BRITISH GEOLOGICAL SURVEY

DOE

STAFFORDSHIRE

(excluding the Peak District National Park)

A Summary of Mineral Resource Information for Development Plans

Mineral Resources (other than sand and gravel)

Scale 1:100 000

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Topography based on the Ordnance Survey 1:100 000 scale County maps.
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Positions of Scheduled Monuments at 31st March 1994 as supplied by English Heritage.
Monuments scheduled or descheduled since that date are not accounted for.

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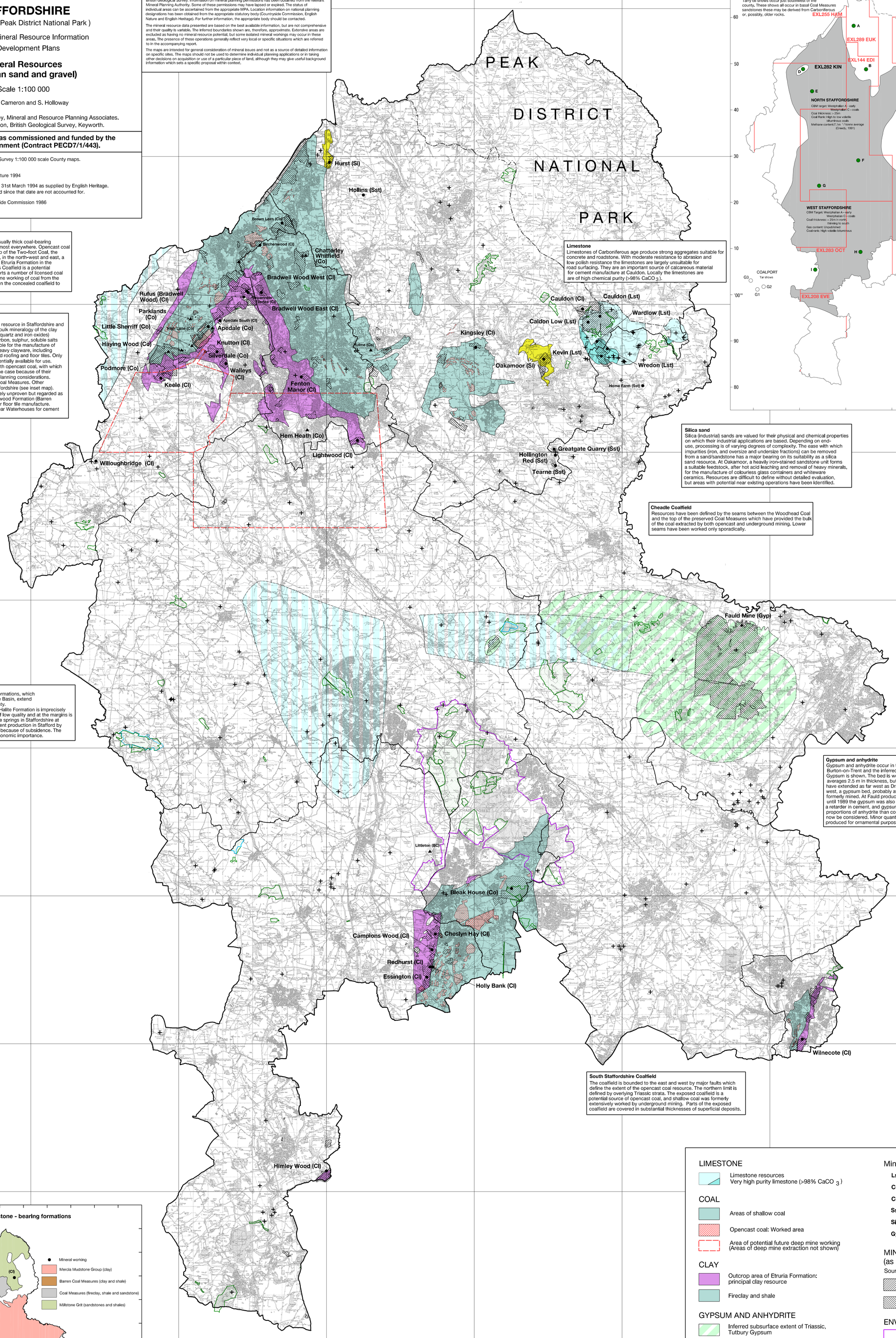
AIMS AND LIMITATIONS

The purpose of the maps and associated reports in this series is to show the broad distribution of those mineral resources which may be of current or potential economic interest and to relate these to selected nationally-recognised planning constraints. The maps are intended to assist in the consideration and preparation of development plan policies in respect of mineral extraction and the protection of important mineral resources. They bring together a wide range of information, much of which is scattered and not always available in a convenient form.

The maps have been produced by collation and interpretation of mineral resource data principally held by the British Geological Survey. Information on mineral planning permissions has been obtained from the relevant Mineral Planning Authority. Some of these permissions may have lapsed or expired. The status of individual areas can be ascertained from the appropriate MPA. Location information on national planning designations has been obtained from the appropriate statutory body (Countryside Commission, English Nature and English Heritage). For further information, the appropriate body should be contacted.

