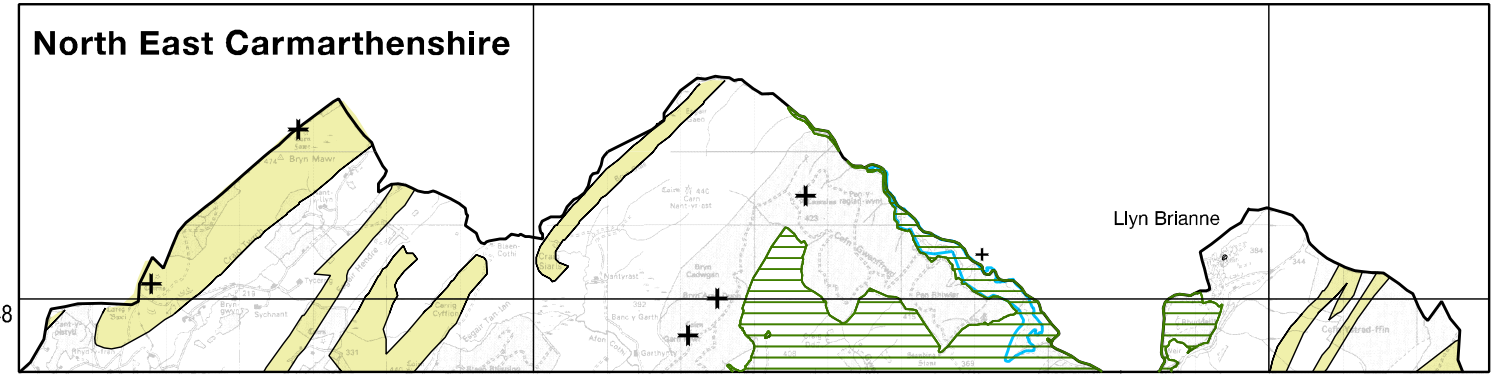


Sandstones

Penant sandstones are the principal sandstone resource and have a large outcrop in the central and eastern parts of the South Wales Coalfield, where they form an extensive upland plateau. Individual sandstone units, commonly up to 60 m thick, occur within an extremely thick sequence comprising dominant sandstones interbedded with thinner mudstones and coals. The sandstones (greywackes) have a high strength and are extremely uniform in their lithology and aggregate properties. They yield aggregates with a high resistance to polishing and are widely recognised as being one of the best sources of road surfacing aggregate in Britain, typically with FCRs in excess of 60. Resources are very large and the main sandstone units within the Penant Measures are shown on the map. The main geological constraints on development are the degree of weathering, the proportion of interbedded mudstones, and the nature and extent of any overburden.

Beds of sandstones are also developed within the mudstone-dominated sequences of the Millstone Grit and the Lower and Middle Coal Measures. The quartzitic sandstones are mostly thin and impermanent, but thicker sandstone beds are developed locally, particularly on the northern flank of the coalfield. The sandstones are potential sources of aggregates, but are not generally suitable for road surfacing.

Sandstones (greywackes) are locally developed in the mudstone-dominated succession of late Ordovician and Silurian age to the north-west of the Afon Tywi. These are potential sources of road surfacing aggregate. Sandstones of Devonian (Old Red Sandstone) age, which have locally been used as a source of building stone, are not shown on the map.



LIMESTONE

- Limestone (generally < 97% CaCO₃)
- High purity limestone (> 97% CaCO₃)
- Dolomite
- Interbedded limestones and mudstones

SANDSTONE

- Sandstone (greywacke)
- Quartzitic sandstone
- Interbedded sandstones (greywackes) and mudstones

IGNEOUS ROCK

- Intrusive (basic)
- Extrusive (acid)

SLATE

- Slate resources

MINERAL PLANNING PERMISSIONS (as at 1.4.97)

Source: Mineral Planning Authorities

- Surface planning permission
- Planning permissions undefined

MINERAL WORKINGS (as at 1.4.97)

- Surface mineral working

Mineral Commodity

Commodity	Lst	Sst	Pt	Cl	Sg	Sl
Limestone						
Sandstone						
Peat						
Common clay and shale						
Sand and gravel						
Slate						

ENVIRONMENTAL DESIGNATIONS

- Brecon Beacons National Park
- Area of Outstanding Natural Beauty (Gower, Wye Valley)
- Site of Special Scientific Interest
- National Nature Reserve
- Heritage Coast

ADMINISTRATIVE AREAS

- Unitary Authorities

Igneous rock and slate

Igneous rocks have a very restricted distribution in the region. Intrusive sheets of diorite occur in the extreme west where they have been worked for roadstone. Areas which have yielded slate suitable for roofing and other commercial purposes occur locally in the Prescelly slate belt. Good quality slate will be of patchy occurrence in this area and will depend on local geological conditions. There has been no significant production for many years.

