British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

OFFICE OF THE
DEPUTY PRIME MINISTER

Mineral Resource Information in Support of National, Regional and Local Planning

Cambridgeshire (comprising Cambridgeshire and the City of Peterborough)

British Geological Survey Commissioned Report CR/02/131N

D J Harrison, P J Henney, D G Cameron, N A Spencer, E J Steadman, D J Evans, G K Lott and D E Highley

Keyworth, Nottingham 2003

BRITISH GEOLOGICAL SURVEY

TECHNICAL REPORT CR/02/131N

Mineral Resources Series

Mineral Resource Information for Development Plans Cambridgeshire (comprising Cambridgeshire and the City of Peterborough)

D J Harrison, P J Henney, D G Cameron, N A Spencer, E J Steadman, D J Evans, G K Lott and D E Highley

This report accompanies the 1;100 000 scale map: Cambridgeshire Mineral Resources

Bibliographical reference:

Harrison, D J, Henney, P J, Cameron, D G, Spencer, N A, Steadman, E J, D J, Evans, D J, Lott, G K and Highley, D E 2003. Mineral Resource Information in Support of National, Regional and Local Planning: Cambridgeshire (comprising Cambridgeshire and the City of Peterborough).
BGS Commissioned Report CR/02/131N.

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INTRODUCTION

This report is one of a series prepared by the British Geological Survey for various administrative areas in England for the Office of the Deputy Prime Ministers' research project *Mineral Resource Information in Support of National, Regional and Local Planning.*

The accompanying map relates to the county of Cambridgeshire, together with the City of Peterborough, and delineates the mineral resources of current, or potential, economic interest in the area and the sites where minerals are or have been worked. It also relates these to national planning designations, which may represent constraints on the extraction of minerals.

Three major elements of information are presented:

- the geological distribution and importance of mineral resources;
- the extent of mineral planning permissions and the location of current mineral workings, and
- the extent of selected, nationally-designated planning constraints.

This wide range of information, much of which is scattered and not always available in a consistent and convenient form, is presented on two digitally-generated summary maps on the scale of 1:100 000. This scale is convenient for the overall display of the data and allows for a legible topographic base on which to depict the information. However, all the data are held digitally at larger scales using a Geographical Information System (GIS), which allows easy revision, updating and customisation of the information together with its possible integration with other datasets. The information will form part of a *Summary of the Mineral Resources of the East of England Region*.

The purpose of the work is to assist all interested parties involved in the preparation and review of development plans, both in relation to the extraction of minerals and the protection of mineral resources from sterilisation. It provides a knowledge base, in a consistent format, on the nature and extent of mineral resources and the environmental constraints, which may affect their extraction. An important objective is to provide baseline data for the long term. The results may also provide a starting point for discussions on specific planning proposals for mineral extraction or on proposals, which may sterilise resources.

It is anticipated that the maps and report will also provide valuable background data for a much wider audience, including the different sectors of the minerals industry, other agencies and authorities (e.g. The Planning Inspectorate Agency, the Environment Agency, the Countryside Agency and English Nature), environmental interests and the general public.

Basic mineral resource information is essential to support mineral exploration and development activities, for resource management and land-use planning, and to establish baseline data for environmental impact studies and environmental guidelines. It also enables a more sustainable pattern and standard of development to be achieved by valuing mineral resources as national assets.

The mineral resources covered are sand and gravel, brick clay, crushed rock aggregate, peat, hydrocarbons, building stone, limestone and chalk.

Resources and Reserves

Mineral resources are natural concentrations of minerals, or bodies of rock that are, or may become, of potential economic interest as a basis for the extraction of a commodity. They will

exhibit physical and/or chemical properties that make them suitable for specific uses and be present in sufficient quantity to be of intrinsic economic interest. Areas that are of potential economic interest as sources of minerals change with time as new uses are developed, product specifications change, recovery technology is improved or more competitive sources become available.

That part of a mineral resource, which has been fully evaluated and is commercially viable, to work is called a mineral reserve. In the context of land-use planning, the term mineral reserve should strictly be further limited to those minerals for which a valid planning permission for extraction exists (i.e. permitted reserves). Without a valid planning consent, no mineral working can take place and consequently the inherent economic value of the mineral resource cannot be released and resulting wealth created. The ultimate fate of a mineral reserve is to be either physically worked out or to be made non-viable by changing economic circumstances.

