

## APPENDIX C – GIS MAPPING

### MAPPING LAYERS

Geographic Information System (GIS) mapping was undertaken as part of this project in order to help quantify the land availability for utility scale Photovoltaics and Wind generation as well as large-scale afforestation / carbon sequestration.

The methodology employed considered the area within the boundaries of the seven local authorities as a whole. From this, 35 additional mapping layers were overlaid to exclude locations which were deemed not suitable; these varied for each of the three maps generated. Typically, the approach has been conservative where possible such as not including historic landfill sites for solar and only considering areas with wind speeds @45m >6.5m/s.

*Table 1 - GIS Layers*

SR. NO	DATASET AVAILABLE FOR		CARBON			REMARK
	ENGLAND	SOLAR	WIND	SEQUESTRATION		
1	Agricultural Land Classification Grades Post 1988 Survey	Exclude Grade 1, 2, 3a & 5	Exclude Grade 1, 2, 3a & 5	Exclude Grade 1, 2, 3a & 5		
2	Ancient Woodland	Exclude	Exclude	Exclude		
3	Areas of Outstanding Natural Beauty	N/A	N/A	N/A	None in Area of Interest (AOI)	
4	Battlefields	N/A	N/A	N/A	None in AOI	
5	Built Up Areas	Exclude	Exclude	Exclude	100m buffer	
6	Country Parks	Exclude	Exclude	Exclude		
7	Countryside and Rights of Way (CRoW)	Exclude	Exclude	Exclude	Areas of Registered Common Land	
8	Doorstep Greens	Exclude	Exclude	Exclude		
9	England Coast Path Route	N/A	N/A	N/A	None in AOI	
10	Flood Zone2	Include	Include	Exclude		
11	Flood Zone3	Exclude	Exclude	Exclude		
12	Heritage Coasts	N/A	N/A	N/A	None in AOI	
13	Historic Landfill	No	No	Exclude		
14	Listed Buildings	No apply 20m buffer around	No apply 20m buffer around	Exclude	20m buffer	
15	Local Authority Greenbelt boundaries	Exclude	Exclude	Include	Greenbelt land can be planted on, do not Exclude	
16	Local Nature Reserves	Exclude	Exclude	Exclude		
17	Millennium Greens	Exclude	Exclude	Exclude	20m buffer	
18	National Grid Tower	Exclude	Exclude	Exclude	20m buffer	

