of boundaries blurring the distinction between landscape types.

6.5.3 Other Landscape Areas and Urban Areas

Within the remaining landscape types and areas of South Lanarkshire there is very limited capacity for wind energy development of a modest scale. Currently there are significant numbers of existing, consented and proposed smaller scale developments (mainly single and paired turbines between 15m and 80m tall). Guidance in Table 6.1 is intended to guide proposals to an acceptable level of wind turbine development in these areas.

Whilst it is recognised that some parts of urban areas may be able to accommodate wind turbines, and indeed do, this study does not assess the capacity of urban areas. Consequently urban areas have not been included in the maps in 6.1 - 6.4 and the guidance in Table 6.1. Factors specific to townscape and urban planning are likely to guide location; however the effects of larger turbines on adjacent rural LCTs and cumulative areas should be taken into account.

6.6 Existing Developments: Extensions and Repowering

SPP para 170 states that '*Areas identified for wind farms should be suitable for use in perpetuity*' and refers in paras 161 and 174 to repowering of existing sites and extensions

to existing windfarms. Implicit in this is the need to ensure at the outset that sites are suitable for development and that windfarms are sited and designed to minimise impacts and to protect amenity. Para 161 states:

'Development plans should also set out the criteria that will be considered in deciding all applications for wind farms of different scales – including extensions and re-powering – taking account of the considerations set out at paragraph 169.'

This guidance addresses the landscape, visual and cumulative criteria listed in para 169 of SPP. It should be applied as equally to extensions to, and repowering of, existing windfarm sites as it is to newly proposed wind energy developments; taking into account the scale of the proposed development once repowered or with the addition of an extension in the context of existing wind energy development.

6.7 Guidance for Single/Small Turbine Developments

This cumulative assessment and capacity study has detailed the current distribution of all sizes of wind turbines of 15m or above when determining capacity for further development. This is because the smallest turbines (less than 15m), being of a similar height to built structures and trees found commonly throughout the landscape, do not have the same eye-catching prominence and extensive visibility of larger turbines. They do not therefore have the same issues of wide scale cumulative effects across extensive landscape areas.

The issues relating to design and siting of small turbines concern mainly their localised effects on the area in which they are sited rather than wider cumulative effects on landscape character. Small wind turbines should be judged on their own merits, assessed against the criteria that apply to most other domestic or farm scale built structures. Landscape and visual considerations may include the following:

- Effects on designations including landscape quality designations, Scheduled Ancient Monuments, listed buildings, conservation areas;
- Location in relation to scenic viewpoints;
- Relationship to skylines and seascapes;
- Relationship to other structures and buildings;
- Location in relation to approaches to and setting of settlements;
- Proximity to residential properties;
- Localised cumulative effects including potential for visual confusion or cluttering areas with significant numbers of small turbines and/or close proximity to other similar larger structures including taller wind turbines and electricity pylons.

Larger wind turbines are more often than not seen against the sky. The approach to colouring has been to adopt a neutral light grey colour relating to the sky colour most likely to be encountered as a backdrop. Small wind turbines are often fully or partially

backclothed against landforms and/or trees, giving a closer relationship to the ground than the larger structures. It may therefore be appropriate to consider colouring small wind turbines a darker grey, green or brown to reduce their visibility when seen against backdrops, or close to buildings.