Mineral resources defined on the map delineate areas within which potentially workable mineral may occur. These areas are not of uniform potential and also take no account of planning constraints that may limit their working. The economic potential of individual sites can only be proved by a detailed evaluation programme. Such an investigation is an essential precursor to submitting a planning application for mineral working. Extensive areas are shown as having no mineral resource potential, but some isolated mineral workings may occur in these areas. The presence of these operations generally reflects local or specific situations.

Environmental designations

The map shows the extent of selected, nationally-designated planning constraints as defined for the purposes of this study. These are defined on a common national basis and therefore represent a consistent degree of constraint across the country. No interpretation should be made from the map with regard to the relative importance of the constraints, either in relation to mineral development proposals or in relation to each other. Users should consult policy guidelines issued by the relevant Government department, statutory agency or local authority.

The constraints shown on the map are:

- National nature conservation designations – National Nature Reserves (NNR) and Sites of Special Scientific Interest (SSSI)
- International nature conservation designations – Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites
- Scheduled Monuments

Mineral development may also be constrained by many other factors not shown on the maps, including local landscape designations, considerations relating to the protection of other resources, such as groundwater, and local amenity or environmental concerns, such as noise, traffic and visual impact. These have been excluded because the constraint is not defined on a national basis or the information is not generally available. The extent or degree of relevance of such constraints can be ascertained from the relevant statutory agency or the appropriate Mineral Planning Authority

SAND & GRAVEL

Sand and gravel are defined on the basis of particle size rather than composition. In current commercial usage, the term ‘gravel’ is used for material that is coarser than 5 mm, with a

maximum size of 40 mm, and the term 'sand' for the material that is finer, but coarser than 0.075 mm. Most sand and gravel is composed of particles that are rich in silica (quartz, quartzite and flint), but other rock types may occur locally. The principal uses of sand are as fine aggregate in concrete, mortar and asphalt. The main use of gravel is as coarse aggregate in concrete. Substantial quantities of sand and gravel may also be used for constructional fill.

Between 1979 and 2001 annual production in Cambridgeshire has declined from 3.7 million to 2.3 million tonnes. Nevertheless, the county remains an important source of sand and gravel for the construction industry. Recent production is shown on the graph and permitted reserves are estimated at 27 million tonnes.

Sand and gravel resources occur in a variety of geological environments. In Cambridgeshire these resources occur mainly within superficial or 'drift' deposits, subdivided into river sand and gravel, glacial deposits, head deposits and bedrock sand.

Superficial deposits

Parts of the areas assessed for sand and gravel by BGS resource surveys are identified on the map. Resources shown here are taken from these maps where available. In these areas, the possible extent of sand and gravel concealed beneath other material is shown. These indicated resources were defined be overburden to mineral ratios. Outside these areas, available data are more limited. Generally, only exposed sand and gravel is defined, although sub-alluvial inferred resources of sand and gravel occurring beneath modern river flood plains may be extensive in some places. Narrow (< 200 m) spreads of sub-alluvial deposits are mainly excluded from the map. Their limited width is likely to preclude economic working of any sand and gravel present.

River sand and gravel (terrace and sub-alluvial deposits)

Resources occur in both raised river terrace sequences flanking the modern floodplains and in floodplain terrace deposits associated with, and underlying, present day alluvium. The main sources of these materials in Cambridgeshire are Quaternary and Recent age deposits in the valleys of the Nene, Ouse, Welland, Granta and Cam, where generally clean, well bedded sands and gravels rest on weathered bedrock or chalky till, although deposit quality can vary along the river valley. At Buckden, for example, the terrace deposits are represented by 2-5 m of clean sand and gravel resting upon a grey, chalky till. The sands are coarse- to fine-grained, have a low silt content and a high, but variable, gravel content, up to 70 per cent, with clasts dominantly composed of flint with lesser amounts of quartzite, sandstone and limestone.

