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Agricultural Land Classification
and
Statement of Physical Characteristics

West Farm, Wakefield
Proposed Open Cast Site

MAFF
Leeds Regional Office

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Agricultural Land Classification and Statement of Physical Characteristics

West Farm, Stanley, Wakefield, proposed opencast coal site.

1. AGRICULTURAL LAND CLASSIFICATION

Introduction and site characteristics

The site is located around grid reference SE352252 between West Farm and Roman Station Farm. It covers 15 hectares all of which is in agricultural use.

Survey work was carried out in April 1991 when soils were examined by hand auger borings at 100 metre intervals pre-determined by the National Grid. A soil profile pit was also dug at a representative point to assess soil structural characteristics and stone content.

All assessments were made using the methods described in "Agricultural Land Classification of England and Wales: Revised Guidelines and Criteria for Grading the quality of Agricultural Land" (MAFF) 1988).

Land Use

All agricultural land was in arable use at the time of the survey.

Climate

Average annual rainfall (AAR) is approximately 646 mm Accumulated temperature above 0°C between January and June (ATO) is 1352 day°C and the land is at field capacity for 145 days per year. The rainfall and temperature figures indicate that there is no overall climatic restriction on ALC grade. Moisture deficits of 102 for wheat and 92 for potatoes, however, indicate that any lighter textured soils will suffer from droughtiness due to their small water holding capacity.

Relief

Altitude varies between 65 and 80 metres above Ordnance Datum with a gentle slope from the NW to the SE. Slopes do not restrict the use of agricultural machinery in any part of the site and thus do not impose a limitation on ALC grade.

Geology and Soils

Soils are formed on weathered Coal Measure clays and shales which lie close to the surface across the whole site. Topsoils consist of medium or heavy clay loam over mottled, slowly permeable stoneless, heavy clay loam or clay subsoils. Profiles of this type are typical of the Dale Association. Most are poorly drained and fall into Wetness Classes III or IV, depending on the depth the the slowly permeable subsoil. A small area in the west with a much deeper slowly permeable horizon (70 cm depth) contains better drained soils in Wetness Class II.

2. AGRICULTURAL LAND CLASSIFICATION

The ALC grades on the site are as follows:

Grade	Hectares	% total area
3a	0.9	7.2
3b	<u>11.6</u>	<u>92.8</u>
Total	12.5	100

Sub Grade 3a

This subgrade occurs in a small area along the western edge of the site. Topsoils consist of medium and heavy clay loam, over unmottled medium or heavy clay loam upper subsoils passing at about 70 cm depth into slowly permeable clayey lower subsoils. These soils are moderately well drained (Wetness Class III), but limited to subgrade 3a by slight topsoil wetness and workability problems.

Sub Grade 3b

The majority of the site falls within this subgrade. Soils consist of medium or heavy clay loam topsoils to a depth of 35 cm lying directly over slowly permeable strongly mottled and gleyed clay to depth. These soils fall into Wetness Classes III and IV and are limited to this subgrade by wetness and workability problems.

3. STATEMENT OF PHYSICAL CHARACTERISTICS
(Soil Properties and Resources)

Soils on the site are all derived from Coal Measure Shales and there is only one soil type present. The topsoil and subsoil resources are shown on the accompanying maps along with soil depth and volume information.

3.1 Heavy textured soil derived from Coal Measures

This soil type covers the whole site and varies little except in the depth of topsoil.

Topsoil

Topsoil textures are generally medium or heavy, usually of medium or heavy clay loam with a mean thickness of 35 cm. Structure is typically moderately developed coarse sub angular or angular blocky. Stone content is usually less than 5%. The topsoil corresponds with unit T1 on the accompanying resource map.

Subsoil

Subsoils are heavy in texture, mainly of silty clay or clay and sometimes with a heavy clay loam horizon immediately below the topsoil. Structure is moderately developed coarse prismatic. The subsoil corresponds with unit S1 on the accompanying resource map.

4. SOIL PROFILE DESCRIPTIONS

West Farm, Stanley, Wakefield

Land Use: Arable

Slope: 2°

Aspect: South

Depth (cm)

0-35 Very dark greyish brown (10 3/2) heavy clay loam; unmottled; very slightly stony; moist; moderately developed medium angular blocky structure; moderately firm soil strength; slightly sticky; moderately plastic; many fine fibrous roots; non-calcareous; clear smooth boundary.

35-100 Pale brown (10YR 6/3) clay; very many coarse prominent yellowish brown (10YR 5/8) mottles; stoneless; weakly developed adherent medium prismatic structure; moderately firm soil strength; moderately sticky; very plastic; common fine fibrous roots.

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