Cambs 13/89

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MAFF Ministry of Agriculture Fisheries and Food

A45 New Settlements Inquiry

Highfields
Proof of Evidence
Agricultural Land Classification

AGRICULTURAL LAND CLASSIFICATION

HIGHFIELDS, CAMBS

1.0 THE AGRICULTURAL LAND CLASSIFICATION SYSTEM

1.1 Agricultural Land Classification (ALC) assesses land quality based on its long term physical potential. The ALC system grades land according to the degree to which its inherent physical characteristics impose long term limitations on agricultural use.

1.2 The main physical factors which are taken into account in assessing ALC grade are climate, site and soil. These may act singly, or in combination to result in varying degrees of constraint on agricultural use. The ALC grade is determined by the most limiting factor present.

1.3 Five main grades of land are recognised ranging from grade 1 land of excellent quality to grade 5 land of very poor quality. Other issues, such as the location of farms, the standard of fixed equipment and the accessibility of land do not affect grading although they may influence land use decisions.

2. BACKGROUND

2.1 This 253 ha site was inspected in autumn 1988 and spring 1989 in connection with proposals to develop a new residential settlement with supporting ammenities. The land surveyed lies adjacent to the A45 road between the villages of Hardwick and Caldecote.

2.2 On the published Agricultural Land Classification map sheet No.135 (Provisional, scale 1:63360 (MAFF 1971) the survey area is shown as grade 2 on the northeast half and grade 3 on the southwest half of the site. The current survey was undertaken to provide a more detailed ALC of the area.

2.3 At the time of the survey the land was in arable use, typical crops include cereals and oilseed rape. A few small fields of permanent pasture occur to the north and west of the site.

3. PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

3.1 Climate data for the site was obtained from the published agricultural climatic dataset. (Met Office, 1989). This indicates that for the site's median altitude (70 m AOD) the annual average rainfall is 562 mm (22.1 inches). This also indicates that field capacity days are 94 and moisture deficits are 114 mm for wheat and 108 mm for potatoes. These climatic characteristics do not impose any climate limitation on the ALC grading of the survey site.

Altitude and Relief

3.2 The land surveyed is gently undulating and rises from 61m and 72m AOD. The highest ground occurring to the west of the site with gentle falls to the south and west. Gradient and altitude do not constitute limitations to the ALC grade.

Geology

3.3 The published 1:50,000 scale drift edition geology map No.187 shows the survey area to comprise glacial boulder clay deposits.

Soils

3.4 The Soil Survey of England and Wales have mapped the "Soils of Eastern England" at a reconnaissance scale of 1:250,000, this map shows the occurrence of the Hanslope Association (*1) on this boulder clay plateau. During the current survey a more detailed inspection of the soils indicated that boulder clay soils predominate.

(*1) Hanslope Association . Slowly permeable calcareous clayey soils. Some slowly permeable non-calcareous clayey soils.

3.4.1 The soils typically comprise calcareous or non-calcareous clay or heavy clay loam topsoils. These commonly overlie on upper subsoil of calcareous clay or occasionally heavy clay loam which merges into chalky boulder clay or clay with chalk or occasionally heavy clay loams at moderate depth.

4. AGRICULTURAL LAND CLASSIFICATION

4.1 The definitions of the Agricultural Land Classification (ALC) grades are included in Appendix 1.

4.2 The table below shows the breakdown of ALC grades for the survey area.

AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
2	12.4	5
3a	178.1	69.8
3b	10.0	4.0
Non Agricultural	36.0	14.5
Urban	16.5	6.7
TOTAL	253.0	100

5. GRADE 2

5.1 Grade 2 has been mapped as a narrow band at the southern end of the site and approximately 12.4 ha falls into this grade. One soil type has been identified, typically derived from the chalky boulder clay deposits. Topsoils principally comprise calcareous heavy clay loams or occasionally clays. These mainly overlie subsoils of calcareous clay which pass into chalky boulder clay at depth. Soil profile pit observations indicate that these soils have slowly permeable horizons present at depth in the subsoils (ie wetnes class II). This land is consequently limited by minor wetness and workability imperfections which derive from the reduced subsoil permeability at depth combined

with the relatively heavy topsoil textures. This together with the slight rise of drought in this low rainfall area excludes the land from grade 1.

6. SUBGRADE 3a

6.1 The majority of the site has been graded 3a and approximately 178.1 ha falls into this grade. Topsoils chiefly comprise calcareous clays or occasionally heavy clay loams which are mainly underlain by chalky boulder clay or occasionally calcareous clay, passing into chalky boulder clay at depth. The subsoils are slowly permeable (wetness class III) and the topsoils are heavy, these factors combine to impose a moderate limitation to the agricultural potential of this land. Thus the land is restricted to subgrade 3a (good quality agricultural land).

7. SUBGRADE 3b

7.1 Land at the western end of the site has been graded 3b and approximately 16.5 ha falls into this grade. The soils typically consist of non-calcareous clay or heavy clay loam topsoils. These generally overlie non/slightly calcareous heavy clay loam or clay upper subsoils that pass into chalky boulder clay or clay with chalk at varying depths.

The subsoils are slowly permeable (wetness class III) and topsoils non calcareous and clayey. These factors combine to impose a significant limitation to the agricultural potential of this land. Thus the land is excluded from a higher grade.

8. Non Agricultural

Woodland, small areas of residential smallholdings and scrub vegetation have been mapped as Non Agricultural.

9. Urban

Residential and industrial buildings have been mapped as urban.

MINISTRY OF AGRICULTURE,
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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 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. When 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 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, 1975: Drift Edition Geology Map No. 187; scale 1:50,000.

MAFF, 1971: Agricultural Land Classification Map No. 135, scale 1:63,360.

MAFF, 1988: Agricultural Land Classification of England & Wales - Revised guidelines and criteria for grading the quality of agricultural land. Alnwick.

METEOROLOGICAL OFFICE, 1989: Climatic Data extracted from the published climatic dataset.

SOIL SURVEY OF ENGLAND AND WALES, 1984: Soils of Eastern England - Sheet No. 4; scale 1:250,000.