Included within the river sand and gravel on this map are the deposits commonly known as the Fen Gravels. These deposits are up to 7 m thick in places and consist of yellow to orange pebbly sands and gravels, composed of local limestone with abundant flint and other lithologies. At Somersham, for example, the Fen gravels are represented by a very clean, fine- to medium-grained sand with about 20-30 per cent gravel. Clasts are mainly flint with subordinate limestone, quartzite and sandstone. Some of the sands are very fine-grained and are suitable mortar sands. The Fen Gravel deposits form a discontinuous spread at the edge of the Fens and extend up to the present day valleys. The sands and gravel were deposited as coalescing fans laid down by streams draining from the uplands to the west and are largely of late Quaternary age. The basal surface dips eastward under the younger superficial deposits and, towards the east coast, they become finer grained, contain less gravel, and pass into deposits containing marine shells.

Figure 1. River Terrace sand and gravel deposit. Margetts Farm, Buckden. Cambridgeshire.

Glacial sand and gravel (fluvioglacial deposits)

These are deposits mapped as the products of deposition by glacial meltwaters and are nowadays labelled on BGS maps as glaciofluvial deposits, a more accurate description of their origin. The sequence of these deposits is complex with mappable units commonly exhibiting intricate relationships. Bodies of sand and gravel may occur as sheet- or delta- like layers above till deposits or as elongate, irregular lenses within the till sequence. Areas of wholly concealed, and thus unknown, bodies of sand and gravel may occur under spreads of till or other Quaternary deposits. In Cambridgeshire, glaciofluvial deposits are mainly located in the southeast of the county around Cambridge. Deposits are highly variable in nature, ranging from gravels with well rounded chalk and flint pebbles in a sparse sandy matrix, through coarse angular flint gravels, to clean golden brown sands. The gravels commonly include fossils, dominantly *Gryphaea*, re-worked from the Jurassic bedrock. The deposits can reach 8 m in thickness and are often stratified and with evidence for localised cryoturbation.

Head gravels

These comprise gravelly deposits that have been involved in mass movement downslope to their present position. Such movement commonly takes place under periglacial and cold climatic conditions when vegetation is sparse and frozen ground leads to increased run off. The gravel is commonly mixed with other lithologies present on the slope and so the resulting lithologies are very variable; most contain significant clay contents and many deposits can be worked as 'hoggin'. The clast composition reflects that of the parent material. The deposits often accumulate as lobes or fans which are then dissected by subsequent downcutting. In Cambridgeshire these are largely restricted to isolated patches lying at heights between 35 to

60 m OD and are composed of very poorly sorted and bedded chalk and flint gravels, often in a clay and chalk matrix derived from till, together with some erratics.

Figure 2. “Fen Edge” gravels at Somersham, Cambridgeshire.

Bedrock sand

Bedrock sand resources are mostly confined to the Woburn Sands Formation (Lower Greensand) of Cretaceous age. It has a narrow outcrop across the county from Gamlingay to Ely and thins north-eastwards from a maximum thickness of about 20 m at Gamlingay. Extensive areas of the outcrop are overlain by superficial deposits. The Woburn Sands Formation comprises orange-brown to greenish yellow, loosely cemented sandstones or unconsolidated pebbly sands. The quality and grain size of the sand is variable and is generally poorly known.

Sands from this formation have been worked in the past but there is currently no extraction within the county, although similar deposits are worked extensively at Potton, just over the county boundary in Bedfordshire. Here the sands are a major source of building and asphalting sand. No occurrences of fuller's earth (a type of clay used for specialised industrial applications) have been found within the Woburn Sands Formation in Cambridgeshire. Although there has been a long history of fuller's earth extraction from this unit in Bedfordshire, the Woburn Sands Formation of Cambridgeshire is considered to be unprospective for fuller's earth.

Small amounts of sand were extracted for industrial uses (silica sand) from the Grantham Formation (Lower Estuarine Series) of Middle Jurassic age in a single quarry in the north-west of the county, near Elton.

BRICK CLAY

The term ‘brick clay’ is used to describe clay and mudstone used predominantly in the manufacture of bricks and, to a lesser extent, roof tiles and clay pipes. These clays may sometimes be used in cement manufacture, as a source of construction fill and for lining and sealing landfill sites. The suitability of clay for the manufacture of bricks depends principally on its behaviour during shaping, drying and firing. This will dictate the properties of the fired brick such as strength and frost resistance and, importantly, its architectural appearance.

