ASHFIELD DISTRICT LOCAL PLAN
SITE Se 5,
LAND NORTH WEST OF OAKHAM BUSINESS PARK, MANSFIELD, NOTTINGHAMSHIRE

Agricultural Land Classification
ALC Map and Report

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Resource Planning Team
Eastern Region
FRCA Cambridge

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AGRICULTURAL LAND CLASSIFICATION REPORT

ASHFIELD DISTRICT LOCAL PLAN, SITE Se 5, LAND NORTH WEST OF OAKHAM BUSINESS PARK, MANSFIELD, NOTTINGHAMSHIRE

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 5.0 ha of land to the north west of Oakham Business Park, Mansfield, Nottinghamshire. The site is located to the west of Hamilton Road and is bounded to the north by built development, with a railway line forming the western boundary and open farmland to the south. The site is crossed by an area of rough grass which is the remains of a dismantled railway. The survey was carried out during September 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 Ashfield District Local Plan.. The findings of this survey supersedes any previous information for this site.

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 to the east of the dismantled railway was in set aside whilst the land to the west was under barley 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	2.5	59.6	50.0
3b	1.7	40.4	34.0
Other land	0.8	N/A	16.0
Total surveyed area	4.2	100	-
Total site area	5.0	-	100

7. The fieldwork over the site was conducted at an average density of 1 boring per hectare. A total of 6 borings and 2 soil pits was described, and information from the soil pit dug on the adjoining site Se4 (to the east of Hamilton Road) was also used.

8. The southern part of the site comprises sandy soils with fine loamy soils overlying slowly permeable red marl occupying the north half. The main limitation associated with the sandy soils is drought and under the prevailing climatic conditions such soils are restricted to Subgrade 3a, good quality agricultural land. The heavier textured soils have been mapped as both Subgrade 3a and Subgrade 3b, good and moderate quality agricultural land, due to a wetness and workability restriction. The severity of the wetness limitation is controlled by the depth to the slowly permeable marl, with the deeper soils being mapped as Subgrade 3a and those with a shallower depth on to the marl mapped as Subgrade 3b. No irrigation is available on this land.

9. An area of Other Land has been mapped running south west to north east across the centre of the site. This area of rough grass and bushes is the line of a former railway running into Mansfield, which has been dismantled.

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 520 595
Altitude	m, AOD	140
Accumulated Temperature	day°C (Jan-June)	1286
Average Annual Rainfall	mm	717
Field Capacity Days	days	165
Moisture Deficit, Wheat	mm	91
Moisture Deficit, Potatoes	mm	77
Overall climatic grade	N/A	2

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 at this site results in a slight climatic limitation, which prevents the land being graded higher than grade 2. These climatic factors also interact with soil properties and on this site will enhance the wetness and workability limitations associated with the heavier textured soils.

Site

15. The site falls gently from a high point of 145 m AOD on the southern boundary to approximately 135 m AOD along the northern boundary. Altitude and gradient therefore do not constitute any limitation to the agricultural quality of the site

Geology and soils

16. The published 1:63,360 scale solid and drift edition geology map (Geol Surv, 1971) shows the majority of the site to be underlain by Permo-Triassic Middle Permian Marl, with the southeastern corner mapped as Permo-Triassic Lower Mottled Sandstone.

17. The 1:250,000 scale reconnaissance soil survey map for the area (SSEW, 1983) shows the whole of the site to comprise soils of the Cuckney 1 association. These soils, which are developed on Permo-Triassic reddish sandstone are described as 'well drained sandy and coarse loamy soils, often over soft sandstone.'

18. Three main soil types have been identified during the current survey. On the higher land at the south eastern corner of the site, a small area of deep sandy soils have been mapped. These soils typically have very dark brown, loamy medium sand topsoils overlying medium sand subsoil horizons. The upper horizons are slightly stony with small and medium rounded quartzite pebbles. The soils in this area are free draining and have been assessed as Wetness Class I.

19. On the lower lying land at the northern end of the site, fine loamy over clayey soils have been mapped. These soils typically have a very dark brown medium or heavy clay loam topsoil overlying a reddish brown clay with common faint ochreous mottles. Below approximately 50/60 cm the lower subsoil is a red clay with little or no visible evidence of mottling. Soil structure is typically very coarse angular blocky or prismatic in the clay subsoil horizons and the soils are generally stoneless throughout. The lower subsoil often contains narrow bands or patches of pale greenish heavy silty clay loam. These soils have slowly permeable subsoil horizons and have been assessed as Wetness Class IV.

20. On the middle slopes of the site an intergrade soil has been identified, which has fine loamy over clayey soils overlying soft highly weathered mottled sandstone. These soils have a dark brown medium clay loam topsoil with few small and medium rounded quartzite pebbles overlying a reddish brown, heavy clay loam upper subsoil with common ochreous mottles and coarse subangular blocky structure. Below 45/55 cm depth the lower subsoil is a red clay with faint ochreous mottles and very coarse angular blocky structure. Below 75 cm depth, soft highly weathered red and brown sandstone is encountered which has a coarse platy

structure and a loamy medium sand texture. The red clay is slowly permeable giving rise to periodic waterlogging in the upper horizons and the soils have therefore been assessed as Wetness Class III.

AGRICULTURAL LAND CLASSIFICATION

21. 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.

22. The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix II.

Subgrade 3a

23. The southern part of the site has been mapped as Subgrade 3a, good quality agricultural land and correlates with the sandy soils described in paragraph 17 and the intergrade soils described in paragraph 19. The major limitation associated with the sandy soils is due to droughtiness. Moisture balance calculations indicate that under the prevailing climatic conditions these deep sandy soils are moderately droughty restricting the land quality to Subgrade 3a.

24. In the case of the intergrade soils, wetness and workability limitations are the controlling factors. These soils have slowly permeable lower subsoil horizons which results in periodic waterlogging. Under the prevailing climatic conditions, soils which are assessed as Wetness Class III and having medium clay loam topsoils, are limited to Subgrade 3a.

Subgrade 3b

25. Moderate quality agricultural land, Subgrade 3b, has been mapped in the northern part of the site. This area corresponds to the heavy textured soils developed in the Permo-Triassic Middle Permian Marl. These soils have clay loam topsoil textures overlying slowly permeable red clay and as such have a moderately severe wetness and workability restriction. The soils have been assessed as Wetness Class IV which under the prevailing climatic conditions mean the soils lie wet for long periods of the year. Timing of cultivations, trafficking and stocking therefore needs to be carefully controlled to prevent structural damage occurring to these soils. This moderately severe limitation therefore restricts the land quality to Subgrade 3b.

N A Duncan
for the Resource Planning Team
Eastern Region
FRCA Cambridge

SOURCES OF REFERENCE

British Geological Survey (1970) *Sheet No. 112, Chesterfield, (solid and drift edition) 1:63,360 scale.* 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 3, Midland and Western England* SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in Midland and Western 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.