

**ASHFIELD DISTRICT LOCAL PLAN
SITE Se 4,
LAND SOUTH EAST 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 4, LAND SOUTH EAST OF OAKHAM BUSINESS PARK MANSFIELD, NOTTINGHAMSHIRE

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 20.7 ha of land to the south east of Oakham Business Park, Mansfield, Nottinghamshire. The site is located to the east of Hamilton Road and is bounded to the north by the industrial site, with open farmland to the south and east. 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 most easterly field was growing sugar beet, with the two larger fields to the west under set aside. The small field adjacent to the industrial estate at the north western corner of the site was under rough grass. An irrigation reservoir occupies the south eastern corner of the site.

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	14.2	78.0	68.6
3b	4.0	22.0	19.3
Other land	2.5	N/A	12.1
Total surveyed area	18.2	100	-
Total site area	20.7	-	100

7. The fieldwork over the site was conducted at an average density of 1 boring per hectare. A total of 21 borings and 1 soil pit was described, and information from the two soil pits dug on the adjoining site Se5 (to the west of Hamilton Road) was also used.

8. The majority of the site is dominated by sandy soils with a smaller area of fine loamy soils overlying slowly permeable red marl occupying the north western part. 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 Subgrade 3b, moderate quality agricultural land, due to a moderately severe wetness and workability restriction.

9. Two areas of Other Land have been mapped. The larger area at the south eastern corner of the site comprises a storage reservoir for irrigation purposes. The smaller area toward the western side of the site comprises a water filled trench with an associated soil bund on its eastern side.

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 523 592
Altitude	m, AOD	135
Accumulated Temperature	day°C (Jan-June)	1292
Average Annual Rainfall	mm	713
Field Capacity Days	days	164
Moisture Deficit, Wheat	mm	92
Moisture Deficit, Potatoes	mm	78
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 is gently undulating ranging in altitude from 140 m AOD at the western end to 130 m AOD in the east. The large field on the eastern side falls toward the south east whilst the remaining fields fall toward a minor valley running southwest to northeast across the central part of this area.

Geology and soils

16. The published 1:63,360 scale solid and drift edition geology map (Geol Surv, 1971) shows the northern half of the site to be underlain by Permo-Triassic Middle Permian Marl. The southern part of the site is 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. Two main soil types have been identified during the current survey. On the lower lying land to the north and west 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.

19. Over the remainder of the site, deep sandy soils predominate. These soils typically have very dark brown, loamy medium sand topsoils overlying medium sand subsoil horizons. Included within this mapping unit are profiles with medium sandy loam topsoils and loamy medium sand upper subsoils overlying medium sand below 60 cm depth. Typically, the soils are stoneless throughout although some profiles contain few rounded quartzite pebbles in the upper horizons. The soils of this unit are free draining.

AGRICULTURAL LAND CLASSIFICATION

20. 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.

21. 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.

Irrigation

22. Irrigation is available on this site and the surrounding land, which would benefit crop yields, but this fact has not been taken into consideration when classifying this land in accordance with Planning Policy Guidance Note 7 (PPG7, 1997).

Subgrade 3a

23. The majority of the site has been mapped as Subgrade 3a, good quality agricultural land and correlates with the sandy soils described in paragraph 19. The major limitation associated with these 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. However included within this area are the slightly heavier textured profiles referred to above, which due to their higher moisture holding capacity are less droughty and as such are classified as Grade 2. These profiles however are not sufficiently widespread to warrant separate delineation at this scale of mapping.

Subgrade 3b

24. Moderate quality agricultural land, Subgrade 3b, has been mapped in the north western corner 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.

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SOURCES OF REFERENCE

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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.

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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

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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.