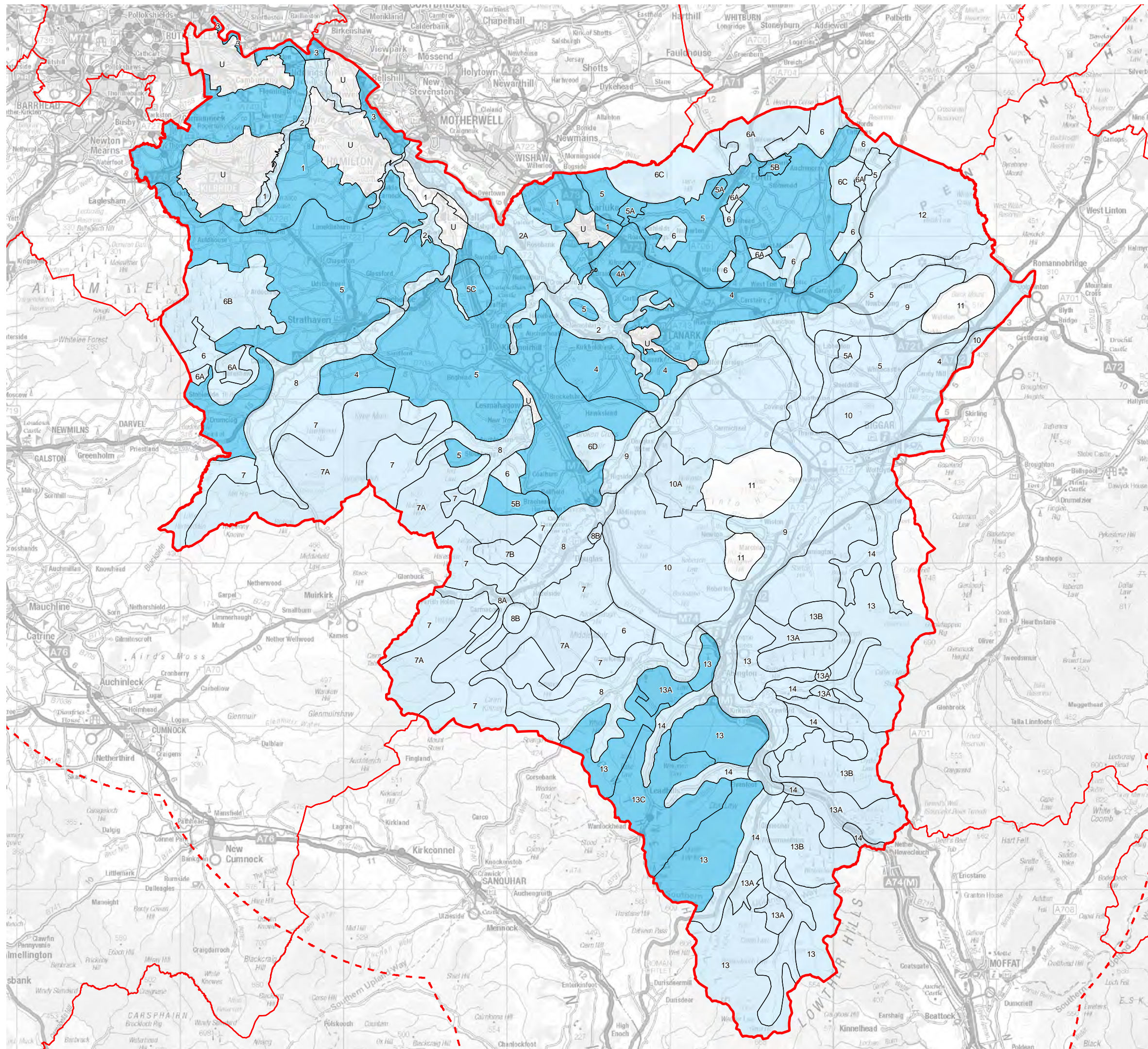
Further guidance on the siting of smaller wind turbines is given by SNH¹⁷.

¹⁷ SNH (March 2012) *Siting and Design of Small Scale Wind Turbines of between 15 and 50 metres in height*

South Lanarkshire Landscape Capacity Study for Wind Energy

February 2016

7948 GIS 111



Legend

- SLC Boundary
- Study Area 15km buffer
- Scottish Local Authority Boundaries
- Landscape Character Areas

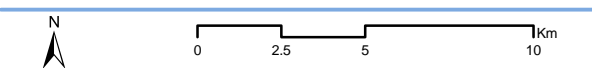
Landscape Capacity (15 to <30m)

- High
- Medium
- Low
- None

Note:
Refer to Table 6.1 for more detail on background assessment and capacity for specific turbine sizes.

Landscape Character Types	
Code	Type
1	Urban Fringe Farmland
2	Incised River Valley
2A	Incised River Valley Broad Valley Floor
3	Broad Urban Valley
4	Rolling Farmland
4A	Plateau Farmland Forestry
5	Plateau Farmland
5A	Plateau Farmland Forestry
5B	Plateau Farmland Opencast Mining
5C	Plateau Farmland Windfarm
6	Plateau Moorland
6A	Plateau Moorland Forestry
6B	Plateau Moorland Forestry Windfarm
6C	Plateau Moorland Windfarm
6D	Plateau Moorland Opencast Mining
7	Rolling Moorland Foothills
7A	Rolling Moorland Forestry
7B	Rolling Moorland Windfarm
8	Upland River Valley
8A	Upland River Valley Incised
8B	Upland River Valley Opencast Mining
9	Broad Valley Upland
10	Foothills
10A	Foothills Forestry
11	Prominent Isolated Hills
12	Old Red Sandstone Hills
13	Southern Uplands
13A	Southern Uplands Forestry
13B	Southern Uplands Windfarm
13C	Southern Uplands Leadhills
14	Upland Glen

