

# **DERBYSHIRE AND DERBY MINERALS LOCAL PLAN**

## **Towards a Minerals Local Plan: Spring 2018 Consultation**

### **CHAPTER 2**

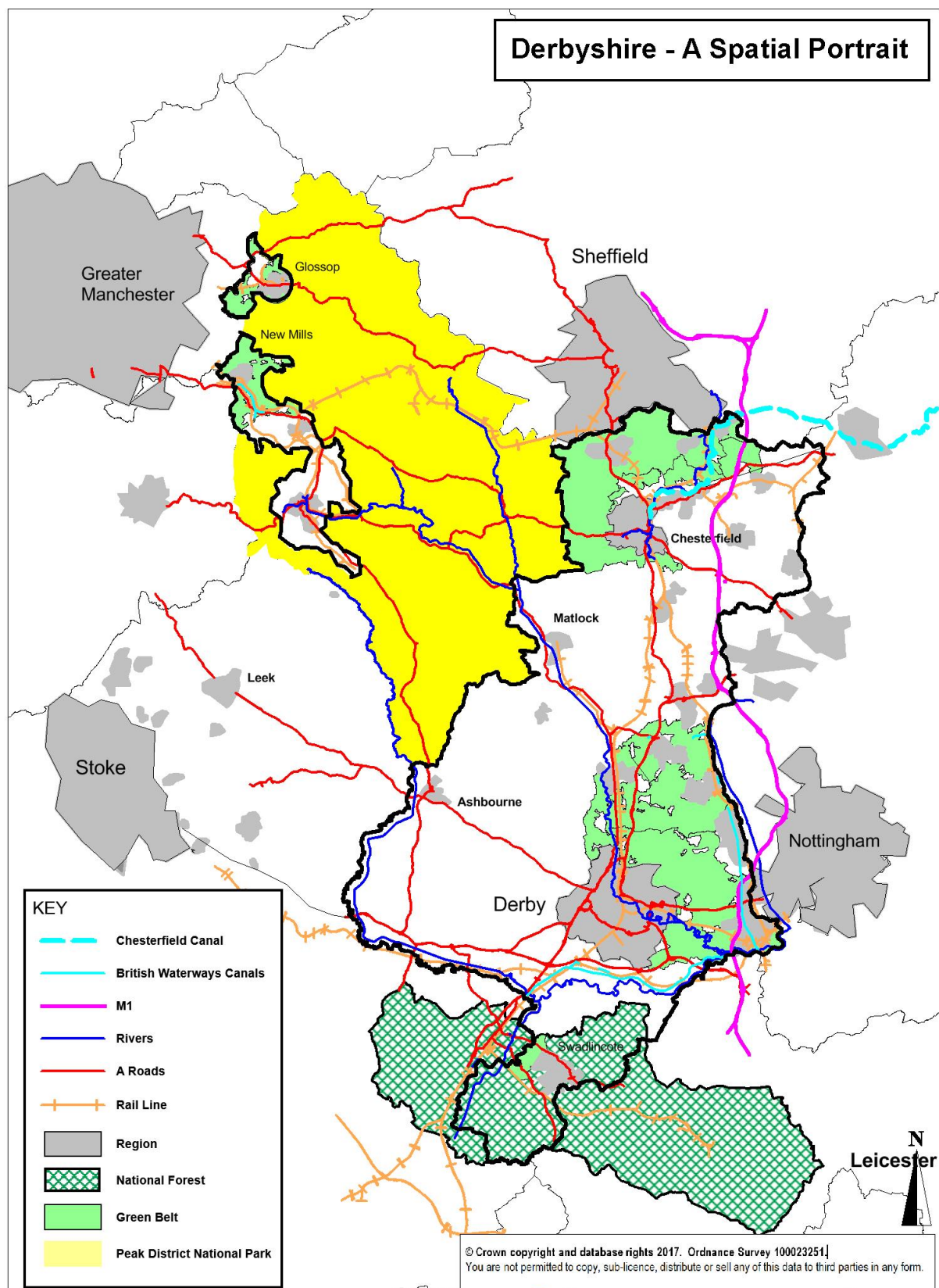
### **SPATIAL CONTEXT**

**December 2017**

## **Introduction**

- 2.1 Derbyshire is renowned for its stunning and diverse landscapes, which underpin a valuable leisure and tourism industry. The underlying mineral resources have, to a large degree, helped shape these landscapes. The county is a national leader in minerals production, exhibiting a wealth and diversity of important mineral resources, which bring significant benefits to the area and the UK as a whole, in terms of jobs and economic prosperity and the many products derived from minerals which underpin our modern way of life. Appropriately restored mineral sites have also been of benefit to the environment and biodiversity interests and from the new uses which have been made of restored sites. Mineral development can also bring negative impacts, particularly in terms of the social and environmental impact of extracting the minerals.
- 2.2 Derbyshire and Derby cover a total area of 983 square miles (including the area of the Peak District National Park (PDNP) which lies within Derbyshire). The Plan area (as shown on Map 1) does not include the PDNP, which covers much of the north-west of the county. Within the county of Derbyshire, there are eight district and borough councils; Amber Valley Borough, Bolsover District, Chesterfield Borough, Derbyshire Dales District, Erewash Borough, High Peak District, North East Derbyshire District and South Derbyshire District. Derby City is a unitary authority, situated in the southern part of the Plan area.
- 2.3 Map 1 gives a broad picture of the geography of Derbyshire and Derby. It shows the National Park, a largely upland area which makes road transport difficult, and it shows the main roads and railways, river valleys, towns and other features. Also, it shows the major cities, such as Sheffield, Nottingham and Manchester, which are outside the Plan area but are important markets for some of its minerals.
- 2.4 There are a number of market towns in the Plan area, including Glossop and Buxton in the north-west, Chesterfield and Bolsover in the north-east, Matlock and Alfreton in the central area and Ashbourne and Swadlincote towards the south. These urban areas are separated by large rural areas, particularly in the north-west, central and southern parts of the Plan area. The eastern part of the Plan area is, in general terms, of a more urban nature than the other parts of the Plan area.

