AGRICULTURAL LAND CLASSIFICATION

GRUNDISBURGH ROAD, WOODBRIDGE, SUFFOLK

1. INTRODUCTION

1.1 A detailed Agricultural Land Classification (ALC) survey of this 3.23 hectare site was made during April 1990.

1.2 The Agricultural Land Classification provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The limitations can operate in one or more of four principal ways: they may affect the range of crops which can be grown, the level of yield, the consistency of yield and the cost of obtaining it. The classification system gives considerable weight to flexibility of cropping, whether actual or potential, but the ability of some land to produce consistently high yields of a somewhat narrower range of crops is also taken into account.

1.3 The principal physical factors influencing agricultural production are climate, site and soil. The main climatic factors which are taken into account are temperature and rainfall, although account is also taken of exposure, aspect and frost risk. The site factors used in the classification system are gradient, micro relief and flood risk. Soil characteristics of particular importance are texture, structure, depth and stoniness. In some situations chemical properties may also influence the long term potential of land and are taken into account.

1.4 These factors result in varying degrees of constraint on agricultural production. They can act either separately or in combination, the most important interactive limitations being soil wetness and droughtiness. The grade or subgrade of land is determined by the most limiting factor present. Five grades of land are recognised ranging from Grade 1 land of excellent quality to Grade 5 land of very poor quality. Grade 3, which constitutes about

half of the agricultural land in England and Wales is divided into two subgrades designated 3a and 3b.

1.5 Details of the Agricultural Land Classification (ALC) System are contained in MAFF's Revised guidelines and criteria for grading the quality of agricultural land. Descriptions of the ALC grades and subgrades are provided in Appendix 1.

2. BACKGROUND TO THE SITE

2.1 On the Ministry's published 1:63360 scale provisional ALC map (Sheet No 150) (MAFF, 1972) the site is graded 2. For detailed site-specific appraisals however, these maps are inappropriate as they were initially surveyed at a reconnaissance level, for strategic planning purposes, and often do not show smaller areas (ie less than 80 hectares) of individual ALC grades.

2.2 The site comprises one enclosure which was under winter cereals at the time of survey.

2.3 A total of 15 soil inspections were made over the site using a hand held 125 cm Dutch soil auger. These inspections were supplemented by observations from 2 soil pits.

3. PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

3.1 Site specific climate data has been obtained by interpolating information contained in the 5 km grid dataset produced by the Meteorological Office, (Met Office, 1989).

3.2 The annual average rainfall is approximately 605 mm (23.8 inches) which is low by national standards. Soils are likely to be at field capacity for a relatively short period of approximately 107 days. During this time the workability of the land may be impaired because of the slow permeability of the subsoils.

3.3 The accumulated temperature for this area is approximately 1409 degrees celsius. This parameter indicates the cumulative build up of warmth available for crop growth, and has an influence on the development of soil moisture deficits (SMD)* and susceptibility to drought; the soil moisture deficits for potatoes and wheat are 118 mm and 121 mm respectively.

3.4 The site is neither particularly exposed nor frost prone.

3.5 There is no overall climatic limitation to the agricultural use of this land.

Altitude and Relief

3.6 The land lies fairly level across the site at an altitude of 40 m AOD. Gradient and altitude do not constitute limitations to the ALC grade.

Geology and Soils

3.7 The geology of the area has been mapped recently on two occasions. Firstly in 1950 at 1:63360 scale (Geological Survey of GB, 1950) and secondly, in 1972 at 1:25,000 scale (Institute of Geological Sciences, 1972). These maps show the survey area to comprise boulder clay deposits.

* SMD represents the balance between rainfall and potential evapotranspiration occurring during the growing season. For ALC purposes the soil moisture deficits developing under a winter wheat and maincrop potato cover are considered. These 'reference' crops have been selected because they are widely grown, and in terms of their susceptibility to drought, are representative of a wide range of crops.

3.8 The Soil Survey of England and Wales have mapped the soils of the Woodbridge area at a reconnaissance scale of 1:250,000. This map shows the occurrence of the Burlingham 3 Association (*1) over the survey area. During the current survey the soils were examined in more detail.

Two main soil types occur.

3.8.1 The majority of the site is covered by soils which typically comprise non calcareous heavy clay loam topsoils over non calcareous or slightly calcareous clay subsoils which overlie chalky clays at depth.

3.8.2 Towards the north east corner of the site the soils are clayey and calcareous. Profiles typically comprise calcareous heavy clay loam topsoils over calcareous chalky clay subsoils.

4. AGRICULTURAL LAND CLASSIFICATION

4.1 The table below shows the proportion in hectarage and percent terms, of the ALC grades.

	Agricultural Land Classification	
Grade	ha	%
3a	1.7	52.6
3b	1.5	46.5
Urban	0.03	0.9
TOTAL	3.23	100

5. SUBGRADE 3a

Land graded 3a occurs in two main situations.

(*1) Burlingham 3 Association: Deep fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Some similar fine or coarse loamy over clayey soils. Some deep well drained coarse loamy over clayey, fine loamy and sandy soils.

5.1 Towards the southeastern quarter of the site land is associated with the decalcified clayey soils described in paragraph 3.8.1 above. Profile pit observations indicate that the subsoils are slowly permeable at depth (40/45 cm+ ie. wetness class II). The topsoils are heavy (ie. heavy clay loams) and non calcareous. These wetness and workability limitations combine to impose a moderate limitation on the ALC grade.

5.2 In the northeastern corner of the site, land graded 3a, is associated with the soils described in paragraph 3.8.2. The subsoils are slowly permeable directly below the topsoil (ie. wetness class III). Slowly permeable subsoils and heavy calcareous topsoils combine to exclude the land from grade 2.

6. SUBGRADE 3b

6.1 Most of the western half of the site has been graded 3b. The land is associated with the soils described in paragraph 3.8.1. Profiles are decalcified in the upper horizons and the subsoils are slowly permeable (ie. wetness class III). These factors combine to impose a significant limitation on the agricultural potential of this land. Thus the land is restricted to subgrade 3b (Moderate quality agricultural land).

7. URBAN

7.1 A garden has been mapped as urban.

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Appendix 1

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 includes 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 root crops. The level of yield is generally high but may be lower more more variable than Grade 1.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations will affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. When more demanding crops and 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 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 level of yields. It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yields 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.

References

GEOLOGICAL SURVEY OF GREAT BRITAIN 1950. Drift edition geology map sheet 207 scale 1:63,360.

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MAFF 1972. Agricultural Land Classification Map Sheet 150. Scale 1:63360.

MAFF 1988. Agricultural Land Classification of England and Wales (Revised Guidelines and criteria for grading the quality of agricultural land). Alnwick.

METEOROLOGICAL OFFICE 1989. Data extracted from the published ALC agroclimatic dataset.

SOIL SURVEY OF ENGLAND AND WALES 1983. 'The Soils of Eastern England' Sheet 4 1:250,000.