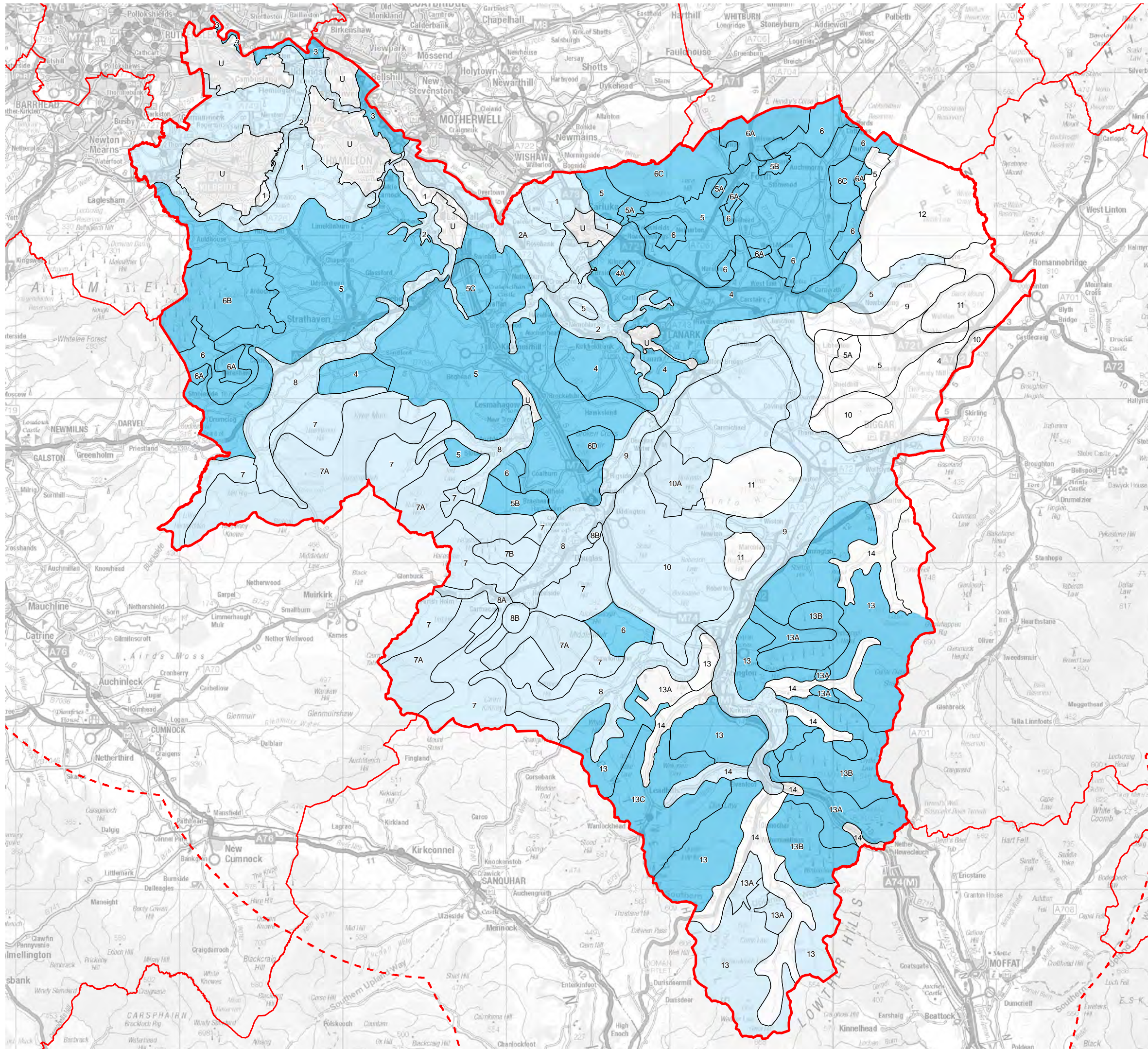
Figure 6.1a
Underlying Landscape Capacity for Wind Turbines (15 to <30m)



South Lanarkshire Landscape Capacity Study for Wind Energy

February 2016

7948 GIS 111



Legend

- SLC Boundary
- Study Area 15km buffer
- Scottish Local Authority Boundaries
- Landscape Character Areas

Landscape Capacity (30 to <50m)

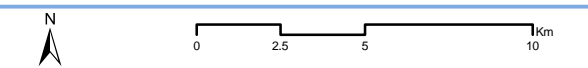
- High
- Medium
- Low
- None

Note:
Refer to Table 6.1 for more detail on background assessment and capacity for specific turbine sizes.