Map 1: Derbyshire and Derby



## Population

- 2.4 At the 2011 Census, Derbyshire had a population of around 769,700 and Derby City had a population of 248,700<sup>1</sup>. The majority of the population of Derbyshire lives in urban areas, with around three-quarters of the population living in settlements in the eastern half of the county. By 2035, Derbyshire and Derby is expected to have a population of approximately 1,110,000 people, an increase of about 8% on the figure for 2011<sup>2</sup>.
- 2.5 The City of Derby, with a population of some 250,000, is the largest settlement and lies in the south of the county. Chesterfield, in the north-east of the county, is the other major town, having a population of around 100,000<sup>3</sup>.
- 2.6 In 2011, there were about 435,000 households in Derbyshire. By 2021 this is expected to have risen to about 474,000 households, or by about 9%.<sup>4</sup> In terms of construction of new dwellings, the most recent figures provided by the individual local authorities suggest an annual increase in homes of about 3,500 per annum.<sup>5</sup> Much of this will be in Derby and parts of southern Derbyshire.

## Economic and Social Conditions

- 2.7 Derbyshire and Derby has a diverse and thriving economy. Following the recession of 2008, the local economy began to recover in 2013 and this growth has continued. This should help to maintain the demand for minerals. It is a county of great variety, much of it rural in character, but it also contains a number of urban areas, which are based historically on coal mining and other heavy industries. Some of the older urban areas also contain significantly deprived populations, especially in Derby and within the former coalfield areas. Within these areas, there are thirty seven Super Output Areas<sup>6</sup> which are amongst the 10% most deprived areas in the country.<sup>7</sup>
- 2.8 As in all areas, there are strong correlations between health and deprivation, so the most deprived areas of the county, in terms of health, are in areas within Bolsover, Chesterfield and North East Derbyshire Districts. Overall, the general health of residents is worse than the national and regional averages, with 6.1% of people

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<sup>1</sup> ONS, 2012, Population and Household Estimates for England and Wales.