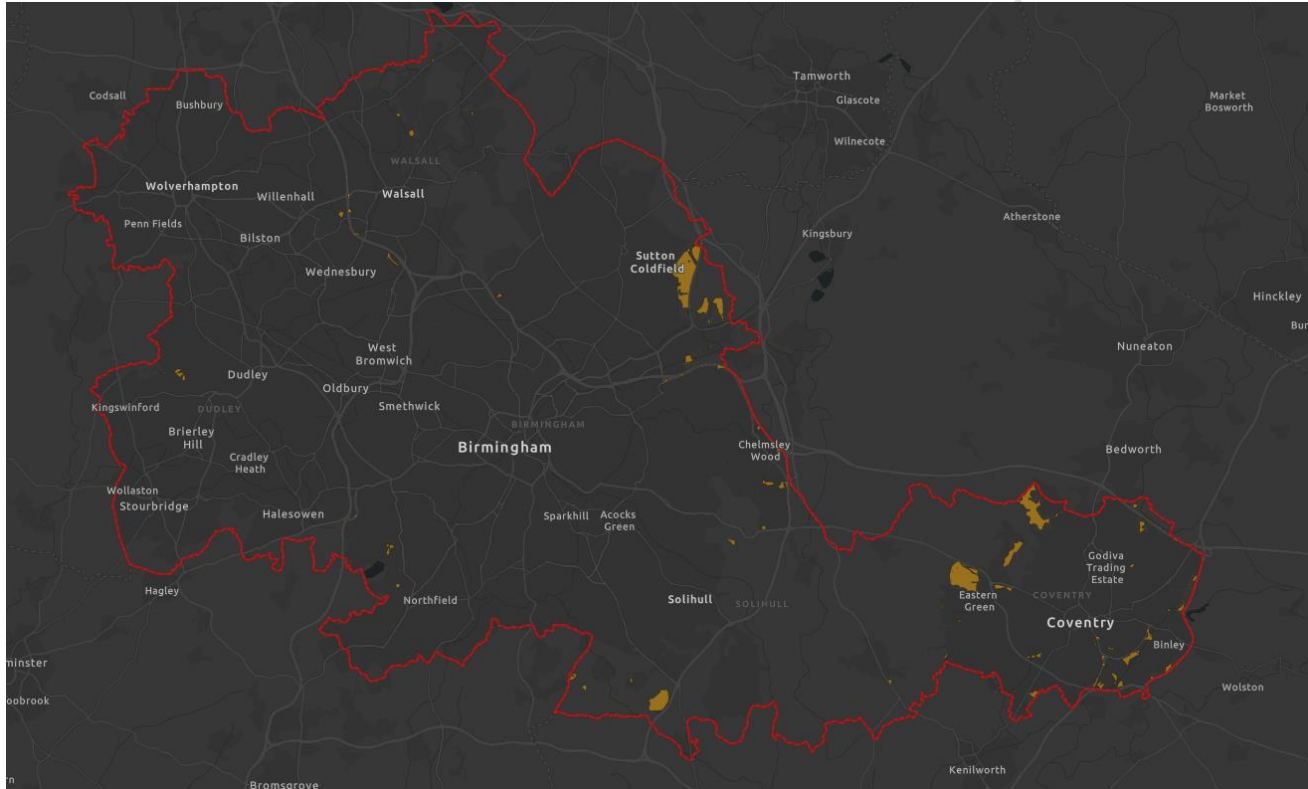


19	National Grid Substation	Exclude	Exclude	Exclude	100m buffer
20	National Grid Cable	Exclude	Exclude	Exclude	10m buffer
21	National Nature Reserves	Exclude	Exclude	Exclude	
22	National Parks	N/A	N/A	N/A	None in AOI
23	National Trails	N/A	N/A	N/A	None in AOI
24	Noabl (Wind Speed)	N/A	Exclude areas <6.5m/s	N/A	Use 45m surface, >=6.5 m/s should be included
25	Parks and Gardens	Exclude	Exclude	Exclude	
26	Permitted Waste Sites Authorised Landfill	Exclude	Exclude	Exclude	
27	Priority Habitat	Exclude	Exclude	Exclude	
28	Provisional Agricultural Land Classification	Exclude Class 1, 2 & 5	Exclude Class 1, 2 & 5	Exclude Class 1, 2 & 5	3 & 4 can be used for all types, do not exclude
29	Ramsar	N/A	N/A	N/A	None in AOI
30	Scheduled Monuments	Exclude	Exclude	Exclude	
31	Sites of Special Scientific Interest	Exclude	Exclude	Exclude	
32	Special Areas of Conservation	Exclude	Exclude	Exclude	
33	Special Protection Areas	N/A	N/A	N/A	None in AOI
34	Statutory Main River	Exclude	Exclude	Exclude	5m buffer
35	World Heritage Sites	N/A	N/A	N/A	None in AOI