Landscape Character Types	
Code	Type
1	Urban Fringe Farmland
2	Incised River Valley
2A	Incised River Valley Broad Valley Floor
3	Broad Urban Valley
4	Rolling Farmland
4A	Plateau Farmland Forestry
5	Plateau Farmland
5A	Plateau Farmland Forestry
5B	Plateau Farmland Opencast Mining
5C	Plateau Farmland Windfarm
6	Plateau Moorland
6A	Plateau Moorland Forestry
6B	Plateau Moorland Forestry Windfarm
6C	Plateau Moorland Windfarm
6D	Plateau Moorland Opencast Mining
7	Rolling Moorland Foothills
7A	Rolling Moorland Forestry
7B	Rolling Moorland Windfarm
8	Upland River Valley
8A	Upland River Valley Incised
8B	Upland River Valley Opencast Mining
9	Broad Valley Upland
10	Foothills
10A	Foothills Forestry
11	Prominent Isolated Hills
12	Old Red Sandstone Hills
13	Southern Uplands
13A	Southern Uplands Forestry
13B	Southern Uplands Windfarm
13C	Southern Uplands Leadhills
14	Upland Glen

Figure 6.1b

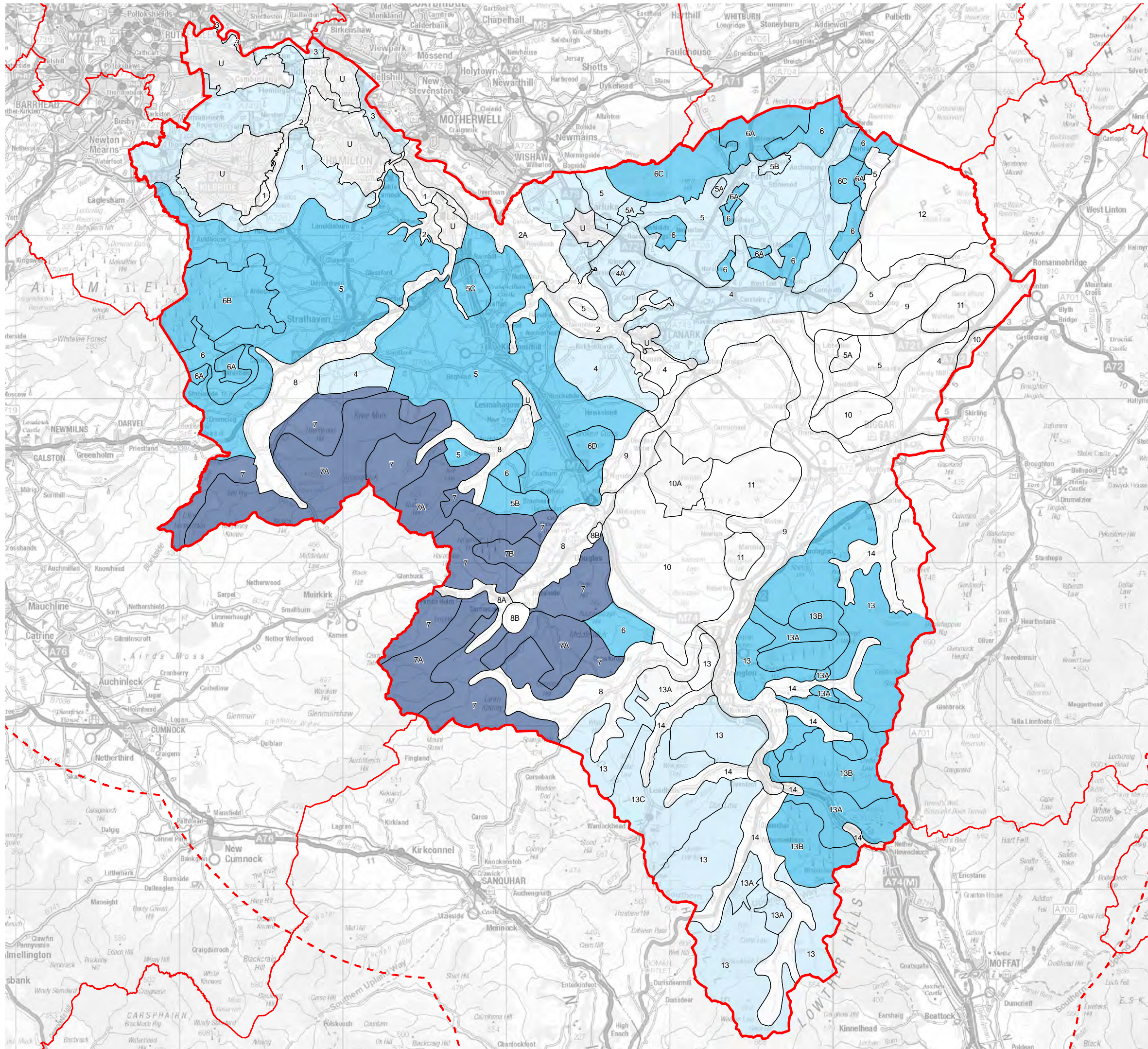
Underlying Landscape Capacity for Wind Turbines (30 to <50m)