<sup>2</sup> Oxford Economics, 2013, Derbyshire County Council Employment Forecast Report, p14.

<sup>3</sup> Oxford Economics, 2013, Derbyshire County Council Employment Forecast Report, accompanying tables.

<sup>4</sup> Household Interim Figures, x

<sup>5</sup> Figures compiled from most recent district council consultation papers, April 2013.

<sup>6</sup> Super output areas (SOAs) were designed to improve the reporting of small area statistics and are built up from groups of output areas.

<sup>7</sup> English Indices of Deprivation, 2010,

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/6872/1871524.xls](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6872/1871524.xls) accessed 23/05/2013.

suffering 'bad' general health compared to 5.5% in England and 5.6% in the East Midlands.<sup>8</sup>

2.9 In contrast to the areas' historic industrial base, employment is now dominated by the service industries (>70%). Employment in manufacturing industries (≈15%) however remains high compared to the national average (≈8%). In 2011, around 1.8% of people aged 16-74 were employed directly in the mining and quarrying and utilities industrial sector<sup>9</sup>, which was the same as the regional figure and slightly higher than the national average (1.4%). Related transport and support services also provide some employment. The largest proportions of workers from this sector are found in the limestone quarrying areas of Buxton and Wirksworth. Despite there having been a very significant decline in employment levels in the mining and quarrying sector over the last three decades, especially as a result of the decline of the coal industry, Derbyshire has maintained its position as a national leader in minerals production.

2.10 In August 2017, the unemployment rate in Derbyshire (1.3%) and Derby (1.7%) was broadly in line with the national average (1.9%). Youth unemployment (2.1%<sup>10</sup>) was significantly lower than the national average (11.9%)<sup>11</sup>. It should be noted that the average rate masks significant variations between different parts of the county, with some areas, such as parts of inner Derby or the former coalfield areas around Chesterfield having significantly higher levels of unemployment.<sup>12</sup>

## **Transport**

2.11 The Plan area generally has a good quality road transport network, which provides excellent links to other regions, particularly to the north and the south via the M1, the A38 and the A61. The A50 provides an important link to the M6 to the west and the A42 to the south of the Plan area provides links to the M5. It is easily accessible, therefore, to and from a number of large neighbouring conurbations, including Manchester, Sheffield, Leeds and Nottingham. In line with the rest of the country, traffic levels have increased significantly throughout the Plan area over the last few decades, but at a slightly slower rate than the regional average.

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<sup>8</sup> 2011 Census.

<sup>9</sup> 2011 Census.

<sup>10</sup> [https://observatory.derbyshire.gov.uk/IAS/Custom/Resources/Economy/Unemployment/muninfo\\_Aug17.pdf](https://observatory.derbyshire.gov.uk/IAS/Custom/Resources/Economy/Unemployment/muninfo_Aug17.pdf)

<sup>11</sup> <http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN05871>

<sup>12</sup> 2011 Census.

- 2.12 A significant issue in the Plan area in relation to transport is the impact of heavy lorries, including mining and quarrying traffic, on local communities and other road users. In some areas, heavy goods vehicles can account for up to 25% of traffic<sup>13</sup>.
- 2.13 There is a somewhat fragmented railway system in the county with five separate operators running trains through the area. Only one freight operator (EWS), however, transports minerals in Derbyshire.
- 2.14 There is some limited potential for the transportation of minerals on inland waterways i.e. rivers and canals, but this form of transport is not currently used in the Plan area.
- 2.15 In terms of air quality, a number of areas suffer from air pollution, mainly associated with traffic, and within the Plan area, seven areas are covered by Air Quality Management Areas (AQMAs). These are in Derby (2), Erewash (2) and Bolsover (3). A further one is proposed for the A61, A617 and A619 corridors through Chesterfield.

