

AGRICULTURAL LAND CLASSIFICATION  
AND STATEMENT OF PHYSICAL CHARACTERISTICS

LAND AT KINGS STOCKS, BILLINGLEY

PROPOSED OPEN CAST COAL SITE

ADAS  
LEEDS STATUTORY CENTRE

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Proposed Open Cast Coal Site

1. INTRODUCTION AND SITE CHARACTERISTICS

The site is located around grid reference SE431045, approximately 9 km east of Barnsley. It covers 22.7 hectares all of which is in agricultural use.

Survey work was carried out in July 1992 when soils were examined by hand auger borings at 100 m intervals, predetermined by the national grid. Detailed soil descriptions and sampling for laboratory analysis were carried out in inspection pits located at representative points in each of the two soil types occurring on the site.

Land Use

The site is in arable production. At the time of survey all of the site was under cereals.

Climate

Average Annual Rainfall (AAR) is approximately 621 mm. Accumulated temperature above 0°C between January and June (ATO) is 1394 day °C and the land is at Field Capacity for 133 days a year. There is no overall climatic limitation on ALC grade.

Relief

The site varies between 30 and 40 m above Ordnance Datum and is gently sloping with a north easterly aspect.

Geology

The area is underlain by Carboniferous Coal Measures consisting of interbedded shales, sandstone and occasional coal seams. These have weathered to form slightly stony medium over heavy textured soils which are at least 1 m in thickness over most of the site.

2. STATEMENT OF PHYSICAL CHARACTERISTICS

Two main soil types occur on the site.

a. Medium over heavy textured soils derived from weathering Coal Measures

These soils occur at the northern end of the site and consist of medium or heavy clay loam topsoils over heavy clay loam to clay subsoils.

A full profile description is given at 4(a).

Topsoils

This topsoil (Unit T1) is common to both soil types on the site and consists of medium clay loam material to a depth of about 35 cm, with a weak to moderate coarse granular structure. It is stoneless to very slightly stony.

Subsoils

Subsoils (Unit S1) consist of medium clay loam or clay textured material which is usually slightly stony, but can be very stony at depth in a few localities where sandstone is relatively close to the surface. Structure is strongly developed coarse subangular blocky, becoming coarse prismatic below 60 cm.

b. Medium Textured soils derived from weathering Coal Measures

These soils occur over most of the site. They consist of medium clay loam topsoils over sandy clay loam, medium clay loam or occasionally heavy clay loam subsoils. The topsoil is stoneless to slightly stony.

A full profile description given at 4(b).

Topsoils

These are common to both soil types and form part of unit T1 described in the preceding section.

Subsoils

Subsoil unit S2 consists mainly of stoneless slightly stony medium clay loam or sandy clay loam with a weak to moderately well developed subangular blocky structure.

3. AGRICULTURAL LAND CLASSIFICATION GRADES

The ALC grades occurring on this site are as follows:-

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Site Area</u>
2	12.33	77.3%
3b	3.63	22.7%
Total	15.96	100%

Grade 2

Land in this grade covers most of the site. Soils fall within Wetness Class I and consist of stoneless to slightly stony medium clay loam topsoils over slightly stony medium clay loam or sandy clay loam subsoils. Stoneless heavy clay loam occurs occasionally at depth. The main limiting factor is slight droughtiness.

Subgrade 3B

Land in this subgrade occurs in the north of the site. The small area south of the King's Stocks path falls within Wetness Class I. Here, soils consist of stony medium clay loam topsoils over stony sandy clay loam subsoil passing to very stony sandy clay loam at depth. Droughtiness is the main limiting factor in this area. North of the path profiles consist of slightly stony medium or occasionally heavy clay loam topsoils over slightly stony heavy clay loam or clay subsoils. Profiles are slowly permeable at about 35 depth and fall within Wetness Class IV (poorly drained). They are limited to subgrade 3b by wetness and workability problems.

4. SOIL PROFILE PRESCRIPTIONS

a. Soil Type 1 (T1/S1): Medium over heavy textured soil.

Land Use: Cereals.

Slope 1°

Available water: 123 mm (Wheat) 113 (Potatoes)

Wetness Class IV

Horizon	Depth (cm)	Description
1	0 - 25 cm	Very dark greyish brown medium clay loam (10YR 3/2) with indistinct dark yellowish brown (10YR 4/6) mottles; very slightly stony, few hard medium angular fine sand stones; moist; moderately developed medium sub angular blocky and granular structure; firm; >5% medium and fine pores; many fine and medium fibrous roots; moderately plastic and sticky; abrupt smooth boundary.
2	25 - 60 cm	Pale brown heavy clay loam (10YR 6/3) with brownish yellow (10YR 6/8) distinct mottles; very slightly stony with a few hard medium angular fine sand stones; dry; strong developed coarse subangular blocky structure; very slightly porous; few fine fibrous roots; very plastic and very sticky; clear, smooth boundary.

3

60 - 100 cm

Grey/light grey clay (10YR 6/1) with common distinct strong brown mottles (7.5YR 5/6). Stoneless; very dry; medium to coarse prismatic structure; very hard; <0.5% pores; few fine fibrous roots; very plastic and very sticky.

b. Soil 2 (T1/S2): Medium textured soil.

Land Use: Cereals.

Slope: 1°

Available water: 136 mm (Wheat) 118 (Potatoes)

Wetness Class: I

Horizon	Depth	Description
1	0 - 30 cm	Very dark brown (10YR 2/2) very slightly stony medium clay loam; no mottling; weak coarse granular structure moderately porous; many fine and medium fibrous roots; moderately plastic and sticky. Smooth abrupt boundary.
2	30 - 100 cm	Brownish yellow (10YR 6/6) medium clay loam; very slightly stony with a few hard medium angular fine sand stones; no mottles; weak coarse subangular blocky structure, moderately firm soil strength; slightly porous; common fine and medium fibrous roots; slightly plastic and sticky.