The mineral resource data presented are based on the best available information, but are not comprehensive and their quality is variable. The inferred boundaries shown are, therefore, approximate. Extensive areas are excluded as having no mineral resource potential, but some isolated mineral workings may occur in these areas. The presence of these operations generally reflect very local or specific situations which are referred to in the accompanying report.

The maps are intended for general consideration of mineral issues and not as a source of detailed information on specific sites. The maps should not be used to determine individual planning applications or in taking other decisions on acquisition or use of a particular piece of land, although they may give useful background information which sets a specific proposal within context.



Potteries Coalfield
The Potteries Coalfield contains an unusually thick coal-bearing sequence, but the seams are inclined almost everywhere. Opencast coal resources have been defined by the crop of the Two-foot Coal, the lowest coal of current economic interest, in the north-west and east, a major fault in the west and the overlying Etruria Formation in the south. The exposed part of the Potteries Coalfield is a potential source of opencast coal and also supports a number of licensed coal mines. Areas of potential future deep mine working of coal from the Hem Heath and Silverdale mines occur in the concealed coalfield to the south.

Clay
The Etruria Formation is the principal clay resource in Staffordshire and one of the most important in Britain. The bulk mineralogy of the clay (i.e. relative proportions of kaolinite, illite, quartz and iron oxides) and the absence of impurities such as carbon, sulphur, soluble salts and, except locally, calcite makes it suitable for the manufacture of high strength and low water absorption heavy clayware, including facing and engineering bricks, pavers, and roofing and floor tiles. Only a small part of the resource shown is potentially available for use. Fireclay and shale occur in association with opencast coal, with which they may be worked. This is only rarely the case because of their variable quality, operational factors and planning considerations. Locally brick clays are worked from the Coal Measures. Other clays occur extensively elsewhere in Staffordshire (see inset map). Their suitability for heavy clayware is largely unproven but regarded as inferior to the Etruria Formation. The Radwood Formation (Barren Measures) is worked at Willoughbridge for floor tile manufacture. Shales in the Millstone Grit are worked near Waterhouses for cement -making.

Limestone
Limestones of Carboniferous age produce strong aggregates suitable for concrete and roadstone. With moderate resistance to abrasion and low polish resistance the limestones are largely unsuitable for road surfacing. They are an important source of calcareous material for cement manufacture at Cauldon. Locally the limestones are of high chemical purity (>98% $CaCO_3$).

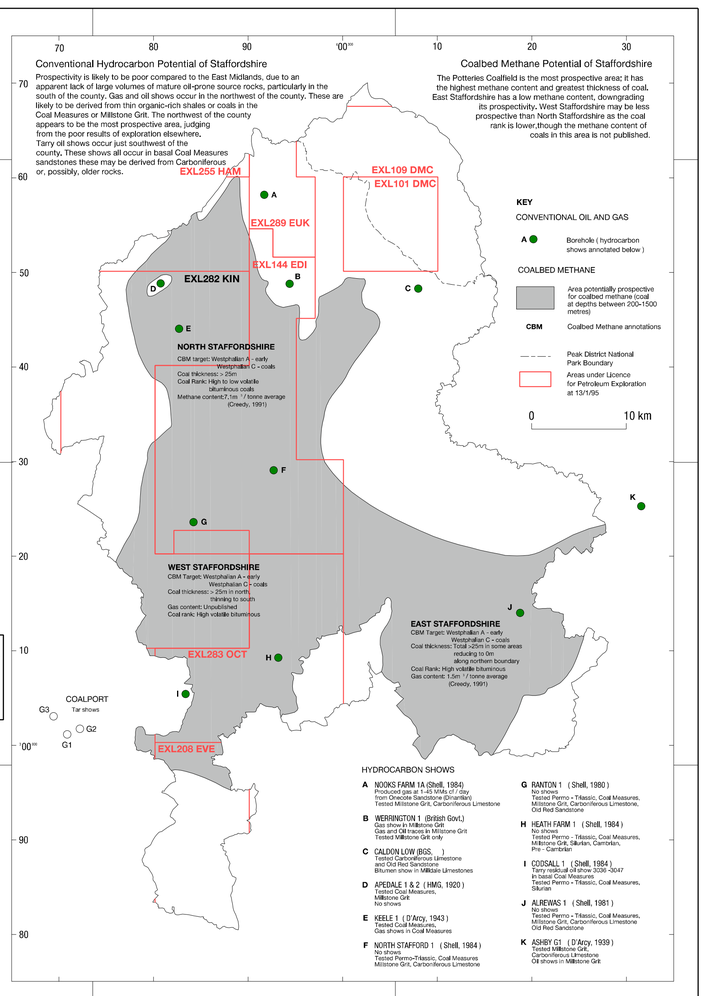
Silica sand
Silica (industrial) sands are valued for their physical and chemical properties on which their industrial applications are based. Depending on end-use, processing is of varying degrees of complexity. The ease with which impurities (iron, and oversize and undersize fractions) can be removed from a sand/sandstone has a major bearing on its suitability as a silica sand resource. At Oakamoor, a heavily iron-stained sandstone unit forms a suitable feedstock, after hot acid leaching and removal of heavy minerals, for the manufacture of colourless glass containers and whiteware ceramics. Resources are difficult to define without detailed evaluation, but areas with potential near existing operations have been identified.

