AGRICULTURAL LAND CLASSIFICATION AND STATEMENT OF SOIL PHYSICAL CHARACTERISTICS, NEW PARK FARM, WOODHALL SPA, LINCOLNSHIRE

1.0 BACKGROUND

1.1 The site covers an area of 94.3 ha and is the subject of an application for mineral extraction.

1.2 ADAS Statutory Resource Planning Team undertook a detailed Agricultural Land Classification (ALC) and soil physical characteristics survey of the site during February 1995. Soil inspection using a hand held dutch auger were made on a 100 m grid basis to 120 cm depth, or less if an impenetrable layer was reached. Four soil inspection pits were dug to assess subsoil conditions.

1.3 On the published provisional 1:63 360 scale ALC map, Sheet 114 (MAFF, 1974) the whole site is shown as grade 3 with areas of non-agricultural use.

1.4 At the time of the survey part of the land was being cultivated after sugar beet harvesting, some was down to cabbages, sprouts and leeks and the remainder was in setaside. Being a disused wartime airfield many of the concrete hard standing areas and metalled roads are still in evidence as well as old buildings and a disused house. There are also farm buildings, a dwelling house and large areas of standing machinery within the site boundaries.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data for the site was interpolated from data contained in the published agricultural climatic dataset (Met. Office 1989). This indicates that for an average site altitude of 10 m AOD the annual average rainfall is 600 mm

(23.6") and the accumulated temperature (ATO) is 1418 days °C. This data also indicates that the field capacity days are 118 and moisture deficits for wheat and potatoes are 116 mm and 110 mm respectively. The climatic characteristics do not impose any climatic limitation on the ALC grading of the site.

Altitude and Relief

2.2 The site comprises level land at an altitude of approximately 10 m AOD. It is bounded on the northern edge by the present quarry workings, and, by roads and tracks on the western and southern boundaries.

Geology and Soils

2.3 The published 1:253 440 scale drift edition geology map, sheet 12 (Geol. Survey 1971) shows the site to comprise Pleistocene Plateau Gravels. The published 1:625 000 solid edition geology map, 3rd edition (I.G.S. 1979) shows the area to be underlain with Ampthill Clay and Kimmeridge Clay.

2.4 No detailed soil map exists for the area but the reconnaissance 1:250 000 scale map, sheet 4, "Soils of Eastern England" (Soil Survey of England and Wales, 1983) shows the whole area to comprise the Blackwood Association (*1). Detailed field survey work identified one soil type.

2.5 Soil profiles typically comprise slightly stony non calcareous loamy medium sand topsoils over moderately stony non calcareous medium sand/loamy medium sand subsoils. The soils are free draining and were assessed as wetness class I. In some areas impenetrable gravel/stones was encountered at 60/80 cms. The physical characteristics of the main soil type is shown in Appendix I together with those of the stony variant.

(*1) Blackwood Association - deep permeable sandy and coarse loamy soils. Groundwater controlled by ditches.

3.0 AGRICULTURAL LAND CLASSIFICATIONS

3.1 The breakdown of Agricultural Land Classification (ALC) grades in hectares and percentage terms is shown below.

AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
3b	75.5	80.1
Urban	7.4	7.8
Non Agricultural	10.3	10.9
Agricultural Buildings	1.1	1.2
TOTAL	94.3	100.0

The definitions of the ALC grades are shown in Appendix 2.

Subgrade 3b

3.2 All the land available for agricultural production has been mapped as subgrade 3b. The free draining sandy soils over sand are significantly droughty and precluded from a higher grade due to droughtiness restrictions. Insufficient irrigation water is available to allow an upgrade.

3.3 Urban

Areas mapped as urban comprise agricultural dwelling houses, metalled roads and hard surface tracks.

Non Agricultural

3.4 Areas mapped as non agricultural comprise parts of the concreted runway system and infilled areas where the runways have been removed. Also areas of agricultural waste and standing machinery.

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REFERENCES

GEOLOGICAL SURVEY OF GREAT BRITAIN, (England and Wales) 1971. Drift Edition, Sheet 12. 1:253 440 scale.

INSTITUTE OF GEOLOGICAL SCIENCES, 1979. Third Edition (Solid). South Sheet. 1:625 000 scale.

MAFF 1974. Agricultural Land Classification map Sheet 114. Provisional 1:63 360 scale.

MAFF 1983. Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for Grading the Quality of Agricultural Land. MAFF - London.

METEOROLOGICAL OFFICE 1989. Climatalogical data for Agricultural Land Classification Met. Office, Bracknell.

SOIL SURVEY OF ENGLAND AND WALES 1983. Sheet 4, Eastern England 1:250 000 scale.

Appendix 1

STATEMENT OF SOIL PHYSICAL CHARACTERISTICS

Typical soil profile

Topsoil	Texture	:	loamy medium sand
	Colour	:	10YR2/1
	Stone	:	6% small and medium flints
	Roots	:	many, fine and very fine
	Depth	:	35 cm
Upper Subsoil	Texture	:	medium sand
	Matrix Colour	:	2.5Y7/4 and 10YR6/6
	Stone	:	10% small and medium flints
	Structure	:	single grain
	Consistence	:	loose
	Roots	:	many fine and very fine
	Depth	:	60 cm
Lower Subsoil	Texture	:	medium sand
	Matrix Colour	:	10YR6/6, 10YR6/8 and 2.5Y7/4
	Stone	:	25% small and medium flints
	Structure	:	single grain
	Consistence	:	loose
	Roots	:	few, fine and very fine
	Depth	:	120 cm

Stony variant

Topsoil	Texture	:	loamy medium sand
	Colour	:	10YR3/1
	Stone	:	5% small and medium flints
	Roots	:	many, fine and very fine
	Depth	:	32 cm
Upper Subsoil	Texture	:	loamy medium sand
	Matrix Colour	:	10YR4/2 and 10YR5/1
	Stone	:	8% small and medium flints
	Structure	:	weakly developed, medium and coarse sub angular blocky.
	Consistence	:	very friable
	Roots	:	many fine and very fine
	Depth	:	45 cm
Lower Subsoil	Texture	:	medium sand (and gravel)
	Matrix Colour	:	10YR6/8 and 10YR7/6
	Stone	:	50% small and medium flints
	Structure	:	single grain
	Consistence	:	loose
	Roots	:	few, fine and very fine
	Depth	:	120 cm

Appendix 2

Grade 1 - excellent quality agricultural land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly include top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 - very good quality agricultural land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

Subgrade 3a - good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b - moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

Grade 4 - poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or levels of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yield of which are variable. In most climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 - very poor quality agricultural land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.