



STATEMENT OF PHYSICAL CHARACTERISTICS
AND
AGRICULTURAL LAND CLASSIFICATION
MILKHOPE, BLAGDON
NORTHUMBERLAND
PROPOSED OCCS
DECEMBER 1994

ADAS
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SUMMARY

An Agricultural Land Classification and Statement of Physical Characteristics survey was carried out on 27 ha of land at Milkhope, Blagdon in December 1994.

At the time of survey 25.8 ha of the site was in agricultural use, of which 21.8 ha falls in Subgrade 3b. These soils are poorly drained, with medium clay loam topsoils overlying slowly permeable heavy clay loam or clay subsoils at around 35cm depth in most cases. Soil wetness is the factor restricting this land to Subgrade 3b.

The remainder of the agricultural land on the site (4.0 ha) falls in Grade 4. These soils have been restored following previous opencast mining, and are also poorly drained. Heavy clay loam topsoils overlie slowly permeable heavy clay loam or clay subsoils at around 25cm depth and soil wetness and topsoil workability limitations are the factors restricting this land to Grade 4.

Other land on this site includes Urban land (a track in the north covering 0.8 ha) and Non Agricultural Land (scrub, also in the north, covering 0.4 ha).

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STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND
CLASSIFICATION REPORT ON THE PROPOSED OPENCAST COAL SITE AT
MILKHOPE, BLAGDON, NORTHUMBERLAND

1. INTRODUCTION AND SITE CHARACTERISTICS

1.1 Location and Survey Methods

The site lies approximately 12km north-north-west of Newcastle city centre and covers a total area of 27 ha. Survey work was carried out in December 1994 when the soils were examined by hand auger borings at 100m intervals predetermined by the National Grid. In addition, two soil inspection pits were dug to allow full profile descriptions to be made. The land quality was assessed using the guidelines published in "Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land" (MAFF, 1988).

1.2 Land Use and Relief

At the time of survey most of the land was under winter cereals, although the field in the south-eastern corner and part of the proposed access road in the north were under permanent grass. Approximately 1.2 ha of the site consists of Non Agricultural and Urban land in the north. Site altitude varies from 66m AOD in the south-west to 54m AOD in the centre and the land is typically level to gently sloping (0-2°) with variable aspect.

1.3 Climate

Grid Reference	: NZ 204 759
Altitude (m)	: 58
Accumulated Temperature above 0°C (January - June)	: 1292 day °C
Average Annual Rainfall (mm)	: 687
Climatic Grade	: 2
Field Capacity Days	: 178
Moisture Deficit (mm) Wheat	: 89
Moisture Deficit (mm) Potatoes	: 75

1.4 Geology, Soils and Drainage

The site is underlain by Carboniferous Coal Measures consisting of interbedded sandstones and shales, but these do not outcrop to within 1.2m of the soil surface. The west and centre of the site are covered by a thick layer of boulder clay and the soils are poorly drained (Wetness Class IV), typically consisting of medium clay loam topsoils overlying heavy clay loam or clay subsoils.

The soils in the south-east of the site and along the route of the proposed access road have been restored following previous opencast mining. The soils here are also poorly drained (Wetness Class IV) and consist of heavy clay loam topsoils overlying heavy clay loam or clay subsoils.

1.5 Soil Properties

Two main soil types occur on this site, descriptions of which are given below. Topsoil and subsoil resources are also shown on the accompanying maps along with soil thickness and volume information.

- (a) Soil Type 1:- Medium to heavy textured soils (Unit T1/S1)
(Full Profile Description, Table 1)

This soil formed on boulder clay occurs in the west and centre of the site. It is characterised by a medium-textured topsoil overlying a heavy-textured subsoil with a moderately developed prismatic structure.

- (b) Soil Type 2:- Restored soils (Unit T2/S2)
(Full Profile Description, Table 2)

This soil, restored following previous opencast mining, occurs in the south-east of the site and along the line of the proposed access road. It is characterised by a heavy-textured topsoil overlying a heavy-textured subsoil with a weakly developed coarse and very coarse subangular blocky structure.

1.6 Soil Resources

(i) Topsoils

Unit T1 occurs in the west and centre of the site. It is medium-textured (generally medium clay loam) and very slightly stony, containing around 2% small and medium subangular sandstones. This topsoil has a weakly developed coarse angular blocky structure and a median unit depth of 30cm.