Cheadle Coalfield
Resources have been defined by the seams between the Woodhead Coal and the top of the preserved Coal Measures which have provided the bulk of the coal extracted by both opencast and underground mining. Lower seams have been worked only sporadically.

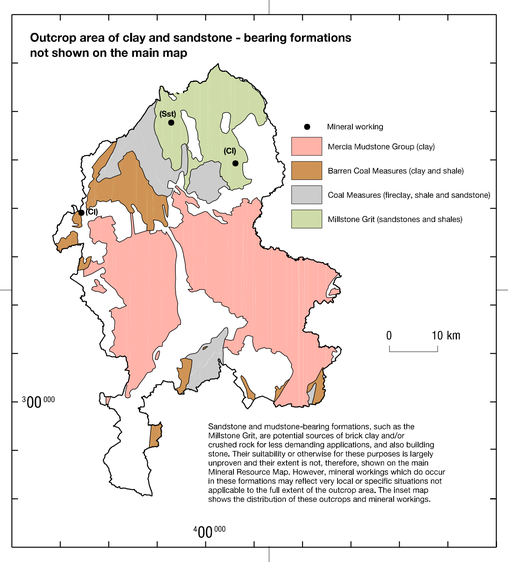
Salt
The Northwich and Wilkesley Halite Formations, which occur over a large area in the Cheshire Basin, extend into the north western part of the county.
The subsurface extent of the Stafford Halite Formation is imprecisely known. The formation appears to be of low quality and at the margins is very thin. Salt was produced from brine springs in Staffordshire at least as early as the 17th century. Recent production in Stafford by natural brine pumping ceased in 1970 because of subsidence. The deposits are unlikely to be of future economic importance.

Gypsum and anhydrite
Gypsum and anhydrite occur in the Needwood Basin to the west of Burton-on-Trent and the inferred subsurface extent of the Tutbury Gypsum is shown. The bed is worked at the Fauld mine, where it averages 2.5 m in thickness, but former mining operations from outcrop have extended as far west as Draycott. At Normanswood, farther to the west, a gypsum bed, probably at the horizon of the Tutbury Gypsum, was formerly mined. At Fauld production is for cement manufacture, but until 1989 the gypsum was also used for plaster. Anhydrite also acts as a retarder in cement, and gypsum/anhydrite containing higher proportions of anhydrite than could be used for plaster manufacture may now be considered. Minor quantities of alabaster block are also produced for ornamental purposes.

South Staffordshire Coalfield
The coalfield is bounded to the east and west by major faults which define the extent of the opencast coal resource. The northern limit is defined by overlying Triassic strata. The exposed coalfield is a potential source of opencast coal, and shallow coal was formerly extensively worked by underground mining. Parts of the exposed coalfield are covered in substantial thicknesses of superficial deposits.



Outcrop area of clay and sandstone - bearing formations not shown on the main map



Sandstone and mudstone-bearing formations, such as the Millstone Grit, are potential sources of brick clay and/or crushed rock for less demanding applications, and also building stone. Their suitability or otherwise for these purposes is largely unproven and their extent is not, therefore, shown on the main Mineral Resource Map. However, mineral workings which do occur in these formations may reflect very local or specific situations not applicable to the full extent of the outcrop area. The inset map shows the distribution of these outcrops and mineral workings.

LIMESTONE
- Limestone resources Very high purity limestone (>98% $CaCO_3$)

COAL
- Areas of shallow coal
- Opencast coal: Worked area
- Area of potential future deep mine working (Areas of deep mine extraction not shown)

CLAY
- Outcrop area of Etruria Formation: principal clay resource
- Fireclay and shale

GYPSUM AND ANHYDRITE
- Inferred subsurface extent of Triassic, Tutbury Gypsum

SALT
- Subsurface extent of the Triassic, Wilkesley and Northwich Halite Formations (North-west Staffordshire)
- Inferred subsurface extent of the Triassic, Stafford Halite Formation (Central Staffordshire)

SILICA SAND
- Silica sand: primary resource area

MINERAL WORKINGS
- Surface mineral working
- Underground mine

Mineral commodity

Lst	Limestone
Co	Coal
Cl	Common clay and shale
Sst	Sandstone
Si	Silica sand
Gyp	Gypsum

MINERAL PLANNING PERMISSIONS (as at 31.12.94)
Source; Staffordshire County Council
- Surface planning permission
- Underground planning permission

ENVIRONMENTAL DESIGNATION
- Area of Outstanding Natural Beauty (Cannock Chase)
- Site of Special Scientific Interest
- National Natural Reserve
- Scheduled Monument

ADMINISTRATIVE AREAS
- County
- District
- Peak District National Park

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