Most facing bricks, engineering bricks and related clay-based building products are manufactured in large automated factories. These represent a high capital investment and are increasingly dependent therefore on raw materials with predictable and consistent firing characteristics in order to achieve high yields of saleable products. Blending different clays to achieve improved durability and to provide a range of fired colours and textures is an increasingly common feature of the brick industry. Continuity of supply of consistent raw materials is of paramount importance.

The Lower Oxford Clay (Peterborough Member) in the Peterborough area is one of the major sources of brick clay in Britain. Extraction is on a large scale and the resulting voids are of regional importance for waste disposal. The Peterborough Member includes brownish grey, fissile, organic-rich mudstones that distinguish it from the overlying members of the Oxford Clay, which are dominated by mid- to pale grey blocky mudstones. Peterborough Member clays differ from the other principal brick clay resources in Britain in their high inherent carbon content (about 5 per cent) that acts as an internal fuel in the firing process, thus reducing the costs of brick production.

The Peterborough Member is about 17 - 19 m thick at Peterborough and is extremely uniform in character. Nevertheless, the clay is blended at the face to ensure consistency and to reduce local variations in the calcium carbonate and carbon content of the clay. The weathered near-surface clays (about 0.5 m thick) and the more calcareous Middle and Upper Oxford Clay are generally unsuitable for brick production and so are removed where present as overburden. The Peterborough Member has a limited outcrop, but is present beneath superficial deposits in the west and north-western parts of the county. Overlying sand and gravel deposits are extracted for aggregate. In the north-western part of the county, grey and brown mudstones up to 3 m thick occur within the Jurassic Rutland Formation. There is currently no extraction within the county, but similar deposits are worked on a relatively small scale over the county boundary in Northamptonshire and Leicestershire.

The Gault, which occurs beneath the Grey Chalk, is extracted at Barrington and forms part of the blend, with chalk, for cement manufacture. The Gault has a moderately high smectite content and has been considered for use as an additive to fuller's earth in, for example, cat litter. It is generally considered unsuitable for brick manufacture and is not shown on the map.