Clay and shale, and fireclay

Clay and shale are widely distributed in South Wales and brick manufacture has, in the past, been based on a wide range of resources. These are not shown on the map. There is now only one brick factory in the region, near Ammanford, where production is based on boulder clay and mudstone from the Middle Coal Measures. Fireclays typically occur beneath coal seams and resources are confined to coal-bearing strata. Fireclays may be worked with open-cast coal, although this is only rarely the case. Clay, as an essential feedstock for the manufacture of cement at Aberthaw, is provided by the mudstones interbedded with Jurassic limestones.

BRITISH GEOLOGICAL SURVEY **DETR**

SOUTH WALES

(including Blaenau Gwent, Brecon Beacons National Park, Bridgend, Caerphilly, Cardiff, Carmarthenshire, Merthyr Tydfil, Monmouthshire, Neath-Port Talbot, Newport, Rhondda Cynon Taff, Swansea, Vale of Glamorgan, Torfaen and parts of Powys).

A Summary of Mineral Resource Information for Development Plans: Phase One

Mineral Resources (other than coal)

Scale 1:100 000

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Digital cartography by C. Simpson, British Geological Survey, Keyworth.

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Digital SSSI and NNR boundaries and digital AONB boundaries. © Countryside Council for Wales 1996.
Positions of Scheduled Monuments at 8th April 1996 as supplied by Cadw: Welsh Historic Monuments.
The majority of monuments are protected by a central NNR system.
Consequently the actual area and/or length of a monument protected by the legal constraints of scheduling cannot be ascertained from this map.
Monuments scheduled or dis-scheduled since that date are not accounted for.
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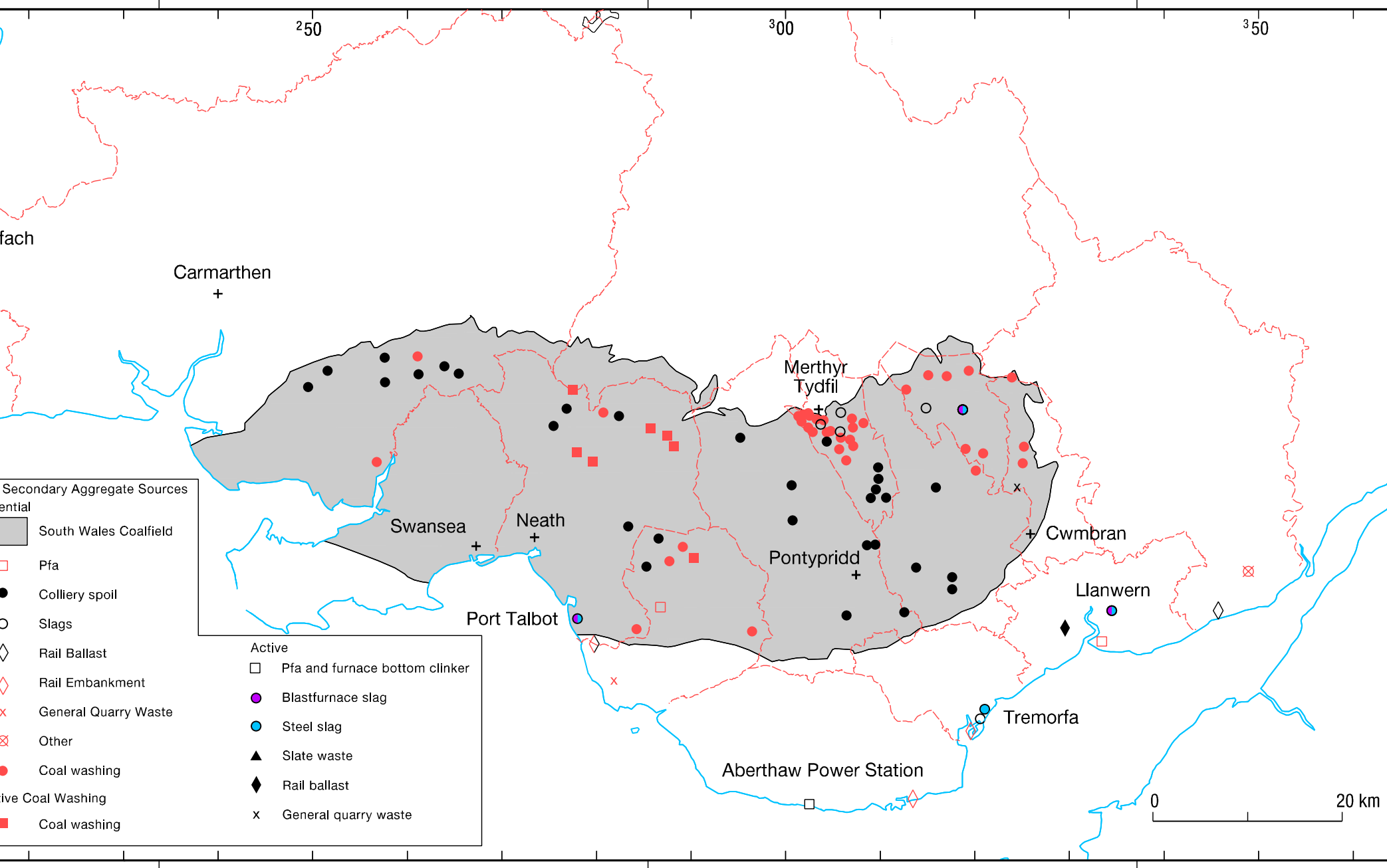
AIMS AND LIMITATIONS

