

# PHYSICAL CHARACTERISTICS REPORT FOR ROBBINETTS PROPOSED OPENCAST COAL SITE.

## 1. INTRODUCTION

The land has been classified following the Agricultural Land Classification of England and Wales - revised guidelines and criteria for grading the quality of agricultural land (MAFF 1988). The survey was carried out during February and March 1991, following a 100 m grid and soil pit examination to determine the physical characteristics of the soil.

## 2. CLIMATIC LIMITATIONS

The main parameters used in the assessment of the climatic limitations are average annual rainfall (AAR), as a measure of overall wetness and accumulated temperature (ATO), as a measure of the relative warmth of the locality. The figures of AAR and ATO indicate that there are no climatic limitations on this site.

## 3. SITE LIMITATIONS

The assessment of site factors is primarily concerned at the way in which the topography influences the use of agricultural machinery and hence the cropping potential of the land. There are no site limitations affecting the use of this land.

## 4. SOIL LIMITATIONS

The main soil properties which affect the cropping potential and management requirements of land are texture, structure, depth, stoniness and chemical fertility. These may act as limitations separately in combination or through interactions with climate or site factors. The physical limitations which result from interactions between climate, site and soil are soil wetness, droughtiness and erosion.

A soil wetness limitation exists where the soil water regime adversely affects plant growth or imposes restrictions on cultivations or grazing livestock. Soil wetness assessment takes account of the climatic regime, the soil water regime and the texture of the top 25 cm of the soil.

## 5. GEOLOGY

The underlying geology is mapped as Lower Coal Measures (sheet 125, Geological Survey).

## 6. AGRICULTURAL LAND USE

At the time of the survey much of the area was under grass, in parts used for horse grazing, cereals and oilseed rape.

## 7. AGRICULTURAL LAND QUALITY

### 7.1 Sub Grade 3a Land

The land is found in small areas, two being in the northern part of the site and the third in the southern part, where the land is generally undisturbed. The soils typically have a medium clay loam or heavy clay loam texture overlying heavy clay loam and clay below 50 cm, with sandstone bands present in places. Observations of gleying and the depth to this slowly permeable layer indicate wetness class III and this in combination with a field capacity day figure of 150 indicates sub grade 3a. The main limitation to the agricultural use of this land is soil wetness.

### 7.2 Sub Grade 3b Land

The land covers much of the site and includes the previously worked land. The soil typically has a heavy clay loam texture overlying clay below 30 cm. In places coal

fragments are present and there is evidence of mixing within the soil. Observations of gleying and depth to the slowly permeable layer indicate wetness class IV, which in combination with a field capacity day figure of 150 indicates sub grade 3b. The main limitation to the agricultural use of this land is soil wetness.

7.3 Other land includes small areas of trees and the buildings at Shortwood Farm.

TABLE 1 Agricultural Land Classification

Grade Sub/Grade	ha	as % of Total	as % of Agricultural Land
3a	5.768	3.8	3.7
3b	147.672	95.7	96.3
Other Land	0.840	0.5	-
TOTAL	154.28		

## 8 SOIL UNITS

Following a detailed survey of the site using a hand held auger and soil pits to examine the soil physical characteristics, soils have been placed into units on the basis of their physical characteristics, eg texture and structure. This reflects differences in handling characteristics and separate storage needs.

Two main soil units are recognised which identify "disturbed" and "undisturbed" soils. The third smaller unit is identified where sandstone is significant within the profile and the buildings at Shortwood Farm are also identified separately.

#### Unit 1

This covers much of the site where previous opencast work operations have taken place and soils have been disturbed. Main areas are found in the north east, the south west and the centre of the site.

The topsoils typically have a heavy clay loam texture varying in depth from 15cm to 40cm. These overlie clay, often with coal fragments present, extending to 100cm. In places the grey overburden, silty clay, is often present below 50cm extending to 100cm.

#### Unit 2

This includes soils of a mainly undisturbed nature and is found up the western and eastern part of the site. The topsoil typically has a heavy clay loam texture overlying further depths of heavy clay loam between 30 and 60cm and then clay extending to 100cm. Occasionally medium clay loam soils are present and these are dispersed throughout the unit.

#### Unit 3

Soils with a significant amount of sandstone present in the lower horizon have been identified. The topsoils are either heavy clay loam or medium clay loam over heavy clay loam and clay. In the northern part of the site fine sand is present at 80cm before passing on to soft sandstone. East of Field House and north of Uplands Farm small areas of sandstone are present at depth.

Unit 4

This includes buildings at Shortwood Farm.

Table 2 - Soil Units

Soil Unit	Area (hectare)	% of site
1	79.65	52
2	70.08	45
3	4.251	3
4	0.299	<1