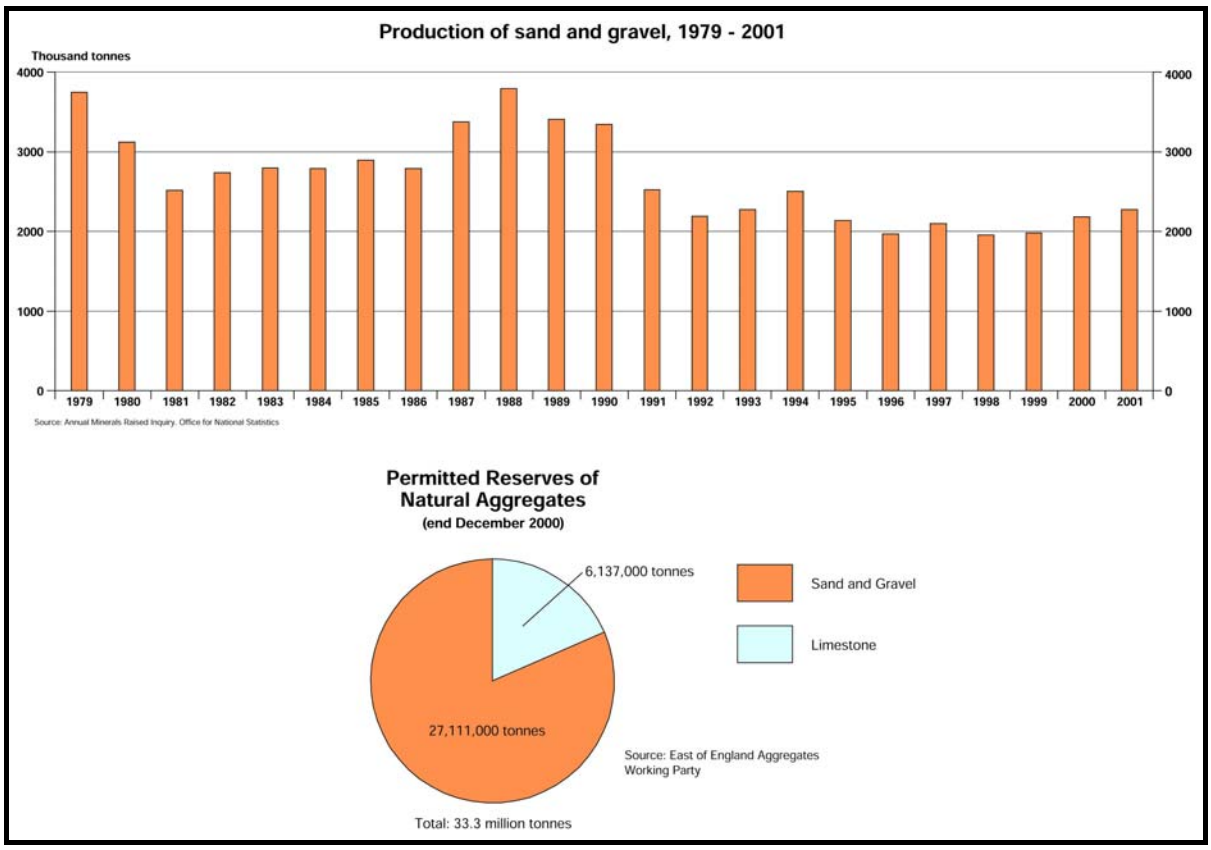

Figure 3 Production and permitted Reserves (2000) of natural aggregate in Cambridgeshire.

PEAT

Peat is an unconsolidated deposit of plant remains in a water saturated environment such as a bog or fen. Bogs occur in areas where they are dependent on rainfall for supply of water and the vegetation is characterised by acid tolerant plant communities of which the genus *Sphagnum* is dominant. The two main types of bog are (i) raised bogs, characteristic of flat underlying topography and found on low plains and broad valley floors and (ii) blanket bogs, which occur mainly in upland areas where conditions are suitably cool and wet. Many lowland raised bogs have been designated as sites if international and national conservation status. 98% of the peat extracted in the UK is used as a growing media by amateur and professional gardeners. In Cambridgeshire, there are extensive areas of peat representing 2 main groups, the Lower Peat and the Nordelph Peat. The older Lower Peat infills erosional depressions in the older superficial deposits or in the bedrock and is thus of variable thickness, from 10 cm at the Fen margin up to 1.7 m in some boreholes. This peat is thought to have been deposited from 6000 b.p up until the Neolithic. This is overlain by the Nordelph peat which is much more extensive and ranges in thickness from 10 cm at the Fen margin up to 5 m in some boreholes. Its formation dates from 4000 b.p up to the early 19th century. Extensive peat shrinkage has occurred due to the network of artificial drainage systems in the Fens, reducing the original area of coverage. Peat has been worked at several sites, including Caldecote Fen, Holme, Coningham Fen and WRS Allen.

HYDROCARBONS

Conventional Oil and Gas

Cambridgeshire occupies a tract of land beneath which Palaeozoic basement rocks of the London-Brabant Massif lie at relatively shallow depth. Mesozoic cover rocks are relatively thin, with Jurassic rocks occurring at crop over most of the county.

Most exploration for oil and gas has been in the north of the county with three hydrocarbon exploration wells drilled at Glinton, Wittering and Wisbech between 1962 and 1971 and the aquisition of a few seismic reflections lines. The boreholes proved thin Triassic rocks overlying Palaeozoic and Precambrian rocks. Exploration was probably aimed at testing the south-eastern extension of the East Midlands Oil Province, in particular the Widmerpool Gulf. The wells were plugged and abandoned as dry upon completion. Until 2002, the only licence block in the county was PEDL36, operated by CANUK. It covered the extreme south of the county, extending into Essex and a little way into Hertfordshire and as of July 2002 appeared to have been relinquished. At present, therefore, Cambridgeshire appears to offer little or no hydrocarbon potential.

