AGRICULTURAL LAND CLASSIFICATION
AND STATEMENT OF PHYSICAL CHARACTERISTICS

HAWTHORNE HOUSE, SHILDON
COUNTY DURHAM,
PROPOSED OPENCAST COAL SITE

ADAS
LEEDS REGIONAL OFFICE

SEPTEMBER 1989
REF: 4500/53.89

lds.AL1Hthrn.Hse

CONTENTS

MAPS

1. AGRICULTURAL LAND CLASSIFICATION REPORT ON THE PROPOSED OPENCAST COAL SITE AT HAWTHORNE HOUSE, SHILDON, COUNTY DURHAM

1.1 INTRODUCTION

This 13.8 hectare site (National Grid Reference NZ 245250) situated about 2 km south east of Shildon in County Durham is all in agricultural use. Survey work was carried out in August 1989 when soils were examined by hand auger borings at 14 points predetermined by the National Grid. In addition two profile pits were dug to collect soils for laboratory analysis and to study soil morphology in greater detail.

1.2 CLIMATE

Salient climatic parameters are as follows:-

Average Annual Rainfall	709 mm
Accumulated Temperature above $0^{o}C$ (Jan-June)	1254
Field Capacity Days	185

These figures indicate that there is an overall climatic limitation of Grade 2 on the site.

1.3 RELIEF

Altitude ranges from 130 m a.o.d. at Hawthorne House to below 110 m a.o.d. at the eastern edge of the site. There is an overall easterly aspect, with maximum slopes, near Hawthorne House, of between 8^{o} and 9^{o}.

1.4 GEOLOGY, SOILS AND DRAINAGE

Boulder clay (drift) deposits cover most of the site and solid strata is rarely encountered within one metre of the surface. Most topsoils consist of medium clay loam or sandy clay loam over similar or slightly heavier textured, slowly permeable subsoils. These soils fall within wetness class IV and will be difficult to work in winter and early spring.

A few borings in the north western part of the site encountered weathered bedrock at less than one metre depth. Here topsoils are usually of sandy clay loam over similar textured shallow, slowly permeable subsoils. Soil wetness is again limiting (wetness class III) but not to the same extent as elsewhere. These better drained soils will be slightly easier to work.

In the north east on land which was formerly part of an adjoining sewage works complex, soils are apparently contaminated with sludge and contain toxic concentrating of heavy metals, notably zinc and lead.

1.5 LAND USE

All the land is under grass and used for grazing and/or meadows.

1.6 AGRICULTURAL LAND CLASSIFICATION

Grade	Area ha	% of Total Area
3a	1.8	13
3b	10.8	78
4	1.2	9
Total	13.8	100

1.6.1 Subgrade 3a

The two areas of this subgrade contain medium textured topsoils over similar textured subsoils which are slowly permeable at about 60 cm depth. Solid strata is occasionally encountered at less than 100 cm depth. Slopes are always less than 7^{o}. Soil wetness is the critical factor limiting ALC grade on these soils.

1.6.2 Subgrade 3b

This subgrade is widespread . Soils are all derived from boulder clay.

Topsoils are medium in texture over similar or occasionally heavy textured, slowly permeable subsoils. Soils in the western part of the site are better drained (wetness class III) but are limited to subgrade 3b by slopes of between 8^{o} and 9^{o}. Elsewhere soils fall within wetness class IV and are limited to subgrade 3b by wetness and workability problems.

1.6.3 Grade 4

This small area has been contaminated with heavy metals, especially lead and zinc and is therefore unsuitable for any form of arable cropping. Land of this type which is limited to grass production and on which there are significant restrictions on grassland management cannot be graded better than Grade 4.

HAWTHORNE HOUSE, SHILDON, COUNTY DURHAM
PROPOSED OPENCAST COAL SITE

STATEMENT OF PHYSICAL CHARACTERISTICS
(SOIL PROPERTIES AND RESOURCES)

Soils are all derived from boulder clay some of which is toxic due to sewage contamination. In the north west where the drift is thin subsoils do not always extend to 100 cm depth. Topsoil and subsoil resources for the site are shown on the accompanying maps, along with soil depth and volume information.

BOULDER CLAY SOILS

This variable unit covers the whole site. Topsoils are typically very dark greyish brown slightly stony medium clay loam or sandy clay loam with a moderately developed medium subangular blocky structure. Subsoils are dark greyish brown, very slightly stony, mottled, medium clay loam or clay with a moderately developed coarse angular blocky to coarse prismatic structure.

On the topsoil resource maps the topsoils are divided into T1A undisturbed and T1B disturbed/toxic. The subsoil map is similar, S1A is undisturbed and S1B is toxic whilst S1C is shallow variant of S1A.

2. HAWTHORNE HOUSE, SOIL PROFILE DESCRIPTION

BOULDER CLAY SOIL

Land Use	Permanent Grass
Slope + Aspect	0^{o}
Recent Weather	Very Dry

Horizon (cm)

1. 0-24 Very dark greyish brown (10YR 3/2) medium clay loam with a few fine distinct reddish yellow (7.5YR 6/8) mottles; very slightly stony with small rounded sandstones; dry; moderately developed medium subangular blocky structure; very firm ped strength; common fine pores and fissures; many fine fibrous roots; clear wavy boundary.

24-68 Dark greyish brown (2.5YR 4/2) medium clay loam with many medium distinct yellowish brown (10YR 5/6) mottles; very slightly stony with small and medium rounded sandstones; dry; moderately developed coarse angular blocky structure; firm ped strength; few fine pores and fissures; few fine fibrous roots; clear smooth boundary.

68-100 Greyish brown (2.5YR 5/2) heavy clay loam with many medium distinct strong brown mottles (7.5YR 4/6); stoneless; well developed coarse prismatic structure; moist; moderately firm ped strength; very few fine pores and fissures; few fine fibrous roots.