Unit T2 occurs in the south-east of the site and along the route of the proposed access road. It is heavy textured (heavy clay loam) and very slightly stony, containing up to 3% small, medium and large subangular sandstones and hard stones. Unit T2 has a weakly developed coarse subangular blocky structure and a median depth of 25cm.

(ii) Subsoils

Unit S1 underlies topsoil T1 in the centre and west of the site. It is typically heavy-textured (generally heavy clay loam or clay) and very slightly to slightly stony, containing between 2% and 6% subangular fragments of coal and shale, sandstones and hard stones. This subsoil has a moderately developed medium and coarse prismatic structure and a mean depth of 87cm.

Unit S2 underlies topsoil T2 and has also been restored in the recent past. It is heavy-textured (heavy clay loam or clay) and has a weakly developed coarse and very coarse subangular blocky structure. Unit S2 is very slightly to slightly stony, containing 3-6% angular shales and fragments of coal, and subangular sandstones and hard stones. Mean unit depth is 94cm.

2. SOIL PROFILE DESCRIPTIONS

Table 1 Medium to heavy textured soil, T1/S1

Profile Pit 1 (Near auger boring 14)

Slope:- 1°E
Land Use:- Winter Cereals
Weather:- Cold, bright

Depth cm	Horizon Description
0-33	Dark greyish brown (10YR 4/2) medium clay loam with occasional lenses of rotting organic matter at around 20cm depth; no mottles; very slightly stony, containing around 2% small and medium subangular sandstones; moist; weakly developed coarse angular blocky structure; firm; slightly porous; common fine and very fine fibrous roots; moderately sticky; moderately plastic; non-calcareous; clear wavy boundary
33-120	Grey (10Y/R 5/1) clay with greyish brown (10YR 5/2) ped faces; many distinct reddish yellow (7.5YR 6/8) and brownish yellow (10YR 6/6) mottles, common on ped faces; very slightly stony, containing around 5% small and medium subangular fragments of coal, shale and sandstone; moist; moderately developed medium and coarse prismatic structure; extremely firm; very slightly porous (<0.5% pores > 0.5mm); few fine and very fine fibrous roots; moderately sticky; very plastic; non-calcareous.

Table 2 Restored soil, T2/S2

Profile Pit 2 (near auger boring 17)

Slope:- 1°W
Land Use:- Permanent Grass
Weather:- Cold,bright

Depth cm	Horizon Description
0-23	Dark greyish brown (10YR 4/2) heavy clay loam, no mottles; very slightly stony, containing approximately 3% small, medium and large subangular sandstones and hard stones; moist; weakly developed coarse subangular blocky structure; very firm; slightly porous; many fine and very fine fibrous roots; moderately sticky; very plastic; non calcareous; clear smooth boundary
23-120	Dark grey (10YR 4/1) clay; few distinct reddish yellow (7.5YR 6/8) mottles; slightly stony, containing around 6% small angular shales and fragments of coal and small to large subangular sandstones and hard stones; moist; weakly developed coarse and very coarse subangular blocky structure; very firm to extremely firm; very slightly porous (<0.5% pores >0.5mm); common fine fibrous roots becoming few at depth; moderately sticky; very plastic; non-calcareous.

3. AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2		
3a		
3b	21.8	80.7
4	4.0	14.8
5		
(Sub total)	(25.8)	(95.5)
Urban	0.8	3.0
Non Agricultural	0.4	1.5
Woodland - Farm		
- Commercial		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)	(1.2)	(4.5)
TOTAL	<u>27.0</u>	<u>100</u>

3.1 Subgrade 3b

The west and centre of this site fall in Subgrade 3b. The soils are poorly drained, falling in Wetness Class IV, with medium clay loam topsoils overlying gleyed and slowly permeable heavy clay loam or clay subsoils in most cases. These slowly permeable subsoils typically begin at around 35cm depth. Some profiles show signs of having been disturbed during previous mining activity but the degree of disturbance is now limited and soil wetness is the factor restricting this land to Subgrade 3b.

3.2 Grade 4

Grade 4 land occurs in the south-east of the site and along the route of the proposed access road. This land has been restored following previous opencast operations and the soils are poorly drained, falling in Wetness Class IV. Generally a heavy clay loam topsoil overlies a slowly permeable heavy clay loam or clay subsoil at around 25cm depth. Soil wetness and topsoil workability restrictions are the factors limiting the ALC grade of this land.

3.3 Urban

This consists of an access road in the north of the site.

3.4 Non Agricultural

This category includes an area of scrub, also in the north of the site.

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MAPS