Coal Mine Methane, Mine Gas Drainage and Coalbed Methane (CBM) potential

Strata of Palaeozoic and Precambrian age form the basement to the county of Cambridgeshire. Although boreholes in the south of the county have proved Carboniferous (Dinantian) limestone in the pre-Permian subcrop, there have to date, been no boreholes drilled in the county that have encountered Westphalian Lower to Middle Coal Measures, the nearest occurrences in the pre-Permian subcrop being some 20 km to the north-west. Consequently, it is thought that the county shows negligible coalbed methane development potential.

Licensing

The Department of Trade and Industry grants licences for exclusive rights to explore and exploit oil and gas onshore within Great Britain. The rights granted by landward licences do not include rights of access, and the licensees must obtain any consent under current legislation, including planning permissions. Licensees wishing to enter or drill through coal seams for coalbed methane and abandoned mine methane must seek the permission of the Coal Authority.

CRUSHED ROCK AGGREGATE

A variety of hard rocks are suitable for use as aggregates. Their technical suitability for different applications depends on their physical characteristics, such as crushing strength and resistance to impact and abrasion. Higher quality aggregates are required for coating with bitumen for road surfacing, or for mixing with cement to produce concrete. For applications such as constructional fill and drainage media, with less demanding specifications, lower quality materials are acceptable.

Cambridgeshire has limited resources of rock suitable for crushed rock aggregate.

Limestone

The Lincolnshire Limestone Formation of Middle Jurassic age (Inferior Oolite) crops out in the north-west of the county, west of Peterborough, where it forms part of a prominent limestone outcrop running south to north through Corby, Stamford, Grantham and Lincoln. In

the past it was used as an important source of building stone, but now provides crushed rock aggregates. It is currently worked in two small to medium-sized quarries between Peterborough and Stamford. Crushed Lincolnshire Limestone provides aggregates which are of relatively low strength and with poor resistance to frost damage (they have moderate or high values of water absorption). They are, therefore, generally only suitable for use as constructional fill or as a sub-base roadstone material.

The Lincolnshire Limestone Formation is about 30 m thick and is commonly divided into two parts, the Lower and Upper Lincolnshire Limestone. The formation is dominated by limestones of variable lithology, thickness and distribution, with some silty, sandy and muddy beds. The Lower Lincolnshire Limestone contains fine-grained sandy limestones, bioclastic limestones and ooidal limestones and the Upper Lincolnshire Limestone is dominated by cross-bedded, ooidal limestones. The variable lithology results in varying chemical properties and the limestones do not form a high purity limestone resource. Even the purest limestone beds are likely to contain less than 97 percent $CaCO_3$.

The Upware Limestone of Upper Jurassic age is locally developed within Corallian rocks north of Cambridge. Here a relatively thin unit (around 10 m thick) of soft, cream-coloured cross-bedded, ooidal and coarsely fossiliferous limestones is developed within a sequence of mudstones. It is quarried on a small scale for agricultural lime and asphalt filler.

Figure 4. Jurassic Corallian Upware Limestone, Wicken, Cambridgeshire.

Subsurface aggregate potential

The Carboniferous Limestone lies at relatively shallow depth (around 100 m) beneath the Cambridge area (see inset map on main map) and there has been some interest in exploration for deep-mined limestone aggregates. Although there are no operations that extract aggregate by underground methods in the UK, this remains an option for the future. The limestone

subcrop is ill defined. Several boreholes have proved the presence of limestone. However, aggregate potential is low since the limited amount of information suggest that the limestones are dolomitised and of relatively low quality.

BUILDING STONE

The Middle Jurassic to Upper Cretaceous rock succession in Cambridgeshire has yielded a variety of building stones. The Middle Jurassic Lincolnshire Limestone Formation was extensively quarried at Barnack, Marholm, Wansford and Wittering. A thin fossiliferous limestone, known as Alwalton Marble, was locally important for decorative stonework. The Upper Jurassic (Corallian) limestones at Upware were also quarried in the past. The Lower Cretaceous succession has yielded no building stone. In the Upper Cretaceous the Grey Chalk was extensively quarried at Isleham, Reach, Burwell and Barrington for block stone or 'Clunch'. Flints extracted from the White Chalk across the whole outcrop were widely used in local building. Currently only the Chalk is quarried at Barrington for building stone.

