LAND SOUTH EAST OF OAKHAM, RUTLAND

Agricultural Land Classification
ALC Map and Report
AUGUST 1997

Resource Planning Team
Eastern Region
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AGRICULTURAL LAND CLASSIFICATION REPORT

Land South East of Oakham, Rutland

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 16.6 ha of land to the south east of Oakham, Rutland. The survey was carried out during July and August 1997.

2. The survey was carried out by the Farming and Rural Conservation Agency (FRCA) for the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with the Rutland Local Plan. This survey supersedes previous ALC information for this land.

3. The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA . The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.

4. At the time of survey the land use on the site was permanent pasture in the northern field with post harvest oilseed rape stubble in the western field alongside the Uppingham road. The part of the south west field within the site contained wheat stubble.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10 000; it is accurate at this scale but any enlargement would be misleading.

6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
3a	15.4	93	93
3b	1.2	7	7
Total surveyed area	16.6	100	-
Total site area	16.6	-	100

7. The fieldwork was conducted at an average density of one boring per hectare. A total of 17 borings and 2 soil pits was described.

8. The majority of the land within the site has been assessed as Subgrade 3a (good quality agricultural land) with two very small areas of land in the north and east of the site assessed as Subgrade 3b (moderate quality agricultural land). The quality of the land in the 3a area is

determined by the depth of soil overlying the Ironstone rock. Moderate droughtiness imperfections preclude the land from a higher grade.

9. To the east land graded subgrade 3b comprises particularly shallow soil profiles overlying the Ironstone rock. Significant droughtiness imprefections exclude the land from a higher grade. The second 3b area has a wetness class of IV which imposes a significant wetness and workability limitation on the flexibility of the land.

FACTORS INFLUENCING ALC GRADE

Climate

10. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

11. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SK 867 080
Altitude	m, AOD	100
Accumulated Temperature	day°C (Jan-June)	1346
Average Annual Rainfall	mm	651
Field Capacity Days	days	142
Moisture Deficit, Wheat	mm	99
Moisture Deficit, Potatoes	mm	89
Overall climatic grade	N/A	Grade 1

12. The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.

13. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (ATO, January to June), as a measure of the relative warmth of a locality.

14. The combination of rainfall and temperature impose no overall limitation to land quality and hence the site has a climatic grade of 1.

Site

15. The site lies at approximately 100 m AOD and is predominantly level with only limited gentle slopes to the north. Therefore neither gradient nor altitude impose a limitation on the land quality of the site.

Geology and soils

16. The published 1:50 000 scale geology map, sheet 157, Stamford (Geological Survey, 1978) shows the majority of the site to be mapped as Middle Lias Marlstone Rock Bed with the northern and southern extremities of the site as Middle Lias Silt and Silty Clay.

17. The 1:250 000 scale reconnaissance soil map of the area (Soil Survey, 1983) shows the site to comprise soils of the Banbury Association. These soils are briefly described as well drained brashy fine and coarse loamy ferruginous soils over ironstone with some deep fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.

18. The current more detailed survey of the site identified similar soils to those described above with almost the whole site consisting of very slightly stony medium clay loam topsoils over similar textured, but slightly stony, upper subsoils. The stones consisted of hard ironstone fragments. Lower horizons typically comprise Ironstone rock. Occasionally, the following situations occurred:

(a) Ironstone rock was not encountered within sampling depth (horizons range from very slightly stony to moderately stony);
(b) Ironstone rock was encountered at shallower depths (to the above)
or (c) subsoils (upper or lower) consisted of slowly permeable silty clays.

AGRICULTURAL LAND CLASSIFICATION

19. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1.

20. The location of the auger borings and pits is shown on the attached sample location map.

Subgrade 3a

21. The majority of the site has been assessed as Subgrade 3a (see para 18 for soils). The presence of Ironstone rock at moderate depths reduces the available water for crop growth. The resultant moderate droughtiness limitation precludes the land from a higher grade. Occasionally, slowly permeable layers were found at depth which resulted in a wetness class assessment of III. In these few instances moderate wetness/workability limitations restrict the land to Subgrade 3a (good quality agricultural land). Locally, in areas too small to delineate at this survey scale, less stony land graded 2 was also encountered (see para 18. (a)).

Subgrade 3b

22. Two very small areas of the site have been assessed as Subgrade 3b. The area on the eastern edge of the site consists of shallow brashy soils (see para 18(b)) which have low reserves of available water for crop growth. Consequently the land is significantly droughty. The second area (north) consists of soils which become slowly permeable directly below the topsoil (see para 18(c)). Such profiles have been assessed as Wetness Class IV which combines with the fine topsoil textures to impose a significant wetness/workability limitation on the ALC grade.

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SOURCES OF REFERENCE

British Geological Survey (1978) *Sheet No.* 157, *Stamford.*
BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land.* MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification.*
Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Sheet 4, Eastern England.*
SSEW: Harpenden.

[ALC Map]

APPENDIX I

DESCRIPTIONS OF THE GRADES AND SUBGRADES

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 or horticultural crops can usually be grown but on some land of this 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 land.

Grade 3: Good to Moderate Quality Land

Land with moderate limitations which affect the choice of crops, the 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 the level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals 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 severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.