Marshleys Farm,
Woburn Road, Bedford.

Agricultural Land Classification
ALC Map and Report

July 1998

Resource Planning Team
Eastern Region
FRCA Cambridge

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AGRICULTURAL LAND CLASSIFICATION REPORT

Marshleys Farm, Woburn Road, Bedford.

INTRODUCTION

1. This report presents the findings of a detailed, Agricultural Land Classification (ALC) survey of 67.1 ha of land at Marsh Leys Farm, Woburn Road, Bedford. The survey was carried out during July 1998.

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 Bedford Borough 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 standing cereals and swathed oilseed rape. The areas mapped as 'Other land' include the farm house and gardens, farm buildings, small areas of woodland,a small lake, and land associated with the embankment of the A421 road including a stormwater balancing reservoir.

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
2	5.7	10	8
3a	42.7	73	64
3b	9.9	17	15
Other land	8.8	N/A	13
Total surveyed area	58.3	100	87
Total site area	67.1	-	100

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 63 borings and 4 soil pits was described.

8. Land mapped as grade 2 (very good quality agricultural land) occurs in small areas in the north and south of the site. Slight wetness and workability limitations and slight droughtiness limitations are equally restricting thus limiting the land to this grade.

9. Land mapped as subgrade 3a (good quality agricultural land) occurs over the majority of the site. Moderate wetness and workability and droughtiness limitations are equally restricting thus limiting the land to this subgrade.

10. Land mapped as subgrade 3b (moderate quality agricultural land) occurs mainly on the eastern boundary. Severe wetness and workability limitations restrict the land to this subgrade.

FACTORS INFLUENCING ALC GRADE

Climate

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

12. 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	TL 026 457
Altitude	m, AOD	30
Accumulated Temperature	day°C (Jan-June)	1450
Average Annual Rainfall	mm	577
Field Capacity Days	days	101
Moisture Deficit, Wheat	mm	119
Moisture Deficit, Potatoes	mm	115
Overall climatic grade	N/A	1

13. 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.

14. 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 (AT0, January to June), as a measure of the relative warmth of a locality.

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

Site

16. The site is level at an approximate height of 32 m AOD. It is bounded in the east by the railway, and by roads on all other boundaries.

Geology and soils

17. The published 1:250 000 geology map for the area (IGS, 1983) shows the whole area to comprise Oxford Clay. The published 1:625 000 geology map (IGS, 1977) shows no drift deposits for the area.

18. The 1:63 360 scale soil map of the area (SSEW, 1965) shows the site to comprise soils of the Rowsham Association. These are briefly described as non-calcareous gley soils with gravelly and loamy drift over Jurassic Clay.
The 1:250 000 scale reconnaissance soil map (SSEW, 1983) shows the site to comprise soils of the Evesham 3 Association. These are briefly described as slowly permeable calcareous clayey, and fine loamy over clayey soils, with some non-calcareous slowly permeable seasonally waterlogged clayey soils.

19. During the current survey the site was found to be covered with a thin layer of fine loamy drift material. Three main soil types were encountered.

20. In small areas in the north and south of the site profiles typically comprise non-calcareous very slightly stony medium clay loam topsoils over non-calcareous very slightly stony heavy clay loam upper subsoils. Lower subsoils comprise very slightly stony slowly permeable clay (>60 cm depth).

21. Along the eastern boundary, and around the small lake, profiles typically comprise very slightly stony, non-calcareous heavy clay loam topsoils immediately over very slightly stony slowly permeable clay.

22. Over the remainder of the site profiles typically comprise non-calcareous, very slightly stony medium clay loam (occasionally heavy clay loam) topsoils over slightly stony heavy clay loam (occasionally clay) upper subsoil. Lower subsoils vary from stoneless slowly permeable clay to moderately stony sandy clay loam or clay with sandy loam lenses thus reflecting the variability of the drift deposit.

AGRICULTURAL LAND CLASSIFICATION

23. 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, page 1.

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

Grade 2

25. Land mapped as grade 2 occurs in two small areas in the north and south of the site and corresponds to the soils described in paragraph 20. The fine loamy over clayey soils have

been assessed as Wetness Class II, and land is restricted to grade 2 due to equal effects of slight droughtiness and slight wetness and workability limitations.

Subgrade 3a

26. Land mapped as subgrade 3a occurs over the majority of the site and corresponds to the soils described in paragraph 22. The fine loamy over clayey or coarse loamy soils have been assessed as Wetness Class II/III, and land is restricted to this subgrade due either to moderate wetness and workability limitations, or moderate droughtiness limitations.

Subgrade 3b

27. Land mapped as subgrade 3b occurs along the eastern boundary and corresponds to the soils described in paragraph 21. The fine loamy over slowly permeable clayey soils have been assessed as Wetness Class III, and land is restricted to this subgrade due to a more severe wetness and workability limitation.

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SOURCES OF REFERENCE

Institute of Geological Sciences (1977) *Quaternary Map of the United Kingdom. South. 1st Edition. Scale 1:625 000.*
IGS: London.

Institute of Geological Sciences (1983) *Sheet 52 °N-02 °W. East Midlands. Solid Edition Scale 1:250 000.*
IGS: 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 (1965) *Sheet 147. Bedford and Luton. Scale 1:63 360.*
SSEW: Harpenden.

Soil Survey of England and Wales.(1983) *Sheet 4. Soils of Eastern England. Scale 1:250 000.*
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in Eastern England.*
SSEW: Harpenden

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.