CHALK

Chalk is a relatively soft, fine-grained, white limestone of Upper Cretaceous age, mostly consisting of the debris from planktonic algae. Parts of the Chalk are characterised by the presence of flints which mostly follow bedding planes. Traces of clay occur throughout the Chalk and at various levels the clay occurs as calcareous mudstone (marl) seams and partings. The Chalk occurs extensively in eastern and southern England where it forms an important and thick resource of 'limestone raw materials'.

The Chalk is divided into the Grey Chalk (formerly the Lower Chalk) and the White Chalk (formerly the Middle and Upper Chalk) subgroups. The Grey Chalk is characterised by a relatively high clay content, particularly towards the base, and is classified as low purity (<93% $CaCO_3$). The overlying White Chalk has a lower clay content and is of higher purity (93-98% $CaCO_3$). Flints are common in the White Chalk Subgroup, particularly towards the top, where they occur as nodular bands. The White Chalk is concealed beneath a substantial thickness of till (boulder clay), notably between river valleys. The concealed White Chalk is not shown on the map.

The extraction of chalk for agricultural lime was formerly widely practised in the county and the Chalk outcrop is marked by numerous small disused quarries. At Barrington, Grey Chalk is extracted, together with the underlying Gault Clay for cement manufacture. The plant, which uses the semi-wet process, has a capacity of 250,000 tonnes a year of cement clinker. White Chalk is quarried at Steeple Morden, near Royston, for the production of chalk whiting for use as industrial fillers.

AIMS AND LIMITATIONS

The purpose of the maps 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 designations. 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 against sterilisation. 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 the extent of mineral planning permissions has been obtained from the relevant Mineral Planning Authority (MPA). 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 Agency, English Nature and English Heritage). For further information the relevant 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. Mineral resources defined on the map delineate areas within which potentially workable minerals may occur. These areas are not of uniform potential and also take no account of planning constraints that may limit their working. The economic potential of specific sites can only be proved by a detailed evaluation programme. Such an investigation is an essential precursor to submitting a planning application for mineral working. Extensive areas are shown 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.

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 the acquisition or use of a particular piece of land, although they may give useful background information which sets a specific proposal within context.

PLANNING PERMISSIONS FOR MINERAL EXTRACTION

The extent of all known extant and former planning permissions for mineral working is shown on the map, irrespective of their current planning or operational status. The polygons were partly supplied as digital files by Cambridgeshire County Council and also were digitised by BGS from Plotting Sheets and other documents supplied by Cambridgeshire County Council and Peterborough City Council. Any queries regarding the sites shown should be directed to these authorities at the addresses shown below. The permission areas cover active, former and restored mineral workings and, occasionally, unworked deposits.

Planning Permissions represent areas where a commercial decision to work mineral has been made, a successful application has been dealt with through the provisions of the Town and Country Planning legislation and the permitted reserve will have been depleted to a greater or lesser extent. The current planning status is not qualified on the map but is available in the underlying database.