## MAPPING RESULTS

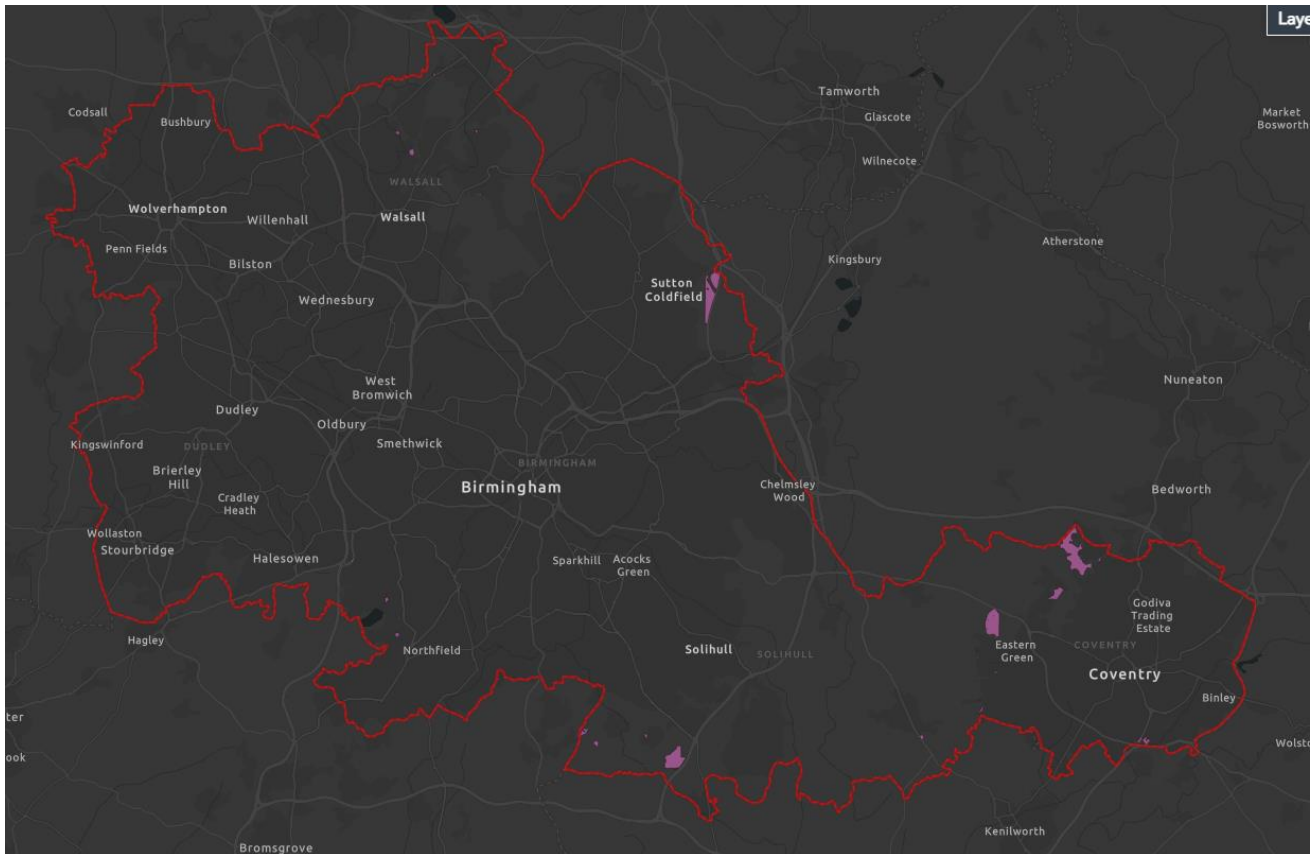
For photovoltaics (solar farms), the 896ha of land was identified (parcels of land over 0.1 ha) and 875ha was identified as being at least 1ha. The trend here was for limited parcels of large areas of land being identified. Eleven parcels of land were identified as part of this assessment as being over 10ha; and totalling 630ha (70% of the total land available). Whilst consideration of DNO connections were not considered at this point, the areas identified should be further investigated and prioritised if considered suitable.