South Lanarkshire Landscape Capacity Study for Wind Energy

February 2016

7948 GIS 111



Legend

- SLC Boundary
- Study Area 15km buffer
- Scottish Local Authority Boundaries
- Landscape Character Areas

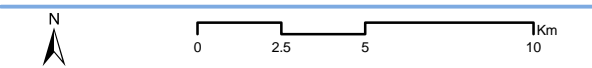
Landscape Capacity (50 to <80m)

- High
- Medium
- Low
- None

Note:
Refer to Table 6.1 for more detail on background assessment and capacity for specific turbine sizes.

Landscape Character Types	
Code	Type
1	Urban Fringe Farmland
2	Incised River Valley
2A	Incised River Valley Broad Valley Floor
3	Broad Urban Valley
4	Rolling Farmland
4A	Plateau Farmland Forestry
5	Plateau Farmland
5A	Plateau Farmland Forestry
5B	Plateau Farmland Opencast Mining
5C	Plateau Farmland Windfarm
6	Plateau Moorland
6A	Plateau Moorland Forestry
6B	Plateau Moorland Forestry Windfarm
6C	Plateau Moorland Windfarm
6D	Plateau Moorland Opencast Mining
7	Rolling Moorland Foothills
7A	Rolling Moorland Forestry
7B	Rolling Moorland Windfarm
8	Upland River Valley
8A	Upland River Valley Incised
8B	Upland River Valley Opencast Mining
9	Broad Valley Upland
10	Foothills
10A	Foothills Forestry
11	Prominent Isolated Hills
12	Old Red Sandstone Hills
13	Southern Uplands
13A	Southern Uplands Forestry
13B	Southern Uplands Windfarm
13C	Southern Uplands Leadhills
14	Upland Glen

