STATEMENT OF PHYSICAL CHARACTERISTICS
AND
AGRICULTURAL LAND CLASSIFICATION

TRANWELL FARM, MORPETH, NORTHUMBERLAND
PROPOSED OPENCAST COAL SITE

ADAS
LEEDS REGIONAL OFFICE

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1. STATEMENT OF PHYSICAL CHARACTERISTICS

A. GENERAL INTRODUCTION

The site which covers approximately 25 hectares is located 3 km south west of Morpeth town centre around National Grid Reference NZ 184830.

The survey work was carried out in March 1991 when soils were examined by hand auger borings at a density of one per hectare at points predetermined by the National Grid. A soil profile pit was also dug to in order to describe soil physical characteristics and to determine depths to slowly permeable layers.

Land Use

Agricultural land on the site is either under permanent pasture or cereals. The disused Tranwell Reservoirs do not contain water and are grassed over but not in agricultural use. A track and adjacent burn run through the centre of the area.

Climate

Average annual rainfall is approximately 760 mm per year and the accumulated temperature above 0°C (January to June) is 1247 day°C. The area is at field capacity for 193 days per year. The rainfall and temperature figures together with altitude of 95 m impose an overall climatic limitation of grade 2 on agricultural land quality.

Geology and Soils

The area is underlain by Coal Measures over which there is a cover of predominantly heavy textured boulder clay. Soils formed on this material consist of sandy clay loam or medium clay loam topsoils over slowly permeable heavy clay loam or clay subsoils.

Drainage

Soils are all imperfectly or poorly drained and fall within Wetness Classes III and IV.

B. SOIL PROPERTIES

The site contains one soil type formed on heavy textured boulder clay. Topsoils consist of sandy clay loam or medium clay loam over slowly permeable heavy clay loam to clay subsoils. There is little variation except near the northern boundary where topsoils are of greater depth.

C. SOIL RESOURCES

The topsoil and subsoil resources on the site are shown on the accompanying maps along with soil depth information.

1. Topsoil

Unit T1a

This thicker unit occurs near the northern boundary of the site. It consists of medium to heavy clay loam with a well developed medium angular blocky structure. The mean thickness is 45 cm.

Unit T1b

This unit covers all but the northern edge of the site and consists of medium clay loam with well developed structure and a mean thickness of 25 cm.

2. Subsoils

Unit S1

This unit which covers the whole site consists of slightly stony clay with a weakly developed coarse angular blocky to prismatic structure. It extends to a depth of at least 100 cm.

2. AGRICULTURAL LAND CLASSIFICATION

Subgrade 3a (2.9 ha, 10.8% of site area)

Land in this subgrade occurs along the northern boundary of the site and to a small extent on the western boundary. Soils consist of medium clay loam to a depth of 45 cm over heavy clay loam or clay subsoils to 100 cm. Soils in this subgrade are imperfectly drained and fall into Wetness Class III. Soil wetness and workability problems are the main restrictions on land in this subgrade.

Subgrade 3 b (19.2 ha, 71.6% of site area)

Land in this subgrade consists of medium to heavy clay loam topsoils over clay subsoils. These soils are poorly drained falling into Wetness Class IV. Severe soil wetness and workability problems are the main restrictions on ALC grade.

Urban (4.7 ha, 17.6% of site area)

3. SOIL PROFILE DESCRIPTION

Slope: 4°
Climate: Mild, overcast

Horizons

(cm)

0-29 Dark brown (10YR 3/3) stoneless medium clay loam; unmottled; moist; well developed medium subangular blocky structure; moderately weak soil strength; slightly sticky; slightly plastic; many fine fibrous roots; non calcareous; smooth clear boundary.

29-43 Dark greyish brown (2.5YR 4/2) stoneless heavy clay loam; few distinct yellowish brown 10YR 5/6 and 6/6 mottles; well developed medium angular blocky structure; moderately firm soil strength; slightly sticky; slightly plastic; common fine fibrous roots; non calcareous; abrupt smooth boundary.

43-100 Olive yellow (2.5Y 6/6) clay; few medium rounded sandstones; many distinct brownish yellow 10YR 6/6 and white 2.5Y 8/0 mottles; weakly developed coarse angular blocky structure; firm; sticky and plastic; few fine fibrous roots; non calcareous.