### **Natural and Historic Environment**

- 2.16 The geology of a landscape is a key determinant of landscape character, its habitats and the historic evolution of an area; at the same time it is inextricably linked to the mineral resource.
- 2.17 The county contains a variety of very different landscapes, from the upland limestone plateau and gritstone moorlands in the north of the county adjacent to the Peak District National Park, through the rolling pasture lands in the central area to the broad river valleys in the south. Many parts of the county exhibit the legacy of large-scale mineral extraction; for example the limestone quarries in the north and west of the county and the former coal mining areas in the east.
- 2.18 The landscape of Derbyshire attracts significant numbers of tourists and day visitors, who provide important economic benefit to the county.
- 2.19 Much of the county is worked as farmland, almost all of which is classified under the Agricultural Land Classification (ALC) as grade 3 and 4, with a small amount of grade 2 land to the south of Ashbourne.
- 2.20 Ancient Woodland has been assessed by Natural England, and suggests that Derbyshire contains one of the five biggest areas of interconnected ancient woodland in the country. This is focused within the Peak Fringe and the Lower Derwent Valley.

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<sup>13</sup> Derbyshire Local Transport Plan 2011-2026.

Part of the National Forest lies within the south of Derbyshire around Swadlincote and Melbourne. This is shown on Map 1 above.

2.21 The three main rivers in the county are the Trent, the Derwent and the Dove. All the rivers have important flood defence regimes, including functional flood plains, which need protecting, especially with the additional stress put on them from the potential effects of climate change. Mineral extraction presents an opportunity to restore and improve the quality of many stretches of heavily modified rivers, through the redesign of floodplains during restoration.

2.22 There are significant areas of ecological importance in the Plan area, which support valuable populations of national and local Biodiversity Action Plan (BAP) priority species. Changes in farming practices and other factors over the past 50 years have, however, resulted in the loss of hedgerows, wetlands, floodplains and other habitats.

2.23 Special Areas of Conservation (SACs) are designated under the EC Habitats Directive and form part of the Natura 2000 Network of internationally important wildlife sites. Special Protection Areas (SPAs) are areas of international importance for the breeding, feeding, wintering or the migration of rare and vulnerable species of birds found within European Union countries. They are European designated sites, classified under the 'Birds Directive 1979'. SACs and SPAs in Derbyshire, outside the Peak District National Park, are:

- Bees Nest and Green Clay Pits on the south-eastern edge of the Peak District;
- Gang Mine; also on the south-eastern edge of the Peak District; and
- River Mease on the border of South Derbyshire and Leicestershire
- South Pennine Moors SAC (Goyt Valley, west of Burbage and Darley Forest, north of Darley Dale). Also designated as the Peak District Moors SPA
- Peak District Dales SAC (Wye Valley near Buxton, small area outside the PDNPA), Matlock Woods SSSI and Via Gellia Woods SSSI).

2.24 In terms of other designations for biodiversity, there are 87 Sites of Special Scientific Interest (SSSIs); 1 National Nature Reserve (at Calke Abbey, 12 km south of Derby, managed by the National Trust); and around 1200 local wildlife sites and 101 Regionally Important Geological Sites, half of which lie within the Derbyshire Dales area.

- 2.25 The Plan area has a wealth of archaeological and historic features and sites, with 9,500 entries on the Sites and Monuments Record; 476 Scheduled Monuments; 5,941 Listed Buildings and 486 Conservation Areas. Registered Historic Parks and Gardens include Sudbury, Calke Abbey, Hardwick Hall and Kedleston Hall, and there is also a wealth of other very high quality mansion houses and their associated estates, such as Melbourne Hall. The Derwent Valley Mills World Heritage Site, lying between Matlock Bath and Derby, is of international importance and is also a significant tourist attraction. Creswell Crags in the north-east of the county is a candidate World Heritage Site, in part because it is the location of the only Upper Palaeolithic cave art so far discovered in Britain.
- 2.26 The nature of the archaeological heritage of the county is very dependent on the underlying geology, which influences both the character and type of the surviving remains and nature of their survival.