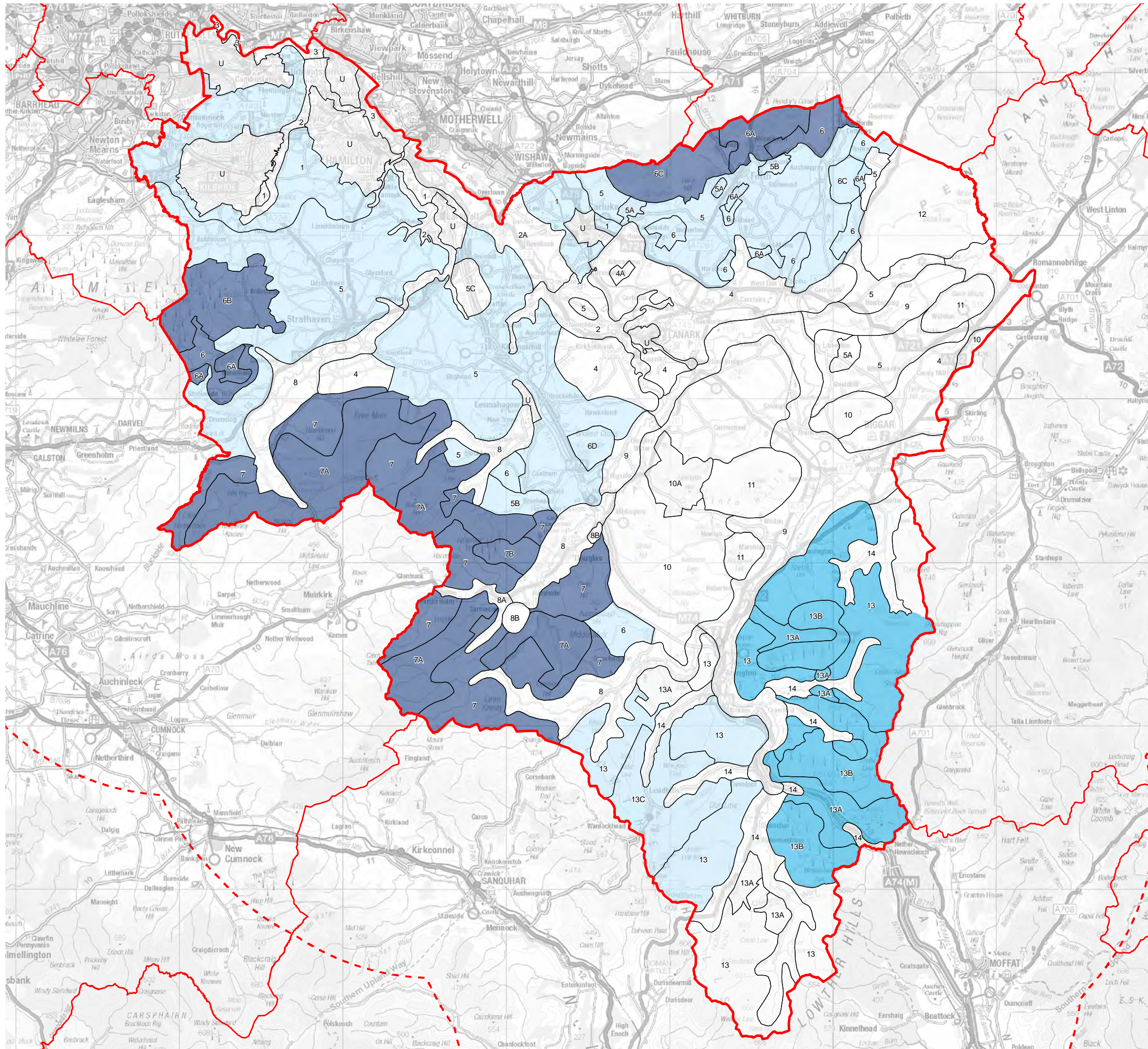
Figure 6.1c
Underlying Landscape Capacity for Wind Turbines (50 to <80m)



South Lanarkshire Landscape Capacity Study for Wind Energy

February 2016

7948 GIS 111



Legend

- SLC Boundary
- Study Area 15km buffer
- Scottish Local Authority Boundaries
- Landscape Character Areas

Landscape Capacity (80 to <120m)

- High
- Medium
- Low
- None

Note:
Refer to Table 6.1 for more detail on background assessment and capacity for specific turbine sizes.

Landscape Character Types	
Code	Type
1	Urban Fringe Farmland
2	Incised River Valley
2A	Incised River Valley Broad Valley Floor
3	Broad Urban Valley
4	Rolling Farmland
4A	Plateau Farmland Forestry
5	Plateau Farmland
5A	Plateau Farmland Forestry
5B	Plateau Farmland Opencast Mining
5C	Plateau Farmland Windfarm
6	Plateau Moorland
6A	Plateau Moorland Forestry
6B	Plateau Moorland Forestry Windfarm
6C	Plateau Moorland Windfarm
6D	Plateau Moorland Opencast Mining
7	Rolling Moorland Foothills
7A	Rolling Moorland Forestry
7B	Rolling Moorland Windfarm
8	Upland River Valley
8A	Upland River Valley Incised
8B	Upland River Valley Opencast Mining
9	Broad Valley Upland
10	Foothills
10A	Foothills Forestry
11	Prominent Isolated Hills
12	Old Red Sandstone Hills
13	Southern Uplands
13A	Southern Uplands Forestry
13B	Southern Uplands Windfarm
13C	Southern Uplands Leadhills
14	Upland Glen

Figure 6.1d

Underlying Landscape Capacity for Wind Turbines (80 to <120m)