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 make these resources available for consideration in the context of the development of the region. The maps are intended to assist in the consideration and presentation of development proposals in respect of mineral extraction and the protection of important mineral resources. They are not intended to provide a detailed geological survey of the region. The maps are not intended to provide a detailed geological survey of the region. The maps are not intended to provide a detailed geological survey of the region.

The maps have been produced by collection and interpretation of mineral resource data previously held by the British Geological Survey. Information on mineral resource data has been derived from the Mineral Planning Authority. Some of these authorities may have revised or updated the data. The data is not intended to provide a detailed geological survey of the region. The maps are not intended to provide a detailed geological survey of the region.

The mineral resource data presented are based on the best available information, but are not comprehensive and their quality is variable. The mineral resource data presented are based on the best available information, but are not comprehensive and their quality is variable. The mineral resource data presented are based on the best available information, but are not comprehensive and their quality is variable.

The maps are intended for general consideration of mineral issues and not as a source of detailed information on specific sites. The maps are intended for general consideration of mineral issues and not as a source of detailed information on specific sites. The maps are intended for general consideration of mineral issues and not as a source of detailed information on specific sites.



Secondary aggregates

Secondary aggregates are by-products or waste products of mining, quarrying and some industrial processes which may find application as alternatives to primary aggregates. There are several sources in South Wales, including metallurgical slag, power station ash, colliery spoil and slate waste. Blastfurnace slag, a by-product of ironmaking, is fully utilised and one of the few sources of secondary aggregates which is used as an alternative to primary aggregates for more demanding applications, such as road surfacing aggregate. Steel slags are more variable in composition and have to be weathered before use mainly as sub-base material.

Colliery spoil is a waste from mining and processing coal. It consists mainly of mudstones and siltstones. The principal use of colliery spoil is as a low value bulk fill, mainly for road construction. Except for Tower Colliery, production of colliery waste has almost ceased in South Wales. Former tips which have been subject to reclamation / restoration schemes can no longer be considered as resources of secondary aggregates. The main interest in colliery spoil remains as a source of coal. Older tips are likely to have a greater potential for coal because of poorer recoveries in the past.

Coal-fired power stations burn pulverised coal as fuel and the main residue is a fine-grained powder called pulverised fuel ash (PFA). It accounts for most of the ash produced at power stations, the remainder is furnace bottom ash. The only operating coal-fired power station in South Wales is Aberthaw B. All the furnace bottom ash is sold for blockmaking. PFA is used primarily for bulk fill for road construction but most of the output goes to landfill on site which represents a long term stockpile.

Waste from former slate workings occurs at Giffach in Carmarthenshire. The material has been used as a local source of fill but usage is small.

Silica rock

Silica rock was formerly an important refractory raw material produced in South Wales. Output was principally based on high-purity quartzite within the Basal Grit of the Millstone Grit on the northern crop of the coalfield. Changing steelmaking technology resulted in a rapid decline in demand for silica rock for refractory brick manufacture in the late 1950s.

Sand and gravel

Land-won extraction of sand and gravel in South Wales has historically been on a very small scale. Marine-dredged aggregates, principally sand, from the Bristol Channel has traditionally been the major source of supply. Quaternary sand and gravel resources occur in superficial deposits of Quaternary age - wind-blown sand, river gravels, and glacial sand and gravel - and their distribution is shown on a small-scale map within this report. In general, these deposits are severely constrained by other developments, planning constraints or are distant from major markets. Available information indicates that the sand and gravel resources of South Wales are limited.

Limestones

Carboniferous limestones are the most important source of coarse aggregate. They form thick, relatively consistent deposits of hard limestone and dolomite, ideally suited to the production of crushed rock aggregates. The limestones are varied both in lithology and thickness, resulting in a complicated succession of formation names. However, most are capable of producing good quality aggregates. In some areas most of the sequence is composed of relatively pure limestone. The sequence between Taff's Well and Portpool is dolomitised and certain dolomite beds yield aggregates which have an unusually high resistance to abrasion and are utilised for rail ballast.

Jurassic limestones occur extensively in the Vale of Glamorgan and consist of a relatively thick sequence of interbedded limestones and mudstones. They are not generally suitable for aggregate use except as fill due to their shaly character, but the more limestone-rich parts of the sequence provide materials suitable for cement manufacture.