## **A Profile of Minerals in Derbyshire and Derby**

- 2.27 The underlying geology has shaped the landscape of the Plan area, giving rise to its diverse and contrasting characteristics. The limestones, sandstones and coal measures, which are today exploited commercially, were formed during the Carboniferous, Permian and Triassic Periods, which covered the time between 354 and 200 million years ago. The river valley sand and gravels were laid down much more recently, during the last ice age (around 14,000 years ago). Rocks were eroded by the glacial melt waters and deposited as sand, gravel and silt materials in wide tracts alongside the major rivers.

### **Mineral resources**

- 2.28 The majority of mineral resources<sup>14</sup> in the Plan area are in Derbyshire. There are only limited resources of sand and gravel in Derby City and these are not currently worked.
- 2.29 In terms of quantity, by far the most significant mineral extracted in Derbyshire is limestone, accounting for over 80% of all minerals produced (by weight) in the county. The next most significant mineral produced is sand and gravel (about 9%).
- 2.30 Minerals extracted in smaller amounts include coal (about 5%), vein minerals (mainly fluorspar & barytes), gas, sandstone, silica sand & clay and shale (unknown quantities,

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<sup>14</sup> Figures used in this section come from the 2013 Derby & Derbyshire Aggregates Survey, the 2010 Coal Authority Returns and the 2010 Minerals Year Book.



but likely to each be less than 1% of the total county production by weight). Although the tonnage of these minerals extracted is low compared to that of limestone and sand and gravel, their higher value per tonne often makes them very significant in economic terms. They are used by several nationally important industries, such as brick making, electricity generation and steel making.

2.31 The Minerals Local Plan notes that Derbyshire's other minerals, namely gypsum, ironstone, ganister and peat have been worked in the past. However, in view of their limited occurrence in Derbyshire, they are unlikely to be worked in this county again in the foreseeable future. In some cases (for example, ganister) their use has largely been superseded by other minerals or by changes in process technology.

2.32 Derbyshire's production of limestone is highly significant in national terms, providing about 20% of England's overall production. Minerals such as sand and gravel provide a smaller proportion of England's mineral production (sand and gravel about 2% and coal about 6%), but are still important both in local and regional terms.

