STATEMENT OF PHYSICAL CHARACTERISTICS
AND
AGRICULTURAL LAND CLASSIFICATION

PRIORS CLOSE NORTH
GREAT LUMLEY, DURHAM

PROPOSED OPENCAST COAL SITE

ADAS
Leeds Regional Office

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1. STATEMENT OF PHYSICAL CHARACTERISTICS

A. GENERAL INTRODUCTION

The site lies on the western side of the A1 near Great Lumley around National Grid Reference NZ 303484, about 5 km north east of Durham. It covers 55 hectares.

A field survey was carried out in January 1991 when soils were examined by hand auger borings to a depth of one metre at a density of one boring per hectare at points pre-determined by the National Grid. Soil profile pits were also dug where necessary to examine soil physical characteristics.

LAND USE

Agricultural land on the site is used for cereal cropping. Non agricultural land consists of woodland and public footpaths.

CLIMATE AND RELIEF

Average annual rainfall is approximately 650 mm per year and the accumulated temperature above 0°C (January to June) is 1288 day °C. The site is at field capacity for 165 days per year. The rainfall and temperature figures impose an overall climatic limitation of Grade 2 on all agricultural land on the site.

GEOLOGY, SOILS AND DRAINAGE

The area is covered by boulder clay derived from the underlying Carboniferous sandstones and shales. Soils formed on this drift consist of sandy clay loam or medium clay loam topsoils over similar subsoils passing to heavy clay loam or clay at depth.

Most soils are imperfectly or poorly drained and fall within Wetness Classes III or IV. Soil wetness and workability is therefore the main limitation on agricultural land quality.

B. SOIL PROPERTIES

The site contains one dominant soil type consisting of medium clay loam or sandy clay loam topsoils over heavy clay loam or clay subsoils. Somewhat lighter upper subsoils of medium clay loam or sandy clay loam occur in places, but are not widespread enough to separate.

C. *SOIL RESOURCES*

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

i. Topsoils

Unit T1

This consists of moderately structured sandy clay loam or medium clay loam with a mean thickness of 30 cm.

ii. Subsoils

Unit S1

This consists predominantly of heavy clay loam or clay with a moderately developed prismatic structure and a mean thickness at 70 cm. Patches and lenses of lighter material can occur locally.

2. *AGRICULTURAL LAND CLASSIFICATION*

Subgrade 3a (7.6 ha, 14.0% of total area)

Land in this subgrade occurs in two relatively small areas near Charles Pit Houses and adjoining the eastern boundary of the site. Soils consist of medium clay loam or sandy clay loam topsoils over similar or

heavier subsoils passing to clay at depth. Drainage is somewhat better than in other parts of the site; slowly permeable horizons do not occur at less than 45 cm depth and most profiles fall within Wetness Class III. Soil wetness and workability problems, although not as restricting as in other parts of the site, are the main factors limiting ALC grade.

Subgrade 3b (45.2 ha, 83.1% of total area)

This is the predominant subgrade on the site. Soils consist of medium clay loam topsoils about 30 cm in thickness over heavy clay loam or clay subsoils. Most profiles are slowly permeable immediately below the topsoil and fall into Wetness Class IV. This land is limited to subgrade 3b by soil wetness and workability problems which are more severe than on the adjoining subgrade 3a land.

Non agricultural (Woodland) (1.3 ha, 2.4% of total site are)

Land in this category consists of woodland adjoining the A1(M).

Urban (0.3 ha, 0.5% of total site area)

This consists of a public footpath in the western part of the site.

Resource Planning Group
Leeds Regional Office
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3. SOIL PROFILE DESCRIPTIONS

Pit 1

Land Use - cereals
Slope - 2.3° NW
Recent Weather - snow

Horizon depth (cm)	
0-33	Very dark greyish brown (10YR 3/2) medium clay loam; very slightly stony (1-2%); unmottled; moderately developed medium subangular blocky structure; moderately firm soil strength; slightly sticky; slightly plastic; common fine fibrous roots; clear irregular boundary to next horizon.
33-100	Light brownish grey (10YR 6/2) heavy clay loam; very slightly stony; very many medium prominent clear ochreous and grey mottles; moderately developed medium prismatic structure; few very fine pores; very firm soil strength; slightly sticky; very plastic; few fine fibrous roots.

Pit 2

Land use - cereals
Slope - 1°
Recent weather - snow

Horizon depth (cm)	
0-30	Black (10YR 2/1) sandy clay loam; slightly stony (6%); unmottled; moderately developed medium subangular blocky structure; very weak soil strength; slightly sticky; very plastic; common fin fibrous roots; abrupt smooth boundary to next horizon.
30-68	Black (10YR 2/1) heavy clay loam; unmottled; slightly stony (15%); weakly developed medium subangular blocky structure; very weak soil strength; moderately sticky and very plastic; few fine fibrous roots; abrupt smooth boundary to next horizon.
68-100	Grey (10YR 62) clay; common prominent clear ochreous mottles; no stones; weakly developed adherent coarse prismatic structure; moderately firm soil strength; slightly sticky; very plastic; few very fine fibrous roots.

MAPS