AGRICULTURAL LAND CLASSIFICATION AND STATEMENT OF PHYSICAL CHARACTERISTICS SKIERS SPRING, HOYLAND, SOUTH YORKSHIRE

PROPOSED OPEN CAST COAL SITE

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ADAS

LEEDS STATUTORY GROUP

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SKIERS.ALC/MT

LAND AT SKIERS SPRING, HOYLAND

(PROPOSED OPEN CAST COAL SITE)

SUMMARY

An area of 4.37 ha of land was surveyed, all of which is in agricultural use. 2.11 ha of this is Subgrade 3a land, which occurs in the north, centre and south of the site. Soils in the Subgrade 3a land in the north are well drained (Wetness Class I) and consist of medium-textured topsoils and upper subsoils overlying sandstone bedrock at around 45 cm. depth. Soil droughtiness is the limiting factor in this case. In the centre and south the soils are imperfectly drained (Wetness Class III) and consist of medium-textured topsoils overlying medium to heavy-textured subsoils. Soil wetness is the factor limiting this land to Subgrade 3a.

0.58 ha. of Subgrade 3b land occurs in the north-west of the site. Profiles are either well drained (Wetness Class I) with medium-textured topsoils directly overlying sandstone bedrock (in which case soil droughtiness is the factor limiting A.L.C. grade) or moderately well drained (Wetness Class II) with medium-textured topsoils and upper subsoils overlying heavy-textured lower subsoils. In this case slopes of 8 - 11° limit the land to Subgrade 3b.

1.68 ha. of Grade 4 land occurs in the centre of the site. Soils are similar to those on the Subgrade 3a land in the north and south but shallow underground mine workings restrict the use of agricultural machinery resulting in further downgrading.

CONTENTS

MAPS

1. INTRODUCTION AND SITE CHARACTERISTICS

The site is located around Grid Reference SK372993 and lies approximately 12 km. north of Sheffield city centre and 1½ km north-west of the village of Wentworth. It covers a total of 4.37 ha.

Survey work was carried out in September 1992 when soils were examined by hand auger borings at points predetermined by the National Grid. Overall boring density was approximately 3 per hectare and two soil inspection pits were dug to allow detailed soil descriptions to be made.

All assessments of land quality were made using the methods described in "Agricultural Land Classification of England and Wales, Revised guidelines and criteria for grading the quality of agricultural land" (MAFF, 1988).

Climate

Altitude (m):	80
Accumulated Temperature above 0°C (January - June):	1341 day °C
Average Annual Rainfall (mm):	665
Climatic Grade:	1
Field Capacity Days:	155
Moisture Deficit (mm) Wheat:	99
Moisture Deficit (mm) Potatoes:	87

Land Use and Relief

At the time of survey the north of the site was under permanent grass and the south in arable use.

The site is generally flat to gently sloping (typically 0 - 2°) with a south-westerly aspect. However, slopes of 8 - 11° in the north-western corner of the site limit the land there to Subgrade 3b.

Geology and Soils

The site is underlain by Carboniferous coal measures consisting of inter-bedded sandstones (which occur within 50 cm. of the soil surface in the north of the site) and shales. There are no drift deposits. Soils in the north are typically well drained (Wetness Class I) with medium-textured topsoils and upper subsoils overlying sandstone bedrock at around 40 cm. depth. The soils in the south (which are derived from weathering shales) typically consist of medium-textured topsoils overlying medium to heavy-textured subsoils. Profiles here are usually imperfectly drained, falling in Wetness Class III.

2. AGRICULTURAL LAND CLASSIFICATION

The A.L.C. grades occurring on this site are as follows:-

Grade/Subgrade	Hectares	Percentage of Total Area
3a	2.11	48.3
3b	0.58	13.3
4	1.68	38.4
TOTAL	4.37	100

Subgrade 3a

Land in this subgrade occurs in the north and centre and also in the south of the site. In the north profiles are well-drained (falling in Wetness Class I) and typically consist of medium clay loam or medium silty clay loam topsoils and upper subsoils overlying sandstone bedrock at around 45 cm. depth. Soil droughtiness is the factor which limits this land to Subgrade 3a.

In the centre and south of the site the Subgrade 3a land typically consists of medium-textured topsoils and upper subsoils (consisting of medium clay loam or medium silty clay loam) overlying slowly permeable heavy-textured subsoils at around 45 cm. depth. Profiles are imperfectly drained (falling Wetness Class III) and the land is limited to Subgrade 3a by soil wetness.