### **Distribution of Mineral Resources**

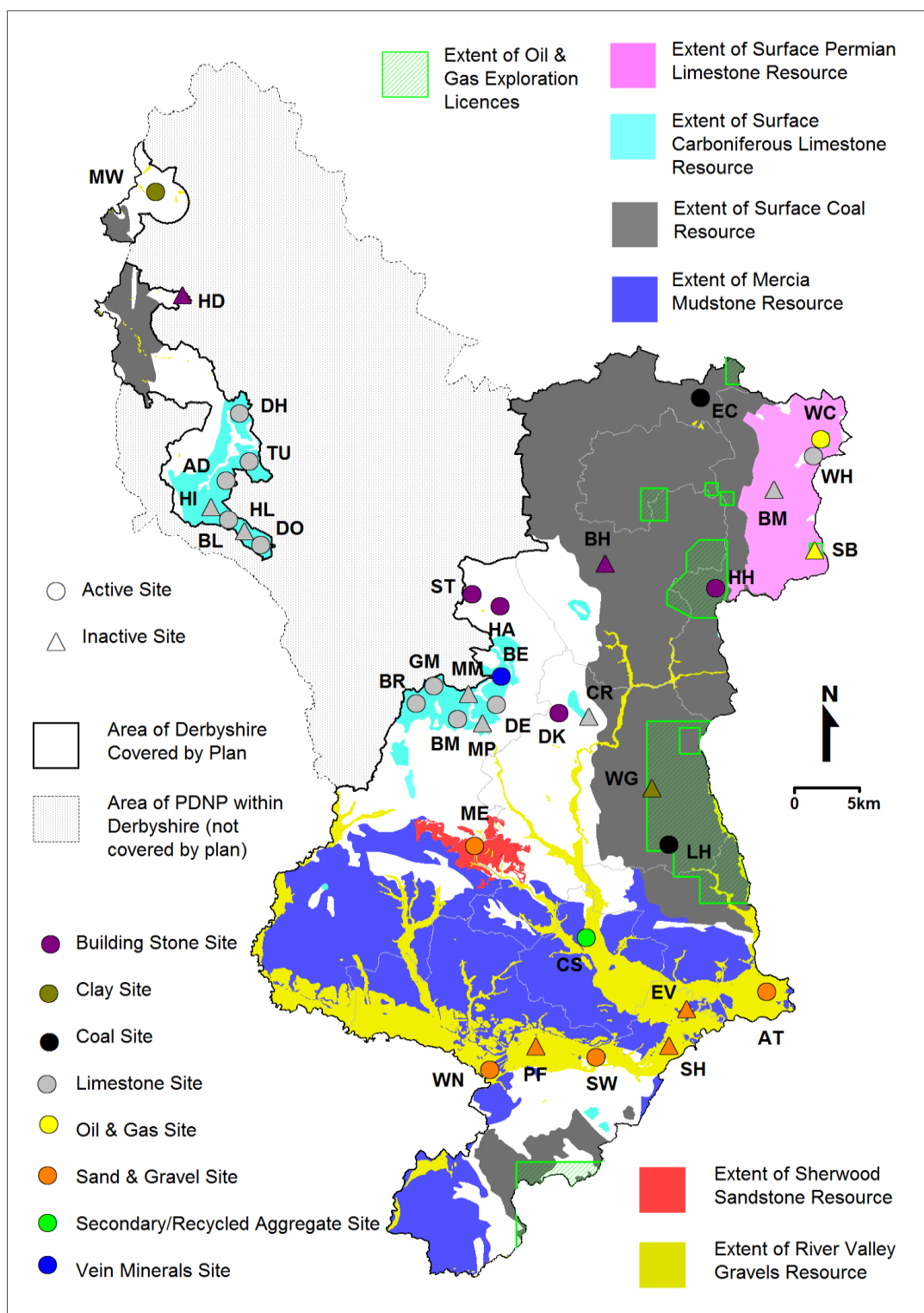
2.33 As shown by Map 2 below; large areas of the Plan area have some potential for the extraction of a wide variety of valuable mineral resources.

2.34 Limestone resources, whether of aggregate or industrial quality, are located mainly in the north-west of the county (Carboniferous), in the Matlock/Wirksworth area (Carboniferous) and in the north-east area of the county, east of Bolsover (Permian). In 2016, there were a total of twelve active quarries within Derbyshire extracting limestone, of which eleven exploit the Carboniferous resource and one the Permian resources.

2.35 Sand and gravel resources are concentrated along the river valleys, the most important being the Trent Valley to the south of Derby, as well as the adjoining river valleys of the Lower Derwent and Dove. In 2016, there were three active operations spread along the Trent Valley.

2.36 There is a less widespread sand and gravel deposit in the hard rock formation of the Sherwood Sandstones (whilst these are called sandstones they are poorly consolidated and are used in the same way as traditional sands and gravels). It is found in a small area around Mercaston, between Ashbourne and Belper. This resource is currently worked in one quarry at Mercaston.

