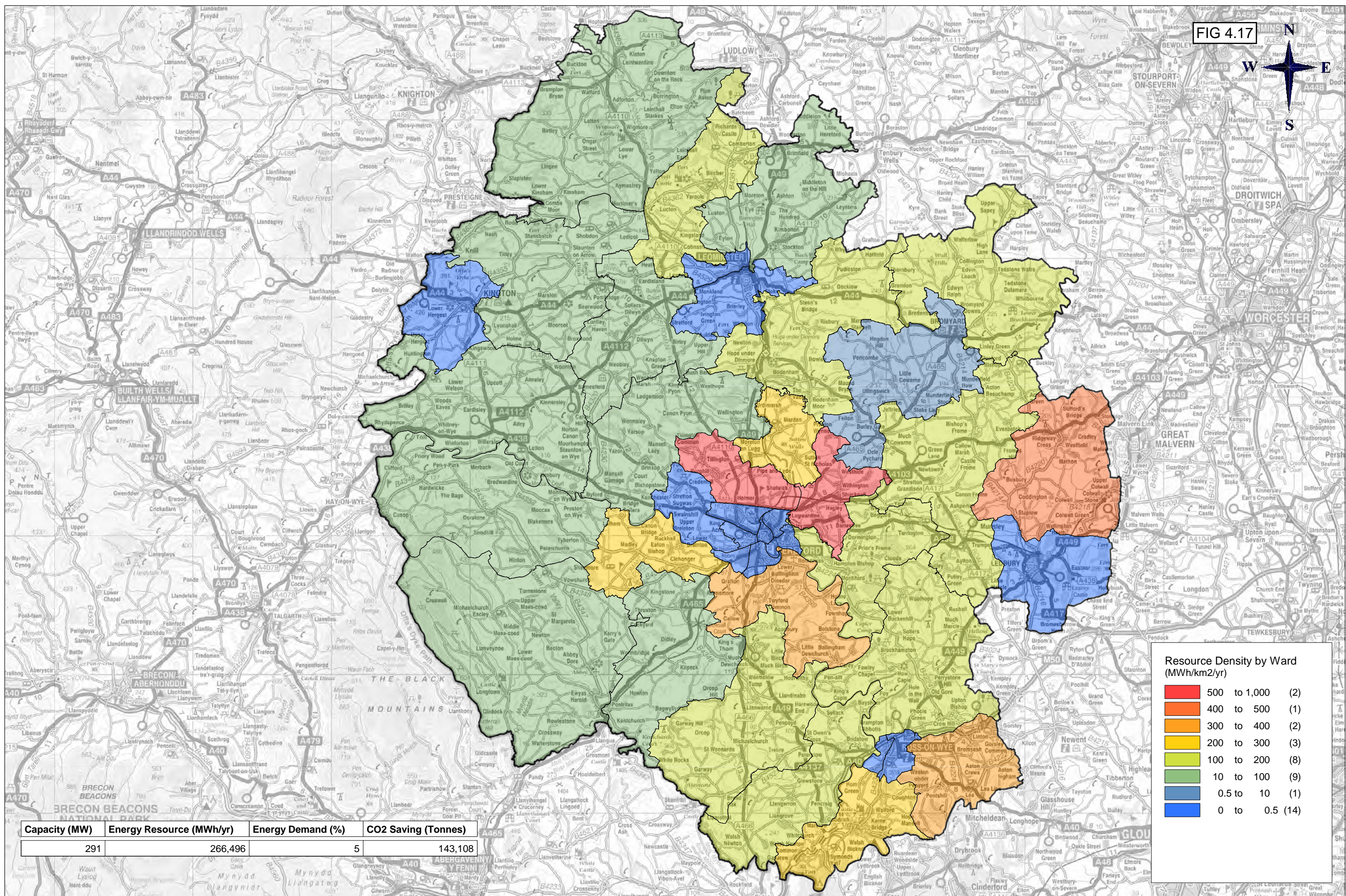


FIG 4.17



Resource Density by Ward (MWh/km2/yr)