*Figure 1 -GIS Mapping of Solar Capacity (Highlighted in Orange)*



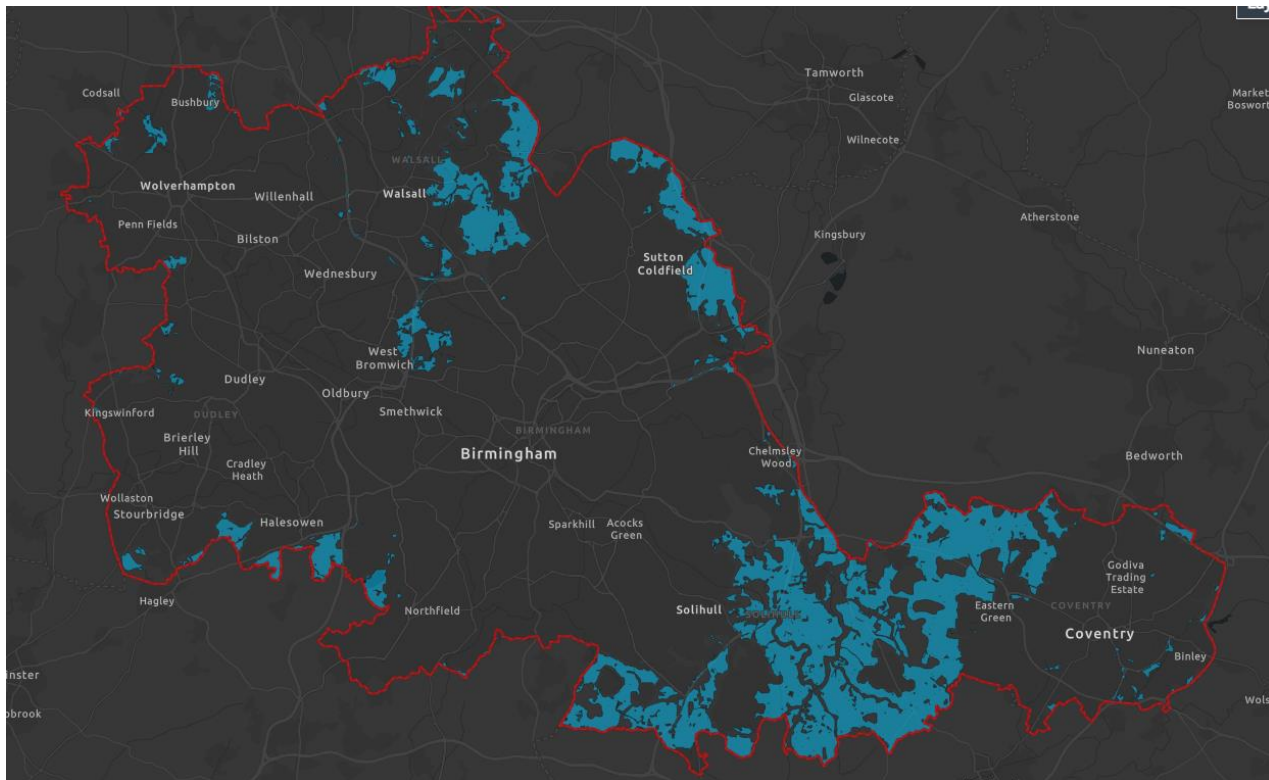
For Wind generation potential, the 389ha of land was identified (parcels of land over 0.1 ha). In total 52 sites were identified. As different wind turbines have different efficiencies, different assumptions were made for the potential of larger land parcels (82% of which was more than 10ha).

Figure 2 - GIS Mapping of Wind Capacity (Highlighted in Pink)



For natural capital (Afforestation), the 13,102ha of land was identified (parcels of land over 0.1 ha) and 13,040ha was identified as being at least 1ha. Again, the trend here was for limited parcels of large areas of land being identified. Nineteen parcels of land were identified as part of this assessment as being over 100ha; and totalling 11,394ha (87% of the total land available).

Figure 3 - GIS Mapping of Afforestation Potential (Highlighted in Blue)



As the three mapping exercises were undertaken independently, there has been no consideration for overlapping areas or prioritisation. As many of the mapping layers considered and criteria used were similar there is overlap in the areas identified. As such it is not viable to undertake all three of these initiatives to their full potential. In addition, this assessment has only considered the techno-economic requirements; practically there are further constraints around land ownership, land use prioritisation and other constraints which will need to be considered.

Table 2 - GIS Summary of Results

	SOLAR FARMS		WIND TURBINES		AFFORESTATION	
PARCEL SIZE	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)
>0.1ha	135	896	52	389	345	13,102
>1ha	76	874	27	379	168	13,040
>10ha	11	631	5	320	59	12,662

In addition to the main afforestation areas available, it was felt important to show how urban trees could provide significant decarbonisation benefits as well as the benefits around the five principles of WM2041, in terms of improving the West Midlands as a place to live across a wider area. To do this the “non-continuous urban” area was identified as locations where trees could be planted, albeit at 3.6% of the density of that used for forestry. These areas are shown below.

*Figure 4 - GIS Mapping of peri-urban tree Potential (Highlighted in Red)*