**Map 2: Significant mineral resources and permitted sites in 2016 (locations indicative).**



- 2.37 There remain substantial resources of coal in the exposed coalfield, particularly in the east of the county in the North Derbyshire Coalfield, despite the cessation of large scale coal production in the 1990s. Whilst some surface coal resources remain in South Derbyshire, this coalfield is of a limited size and is now largely exhausted by previous surface mining operations.
- 2.38 Additionally, there is a potential resource of deep coal in north-east Derbyshire contiguous with the surface coal resource shown on the map, and dipping beneath the Permian Limestone to the east. However, development of a new deep mine or the re-opening of a closed deep mine seems unlikely due to very high costs. It is unlikely also that this resource would be suitable for coal bed methane extraction as a result of the low methane content and uncertainty over the permeability of the coals.
- 2.39 The most important economic resources of clay and shales are of Carboniferous age and are associated with the Millstone Grit and the coal measures, the latter being also a potential source of fireclays. The Mercia Mudstones are found in a band in the south of the county, as shown on Figure 3 but currently are not of economic importance.
- 2.40 In the UK, workable deposits of vein minerals, such as Fluorspar and Barytes are found exclusively in mineralised veins and related deposits in the Carboniferous Limestone. Fluorspar occurs in only two areas in the UK – the Northern Pennines and the Southern Pennines. Production in the northern area (Durham) ceased in 1999, leaving the Peak District area as the remaining potential source. However, production of these minerals in the Plan area is limited, with extraction opportunities arising from the quarrying of limestone. The majority of national supply comes from sites within the Peak District National Park.
- 2.41 Building stone (mostly sandstone and gritstone, but including some limestone) is produced mainly from small quarries in the central part of Derbyshire around Matlock and Darley Dale, but also from the north-west of the county around Hayfield and Glossop.
- 2.42 There is some potential for finding conventional oil and gas deposits in Derbyshire, particularly to the east of Calow, Hardstoft and Ironville on the western margin of the East Midlands oil province. The area to the west has less potential because the main East Midlands reservoir sands, which hold the oil deposit, are absent or only shallow here. One site within Derbyshire currently produces methane from an abandoned coal mine.

2.43 There are very limited natural deposits of Silica Sand in Derbyshire and these lie near Brassington. They have been worked to some extent in the past, with little likelihood of being worked in the foreseeable future.

2.44 There are a number of permanent, dedicated recycled aggregates production facilities (e.g. Chaddesden Sidings and Cotes Park Industrial Estate) in the area together with other, smaller sites which incorporate recycled aggregate production as part of their wider waste management operations. There are also a number of temporary mobile recycling operations within the county.

### **Mineral Reserves**

2.45 At 31<sup>st</sup> December 2016<sup>15</sup>, current reserves (i.e. that part of the overall mineral resource that has planning permission to be worked) of limestone for aggregate uses totalled some 639 million tonnes, enough to last for over 90 years at Derbyshire's current level of annual apportionment. Reserves of industrial limestone are estimated to be around 182 million tonnes.

2.46 Reserves of sand and gravel are significantly lower, standing at 12.53 million tonnes at the end of 2016. Based on Derbyshire's current level of apportionment, it is likely that these reserves will last for around 12 years.

2.47 The last traditional deep mined colliery in Derbyshire closed in 1993 so all recent production has been from surface coal mining operations, apart from a small drift mine near Eckington which produces up to 20,000 tonnes per year and operates by virtue of a planning permission that expires in 2023. At present there are no other coal mining sites in operation.

2.48 In Derbyshire, there are three quarries that produce stone specifically for building purposes. Larger quarries, producing mainly aggregate as their principal product, also produce some quantities of building stone to order, as an ancillary product. In 2016, the quarries produced around 180,000 tonnes of building stone.

2.49 There is currently one site in Derbyshire producing gas (abandoned mine methane) at the former Whitwell Colliery. It is known that parts of the area are underlain by methane bearing shale but information about the scale of this resource and its commercial viability is limited.

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<sup>15</sup> Annual Minerals Survey, 2016

## **Contribution to the Local Economy**

2.50 Derbyshire is a national leader in the provision of minerals. As a result, the minerals industry plays an important and positive role in benefitting the economy of Derbyshire. In 2015, 1,739 people were employed by the mining and quarrying industry in Derbyshire (incl. the Peak District National Park), 642 of these in direct employment and 1097 employed by related contractors and as drivers<sup>16</sup>. We estimate that up to 50 million pounds is paid annually in salaries to employees in the minerals industries in Derbyshire, with many of these jobs located in rural areas where employment can be scarce.

2.51 The minerals industry in Derbyshire also supports a network of production and processing facilities, such as the cement works at Tunstead. In turn, these industries supply the raw materials for other essential industries, such as construction.

## **Do you have any comments on the Spatial Context?**

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<sup>16</sup> Annual Mineral Raised Inquiry Survey 2015.