Subgrade 3b

Subgrade 3b land occurs in the separate areas in the north-west of the site. The land next to Spring Cottages consists of medium clay loam or medium silty clay loam topsoils and upper subsoils overlying heavy silty clay loam lower subsoils. Profiles are typically moderately well-drained (Wetness Class II) but slopes of 8 - 11° limit the land to Subgrade 3b.

The land east of Spring Lodge consists of medium clay loam or medium silty clay loam topsoils directly overlying sandstones bedrock at around 25 cm. depth. Profiles are well-drained (Wetness Class I) but soil depth and soil droughtiness limit the land to Subgrade 3b.

Grade 4

Grade 4 land occurs in the centre of the site. Typically medium clay loam or medium silty clay loam topsoils overlie heavy silty clay loam, silty clay or clay subsoils. Profiles are imperfectly or poorly drained, falling in Wetness Class III or IV. This area has been affected by subsidence caused by shallow underground mine workings and the risk of further subsidence restricts the use of agricultural machinery. For that reason this land is restricted to Grade 4.

2. STATEMENT OF PHYSICAL CHARACTERISTICS

Two main soil types occur on this site:-

(a) Shallow medium-textured soil over sandstone (Unit T1/S1).

(b) Deep medium to heavy-textured soil (Unit T1/S2).

Topsoils

One topsoil (Unit T1) occurs over the whole site. This soil unit is medium-textured (consisting of either medium clay loam or medium silty clay loam) with a moderately developed fine to medium subangular blocky structure. It is very slightly stony, typically containing around 2% small sandstones and fragments of coal. Median topsoil depth is 25 cm.

Subsoils

Unit S1 occurs in the north of the site and consists of medium-textured material (either medium clay loam or medium silty clay loam in most cases) overlying sandstone bedrock. This soil unit has a moderately developed fine subangular blocky structure and is very slightly to slightly stony (typically containing 4 - 8% small subrounded sandstones). The mean thickness of Unit S1 is 10.0 cm.

Unit S2 occurs in the south of the site and in the north-western corner. Typically this unit is medium to heavy-textured (medium silty clay loam or heavy silty clay loam in most cases) with a moderately developed medium angular blocky structure which becomes weakly developed medium prismatic between 45 and 50 cm. The mean thickness of Unit is S2 is 75 cm.

Pit 1, near Boring 4. Land Use: Permanent Pasture. Slope: 1°S.

Soil Unit T1/S1

Depth (cm)	Description
0 - 25	Very dark greyish brown (10 YR 3/2) medium silty clay loam; no mottles; very slightly stony (2% small sandstones and fragments of coal); moist; well developed fine sub angular blocky structure; friable; many fine fibrous roots; moderately sticky; moderately plastic; non-calcareous; smooth gradual boundary.
25 - 45	Brownish yellow (10 YR 6/6) medium sandy silt loam; no mottles; very slightly to slightly stony (4 - 8% small rounded sandstones); moist; moderately developed fine subangular blocky structure; friable; common fine fibrous roots; slightly sticky; slightly plastic; non-calcareous; clear smooth boundary.
45 +	Weathering sandstone bedrock.

Pit 2, between Borings 9 and 10. Land Use: Arable. Slope: 1°S.

Soil Unit T1/S2

Depth (cm):	Description
0 - 25	Very dark greyish brown (10 YR 3/2) medium silty clay loam; no mottles; very slightly stony (2% small sandstones and fragments of coal); moist; moderately developed medium subangular blocky structure; friable; many fine fibrous roots; moderately sticky; moderately plastic; non-calcareous; smooth clear boundary.
25 - 45	Brown (10 YR 5/3) medium silty clay loam; common greyish brown (10 YR 5/2) mottles; very slightly stony (2% small sub-rounded sandstones); moist; moderately developed medium angular blocky structure; friable; common fine fibrous roots; moderately sticky; moderately plastic; non-calcareous; smooth abrupt boundary.
45 - 100	Grey (10 YR 6/1) clay; common reddish yellow (7.5 YR 6/8) mottles; stoneless; moist; weakly developed medium prismatic structure; extremely firm soil strength; few fine fibrous roots; very sticky; very plastic; non-calcareous.

Resource Planning Team
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