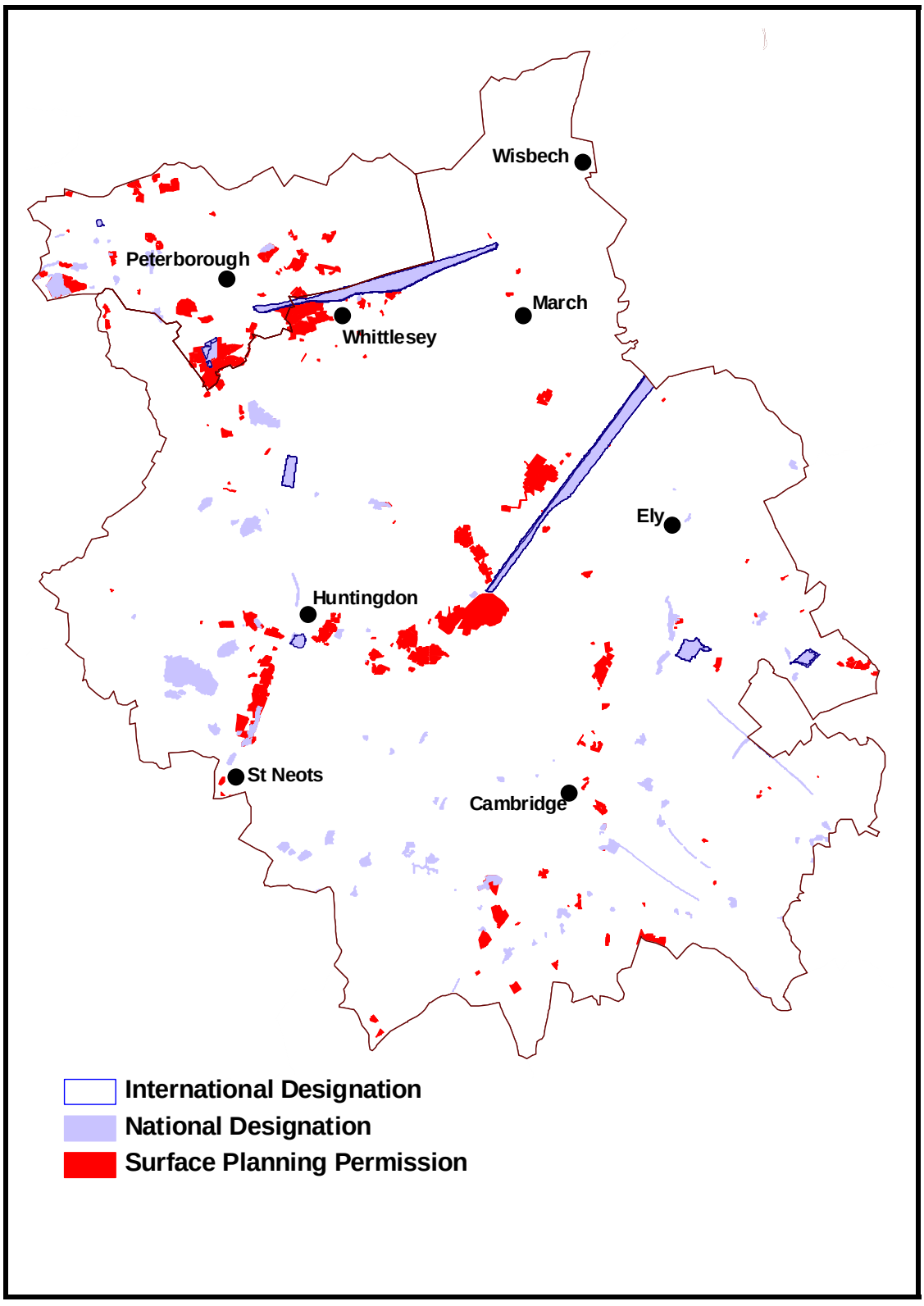

Figure 5 Surface mineral planning permissions and landscape and nature conservation designations in Cambridgeshire and Peterborough.

Details of all planning permissions are held on the Planning Registers which are kept by the District Councils. International designations include SPA, SAC and Ramsar sites whilst National designations include SSSI and NNR.

Contact addresses:

Cambridgeshire County Council, Environmental and Transport Department, Castle Court, Castle Hill, Cambridge, CB3 0AP. Tel: 01223 717111, Fax: 01223 718537, web address: www.camcnty.gov.uk/

Peterborough City Council, Environmental Services, Bridge House, Town Bridge, Peterborough, PE1 1HB, Tel: 01733 563141, Fax: 01733 890348, web address: www.peterborough.gov.uk/

TOPOGRAPHIC BASE

Constraint information published on the accompanying map has been provided from the various agencies listed below, any enquires on this information should be addressed to the relevant agency:

English Nature - Digital SSSI, NNR, SAC, SPA and Ramsar boundaries © English Nature 2003.

Contact address: English Nature, Northminster House, Northminster, Peterborough, PE1 1UA, Tel: 01733 455000, Fax: 01733 455103, Web page: www.english-nature.org.uk/

English Heritage - Positions of Scheduled Monuments at 15th August 2002.

The majority of monuments are plotted using a centred NGR symbol. Consequently the actual area and/or length of a monument protected by the legal constraints of scheduling cannot be represented here. Monuments scheduled since that date are not accounted for. © Copyright English Heritage.

Contact address: English Heritage, 23 Savile Row, London, WS1 2ET, Tel: 020 7973 3132, Web page: www.english-heritage.org.uk/

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