Red	500 to 1,000	(2)
Orange	400 to 500	(1)
Yellow	300 to 400	(2)
Light Green	200 to 300	(3)
Green	100 to 200	(8)
Light Blue	10 to 100	(9)
Dark Blue	0.5 to 10	(1)
Blue	0 to 0.5	(14)

Capacity (MW)	Energy Resource (MWh/yr)	Energy Demand (%)	CO2 Saving (Tonnes)
291	266,496	5	143,108

Scale: 1:250 000 @ A3

Client: **wardell armstrong** and **Herefordshire Council**

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Notes: Wind resource energy values have been based on the following benchmarks:
 The wind speeds used were taken from the NOABL database at reference height of 10m and 25m. These were adjusted using a wind speed up calculation to estimate the wind speed at 6m
 Installed capacity was estimated based on the assumption that domestic, commercial and industrial buildings could support a 1.5kW, 6kW, 15kW turbine dependent on building classification (See Appendix for building classification and representative turbine used)
 Individual buildings were identified using the LLPQ database. Addresses with the same coordinates were counted as single buildings.
 Total energy output was derived by matching the wind speed for each turbine with either the Swift 1.5kW, Proven 6kW or Proven 15kW energy curve. Areas with wind speeds below 4.5m/s were excluded from the study
 Energy output for each turbine varied based on the wind speed at the relevant hub height above ground level which was linked back with the turbine energy curve
 The thematic map (colouring) represents potential energy production (MWh/yr) or energy density (MWh/km2/yr)
 The % shown on the map represent the contribution to Herefordshire's electricity demand in 2007 - 5176.62131103582 GWh/y (DECC)
 The carbon saving was calculated based on 0.537kg of carbon / kilowatt hour of electricity produced (DEFRA)

Project Ref: 42-0347
 Drawn: C. Bines
 Checked: S. Clarke

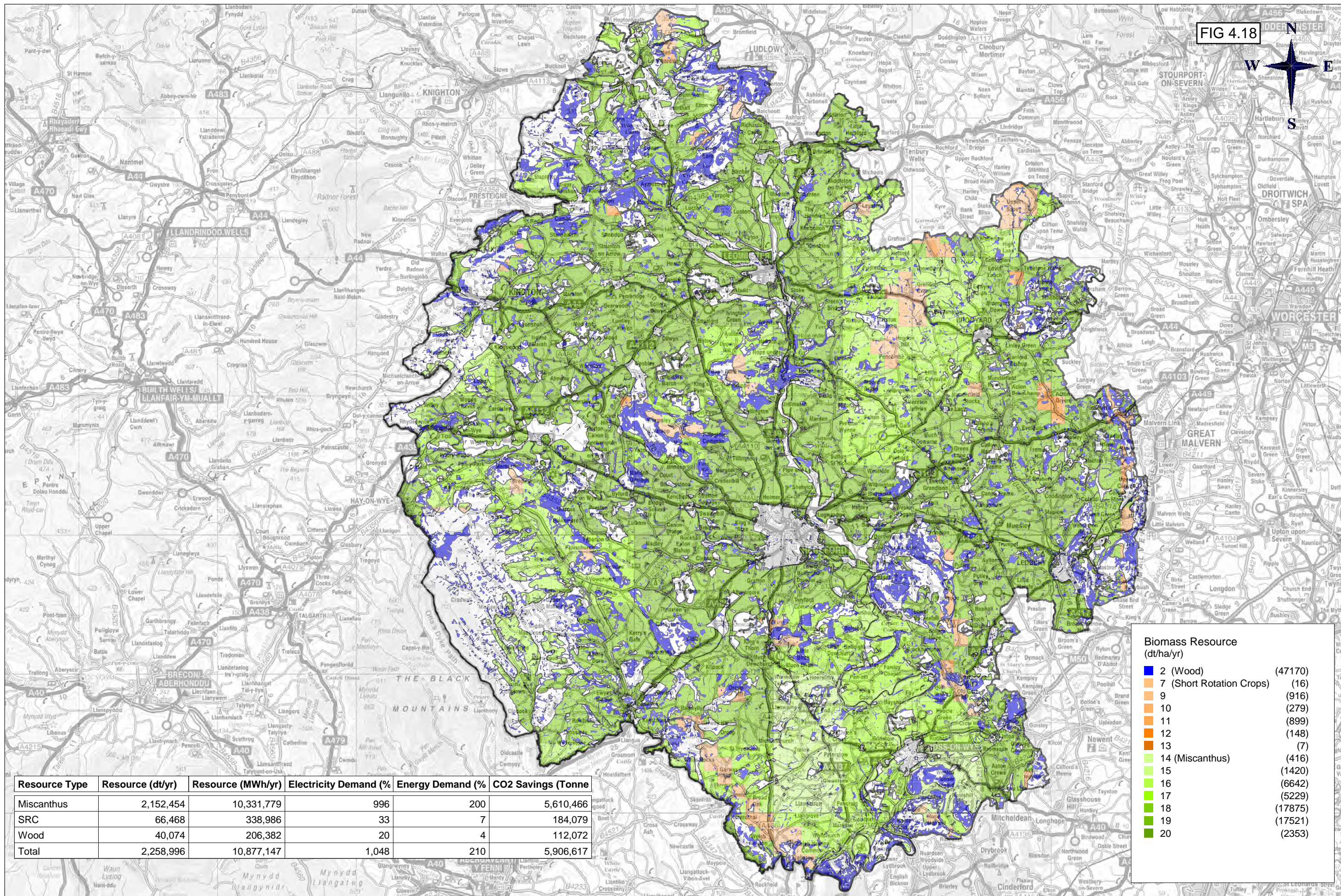
Project Ref: SSWD_WD_RD_420347
 Date: 28 JUL 2010
 Date: 28 JUL 2010

