AGRICULTURAL LAND CLASSIFICATION

ELMSWELL SUFFOLK

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1. BACKGROUND

1.1 The site, an area of 44.7 hectares is the subject of a planning application for a golf course and clubhouse. In August and September 1992, ADAS Resource Planning Team undertook a detailed Agricultural Land Classification (ALC) survey of the site at an auger boring density of approximately one boring per hectare. These borings were supplemented by two soil inspection pits, to provide more detailed information on subsoil conditions. Slope measurements were also taken where appropriate to assess gradients.

1.2 On the provisional 1:63,360 scale Agricultural Land Classification Map, sheet no. 136 (MAFF 1972) almost all of the site has been mapped as grade 2. A small sliver of grade 3 land is mapped on the eastern boundary of the site. The above map is of a reconnaissance nature designed primarily for strategic planning and the current survey was undertaken to provide more detailed information on land quality for the site.

2. 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 the survey area's average altitude of 60m AOD, the annual average rainfall is 605mm (23.8"). This data also indicates that the field capacity days are 112 and moisture deficits for wheat and potatoes are 114 mm and 108 mm respectively. These climatic characteristics do not impose any climatic limitation on the ALC grade of the site.

Altitude and Relief

2.2 A small stream runs in a southerly direction across the site, dissecting the area with a valley feature. The land surveyed rises in altitude from 47m in the valley floor to approximately 65m AOD. Typically the gradients are gentle (between 2-4°), but the south eastern valley side is steeper (typically 8-9°).

Geology and Soils

2.3 The published 1:50,000 scale, solid and drift edition geology map, sheet 189 (Geological Survey of England & Wales, 1982) shows the majority of the site to be covered by boulder clay. The above mentioned stream has associated alluvium and head deposits and there are patches of glacial sand and gravel in the east and central parts of the site. These drift deposits overlay Quaternary Crag except in the south of the site where the valley has cut down to Cretaceous Upper Chalk.

2.4 No detailed soil map is available of the area but the reconnaissance 1:250,000 scale soil map "Soils of Eastern England" published by the Soil Survey of England and Wales in 1983, shows almost all of the site to be covered by Ashley (572q) Association (*1) soils. Along the northern boundary of the site there is a narrow band of Hanslope (411d) Association (*2) soils. During the survey work two soil types were identified.

2.4.1 The first soil type is found in the northern and eastern parts of the site. Typically these soils have well drained sandy clay loam generally to a depth of 60 cm (range 40/120 cm) over chalky boulder clay containing up to 20% chalk and flints. Often below 80 cm soils become too stony to auger. Topsoils tend to be non calcareous but subsoils become calcareous at depth. There is a slightly heavier variant of this soil type with deep heavy clay loams over clay (wetness class I).

2.4.2 The second soil type is found in the south west of the site along the valley feature and also along the northern edge of the site. Typically the soils are heavier in texture with heavy clay loam (occasionally clay) topsoils to a depth of 35 cm, over clay subsoils. Some profiles are calcareous throughout, some calcareous in subsoils only (associated with chalky boulder clay) and some are non calcareous throughout. Drainage characteristics within these profiles are variable (Wetness Class II/III).

(*1) Ashley Association - fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging, associated with similar but wetter soils. Some calcareous and non-calcareous slowly permeable clayey soils.

(*2) Hanslope Association - slowly permeable calcareous clayey soils. Some slowly permeable non-calcareous clayey soils. Slight risk of water erosion.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The definition of the ALC grades (MAFF, 1988) are included in Appendix 1.

3.2 Most of the northern and eastern parts of the site are graded 2 with the western area and valley graded 3a. A small area north of the church has been graded 3b. The table below shows the precise breakdown of the ALC grades of the site.

	Agricultural Land Classification	
	ha	%
Grade 2	21.0	47
Subgrade 3a	20.2	45
Subgrade 3b	3.5	8
TOTALS	44.7	100

3.3 Grade 2

The grade 2 land is associated with the soils described in paragraph 2.4.1. These soils are generally well drained (Wetness Class I occasionally wetness class II) and hold moderately good reserves of available water for crop growth. However the very dry climate in this area results in a slight droughtiness limitation which excludes this land from grade 1. Some profiles also show evidence of profile wetness in the lower subsoils which would also restrict the land to grade 2. Grade 2 land also occurs in areas of moderately well drained (wetness class III) calcareous profiles where sandy clay loam topsoil overlie slowly permeable clay subsoils.

3.4 Subgrade 3a

3.4.1 This land is associated with the heavier textured soils as described in paragraph 2.4.2. Soils are slowly permeable at depth (wetness class II) and this combined with non calareous heavy clay loam textured topsoils excludes this land from a higher grade on wetness and workability grounds.

3.4.2 Although smaller area of wetness class III soils occur locally, often in conjunction with heavier clay topsoils, these profiles are typically calcareous throughout, This improves the structural stability of the soil and the land is therefore eligible for subgrade 3a.

3.5 Subgrade 3b

This is associated with land that has gradients in excess of 7° restricts the type and range of machinery that can be effectively and safely used.

This area is also believed to contain disturbed soils which have been used to infill an old pit.

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REFERENCES

GEOLOGICAL SURVEY OF GREAT BRITAIN (ENGLAND & WALES) 1982. Solid and drift edition, sheet 189 1:50 000.

MAFF 1972. Agricultural Land Classification Map, Sheet 136, Provisional 1:63,360.

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

METEOROLOGICAL OFFICE 1989. Climate data extracted from the published agricultural climatic dataset.

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

SOIL SURVEY OF ENGLAND AND WALES 1984. Soils and their use in Eastern England by C A Hodges, R G O Burton, W M Corbett, R Evans and R S Seale, Harpenden.

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 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 yields 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 winter 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 (eg. 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.

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Map 1: Agricultural Land Classification