AGRICULTURAL LAND CLASSIFICATION

LAND AT HALFWAY HOUSE FARM

STANDSTEAD ABBOTS

HERTS

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LAND AT HALFWAY HOUSE FARM, STANDSTEAD ABBOTS, HERTFORDSHIRE

1.0 INTRODUCTION

1.1 The site, an area of 54.9 hectares in the subject of an application by the landowner, Mr Findlay for the provision of a golf course. ADAS carried out a semi-detailed Agricultural Land Classification survey of the site in July 1992 at an auger boring density of approximately 1 boring per 2 hectares. These borings were supplemented by 3 soil inspection pits in order to assess subsoil conditions.

1.2 On the published Agricultural Land Classification Map sheet no 161 (Provisional, scale 1:63,360, MAFF 1971) two thirds of the site is mapped as grade 2 and the eastern third as grade 3. The current survey was undertaken to provide a more detailed representation of the agricultural land quality.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

2.1 Climate data for the site was obtained from the published agricultural climatic dataset (Met Office 1989). This indicates that for the site's modal altitude of 70m AOD the annual average rainfall is 601mm (23.6"). This data also indicates that the field capacity days are 115 and moisture deficits are 114mm for wheat and 108mm for potatoes. These climatic characteristics do not impose any climatic limitation on the ALC grading of the survey site.

Altitude and Relief

2.2 The survey are falls gently southwards from a maximum height of 75m on the north western edge of the site to a shallow valley feature drained by a small ditch (which was dry at the time of survey). The minimum altitude on the southern boundary of the site is 66m AOD. Gradient and altitude do not constitute any limitation to the ALC grade.

Geology and Soils

2.3 The published 1:50,000 scale solid and drift geology maps, sheets 239 and 240 (Geological Survey of Great Britain 1978 and 1981) show the majority of the site to comprise Recent and Pleistocene boulder clay with a small outcrop (to the east) of glacial sand and gravels. In addition, at the south-east corner there are two small outcrops of Recent and Pleistocene head gravel.

2.4 The Soil Survey of England and Wales have mapped the soils on two occasions. Firstly in 1968 at 1:63360 scale sheet No 148, and secondly in 1983 at a reconnaissance scale of 1:250,000. These maps both indicate that the majority of the site comprises the Hanslope Association* which is derived from the chalky boulder clay geological deposits. These are typically calcareous clays which are slowly permeable at variable depth. The eastern part of the site is mapped as the Chelmer Association** (1:63360 scale) which corresponds to the Melford Association mapped on the more recent 1:250,000 scale map. These soils are derived from the loamy and gravelly drift over glacial gravels. The soils observed during the ADAS survey are generally consistent with the published maps although an area of clay loam, brickearth type soils was observed to the west. This corresponds with the Hatfield Association*** which is mapped on the small scale soil maps at the extreme south of the site. During the recent field survey three soil types were identified.

2.4.1 The first soil type comprises heavy textured soils which have been mapped to the west. Profiles typically comprise calcareous clay topsoils which overlie gleyed, calcareous, clay subsoils (ie wetness class III).

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* HANSLOPE ASSOCIATION - Slowly permeable clayey soils. Some slowly permeable non-calcareous clayey soils (1983).

** CHELMER ASSOCIATION - Gleyed brown earth derived from loamy and gravelly drift over glacial gravel, London Clay or boulder clay. Imperfect to free, mainly moderate drainage (1968).

*** HATFIELD ASSOCIATION - Brown earth derived from brickearth, locally thin over gravel, free to moderate drainage (1968).

These horizons are slightly stony with chalk fragments which become more abundant with depth. In the south western corner of the site a decalcified variant of this soil type outcrops; the decalcified nature of the upper horizons effects the topsoil workability of the land.

2.4.2 The second soil type is stonier and derived from the glacial gravels and occur towards the east. Profiles typically comprise slightly or moderately stony clay loam topsoils over stonier clay loam and clay subsoils. These profiles are freely draining but experience a moderate droughtiness restriction.

2.4.3 The third soil mapped is derived from brickearth type deposits. These occur in a limited area in the centre (west) of the site. Profiles typically comprise non calcareous, medium silty clay loam topsoils over medium clay loam upper subsoils which become heavier at depth. These profiles are generally well drained; ie wetness class I although occasionally, slight ground waterlogging restricts the land to wetness class II.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the Agricultural Land Classification grades are included in Appendix 1.

3.2 The majority of the site has been mapped as grade 3a, with smaller areas of 2 and 3b. The table below shows the precise breakdown of the ALC grades for the site.

AGRICULTURAL LAND CLASSFICIATION

Grade	ha	%
2	7.9	14.4
3a	40.8	74.3
3b	5.7	10.4
Non Agricultural	0.5	0.9
TOTAL	54.9	100.0

3.3 Grade 2

The grade 2 land is associated with the brickearth type soils described in paragraph 2.4.3. These soils are generally well drained and hold good reserves of available water for crop growth. The combination of dry climate and fine loamy soil textures results in a slight droughtiness limitation which excludes this land from grade 1. Some of the profiles show evidence of slight waterlogging at depth in these instances profile wetness also restricts the land to grade 2 (very good quality agricultural land).

3.4 Subgrade 3a

Approximately three quarters of the site has been graded 3a and is associated with the soils described in paragraphs 2.4.1 and 2.4.2.

The clay topsoils and slowly permeable subsoils of the calcareous boulder clay derived soils (2.4.1) limit the length of time in the year in which these soils can be worked. As a result of wetness class (ie III) and topsoil workability an ALC grade of 3a is assigned to this land.

The stony soils (2.4.2) are limited to grade 3a on two accounts: The moderately high percentage by volume of stones in the topsoil acts as an impediment to cultivation, harvesting and crop growth and secondly profile stones impose a moderate droughtiness limitation. Consequently droughtiness and topsoil stone imperfections exclude the land from a higher grade.

3.5 Subgrade 3b

A small area of the site has been graded 3b and is associated with the decalcified soil variant described in paragraph 2.4.1. Heavy decalcified, topsoil textures and poorly drained subsoils (ie wetness class III) combine to limit the flexibility of the land for crop cultivation. Consequently a grade of 3b has been assigned to this land.

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ADAS Statutory Unit
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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 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 level of yields. It is mainly suited to grass with occasional arable crops (eg cereal and forage crops) the yields of which are variable. In moist 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 ENGLAND AND WALES (1978 & 1981). Sheets 239 and 240, 1:50,000 scale. Solid and Drift edition.

MAFF (1971). Agricultural Land Classification Map sheet 161 Provisional 1:63,360 scale.

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

METEOROLOGICAL OFFICE (1989). Published climatic data extracted from the agroclimatic dataset, compiled by the Meteorological Office.

SOIL SURVEY OF ENGLAND AND WALES (1968). Sheet 148, 1:63,360 scale.

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

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Map 1: Agricultural Land Classification