Figure 4.17
 Herefordshire Renewable Energy Study
 Small Scale Wind
 Resource Density by Ward

Project Ref: 42-0347
 Drawn: C. Bines
 Checked: S. Clarke

Date: 28 JUL 2010
 Date: 28 JUL 2010

FIG 4.18



Biomass Resource (dt/ha/yr)	
2 (Wood)	(47170)
7 (Short Rotation Crops)	(16)
9	(916)
10	(279)
11	(899)
12	(148)
13	(7)
14 (Miscanthus)	(416)
15	(1420)
16	(6642)
17	(5229)
18	(17875)
19	(17521)
20	(2353)

Resource Type	Resource (dt/yr)	Resource (MWh/yr)	Electricity Demand (%)	Energy Demand (%)	CO2 Savings (Tonne)
Miscanthus	2,152,454	10,331,779	996	200	5,610,466
SRC	66,468	338,986	33	7	184,079
Wood	40,074	206,382	20	4	112,072
Total	2,258,996	10,877,147	1,048	210	5,906,617

Scale: 1:250,000 @ A3

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Drawing Notes:

Biomass resource energy values have been based on the following benchmarks:
 The Miscanthus and SRC yields were classified based on DEFRA data and broken down further by the Agricultural Land Dataset, also supplied by DEFRA
 Wood yields were based on Ordnance Survey Vector data for Natural Woodland Areas
 Wind speed was taken from the NOAA database at a reference height of 10m above ground level. This was used to intensify SRC growing areas where wind speed > 6.0 m/s @ 10m agl
 The resource was derived from the following conversion factors supplied by the Biomass Energy Centre: Miscanthus - 4.8 MWh/dt, SRC - 5.1 MWh/dt, Wood 5.15 MWh/dt
 The thematic map (colouring) represents resource density (dt/ha/yr)
 The %s shown in the table represent the contribution to Herefordshire's total electricity demand in 2007 - 1037.8450553 and total energy demand in 2007 - 5176.62131103582 GWh/y (DEC)
 The carbon saving was calculated based on 0.543kg of carbon / kilowatt hour of electricity produced (DEFRA).

Project Ref: 348600E : 245900N Map Ref: Landranger Map:149 - OS 100K Ref: S0

Figure 4.18 Herefordshire Renewable Energy Study
 Biomass Resource
 Annual Yield per Hectare

Project Ref: 42-0347 Dwg Ref: BMAS_RES_420347

Drawn: C. Bines Date: 10 AUG 2010
 Checked: S. Clarke Date: 10 AUG 2010