

AGRICULTURAL LAND CLASSIFICATION

HILL HALL AND COLEMAN'S FARMS, STAPLEFORD TAWNEY, ESSEX

1.0 BACKGROUND

- 1.1 An Agricultural Land Classification (ALC) survey of the 112.5 ha site was undertaken on behalf of MAFF in November 1993 using guidelines contained in MAFF publication, Revised Guidelines and Criteria for Grading the Quality of Agricultural Land.
- 1.2 The survey was undertaken using a hand held dutch auger and soils were sampled at one boring per 1½ ha on the northern part of the site and one boring per hectare on the southern part of the site to at least 100 cm or to an impenetrable layer if closer to the surface. This information was supplemented by data collected from 2 soil profile pits.
- 1.3 On the provisional 1:63,360 scale ALC map, sheet 161, the site has been mapped as grade 3. The map is of a provisional nature and does not subdivide grade 3. The current survey was undertaken therefore to provide more detailed site specific information on land quality.
- 1.4 The northern part of the site was cultivated and sown with winter cereals except for an area to the north east of the farm buildings which was partially under grass and partly emergent oil seed rape. The southern part had recently been ploughed.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

- 2.1 Climate data for the site was extrapolated from data published in Agricultural Climatic Dataset (Meteorological Office 1989). This indicates that for an average site altitude of 60 m AOD, the annual average rainfall is 598 mm (23.5"), the field capacity days are 115 and moisture deficits for wheat and potatoes are 118 mm and 113 mm respectively. These climatic characteristics do not impose any limitation on the ALC grade for the site.

Altitude and Relief

- 2.2 From a high point of 90 m AOD at the northern end of the site the land slopes in a southerly direction for approximately 700 m to meet the track leading into the farm buildings in the valley bottom. To the south of the track the land falls in an easterly direction from an altitude of approximately 70 m AOD alongside the road on the western boundary to 40 m AOD beside the stream in the valley bottom. The land south of the motorway embankment is bounded by roads on the western and southern edge and falls in a southerly direction from 55 m AOD to 30 m AOD forming the upper valley slopes of the River Roding. At the extreme northern end of the site, slopes of 7-9° were measured therefore limiting the agricultural quality to subgrade 3b. Slopes were not limiting however over the remainder of the site.

Geology and Soils

- 2.3 The geology maps for the area show that the site is situated on London Clay which is exposed on the majority of the area. The western and south western part of the site is covered with superficial spreads of Boulder Clay which in places is masked by Boyn Hill Gravel and Taplow Gravel beds.
- 2.4 No detailed soil map exists for the area, but the reconnaissance 1:250,000 scale map "Soils of England and Wales" (Soil Survey, 1987) shows the majority of the site typically to comprise soils of Windsor Association (*1) with a small area in the west of the site comprising soils of Beccles 3 Association (*2).
- 2.5 The first soil type occurs extensively over the northern, eastern and southern parts of the site. In general terms profiles typically comprise very slightly stony (1-5%), non calcareous heavy clay loam or clay topsoils over very slightly stony (1-5%) non calcareous clay. Gleying invariably occur within 35 cm and is evident to depth giving rise to wetness class III.

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- (*1) Windsor Association - slowly permeable seasonally waterlogged clayey soils mostly with brown subsoils. Some fine loamy over clayey and fine silty over clayey soils and, locally on slopes, clayey soils with only slight seasonal waterlogging.
- (*2) Beccles 3 Association - slowly permeable seasonally waterlogged fine loamy over clayey soils and similar soils with only slight seasonal waterlogging. Some calcareous clayey soils especially on steeper slopes.

- 2.6 The second soil type occurs in the south western area of the northern part of the site and two areas of the southern part. Profiles comprise very slightly stony (1-5%) non calcareous medium clay loam topsoil over very slightly stony (1-5%) non calcareous clay. In some auger bores slightly stony (6-15%) clay was encountered. Gleying invariably occurs at 35 cm and is evident to depth giving rise to wetness class III. The soil structure comprises coarse angular blocky/prismatic with chalky boulder clay at depth.
- 2.7 The areas of non-agricultural use are the track from the road to the farm, the farm buildings and houses and the concrete aprons surrounding the buildings.

3.0 AGRICULTURAL LAND CLASSIFICATION

- 3.1 The distribution of Agricultural Land Classification (ALC) grades is shown below:

Grade	ha	%
3a	18.80	16.7
3b	92.00	81.8
Non Agricultural	<u>1.70</u>	<u>1.5</u>
	112.50	100.0

The definitions of the ALC grades are shown in Appendix 1.

Subgrade 3a

- 3.2 This occurs in small areas in the south western and southern parts of the site and comprise imperfectly drained (wetness class III) fine loamy over clayey soils (as described in paragraph 2.6). Due to the medium clay loam topsoil textures, these soils will have moderate winter wetness and workability imperfections, restricting them to subgrade 3a.

Subgrade 3b

- 3.3 This predominates on the site and comprises imperfectly drained (wetness class III) fine loamy over clayey soils (as described in paragraph 2.5). Due to the slightly heavier textured topsoils these soils have a more severe workability restriction than those mapped as subgrade 3a. This therefore limits the land quality to subgrade 3b.

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REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES.

Sheet 240, Epping. Scale 1:50,000. 1981

Sheet 257, Romford. Scale 1:50,000. 1976

MAFF, 1970. Agricultural Land Classification Map Sheet 161, Provisional Scale 1:63,360.

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 agricultural data set, compiled by the Meteorological Office.

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

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 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 (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.