LAND NORTH WEST OF MANSFIELD, NOTTINGHAMSHIRE.
SITE B

Agricultural Land Classification
ALC Map and Report

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Resource Planning Team
Eastern Region
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AGRICULTURAL LAND CLASSIFICATION REPORT

LAND NORTH WEST OF MANSFIELD, NOTTINGHAMSHIRE, SITE B

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 10.7 ha of land to the north west of Mansfield, Nottinghamshire, centred on grid reference SK 511 614. The survey was carried out during October 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 the Mansfield Local Plan process. 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 in the west of the site was grassland with grazing bullocks and the east of the site was sown to cereal. The centre of the site is largely mapped as 'Other' and consists of large covered reservoirs and related infrastructure.

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	4.2	48	39
3a	1.4	16	13
3b	3.2	36	30
Other land	1.9	N/A	18
Total surveyed area	8.8	100	82
Total site area	10.7	-	100

7. The fieldwork was conducted at an average density of one boring per hectare. A total of eleven borings was described. Soil pit information was extrapolated from adjacent sites in which pits had been described.

8. The land within the site consisted of Grade 2 quality land (very good agricultural quality land) in the north west, south west and south east corners of the site. Subgrade 3a quality land (good quality agricultural land) in the middle of the site and Subgrade 3b quality land (moderate quality agricultural land) in the north of the site. The limiting factor for the Subgrade 3a and 3b quality land was found to be wetness and workability whereas the Grade 2 quality land was restricted by droughtiness and/or climatic limitations.

FACTORS INFLUENCING ALC GRADE

Climate

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

10. 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 511 614
Altitude	m, AOD	155
Accumulated Temperature	day°C (Jan-June)	1268
Average Annual Rainfall	mm	724
Field Capacity Days	days	165
Moisture Deficit, Wheat	mm	89
Moisture Deficit, Potatoes	mm	74
Overall climatic grade	N/A	Grade 2

11. 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.

12. 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.

13. The combination of rainfall and temperature at this site mean that agricultural land quality is restricted to a maximum of Grade 2 even if all other factors are favourable.

Site

14. The site is gently undulating with gentle to moderate slopes. The land rises slightly from north to south to a maximum altitude of approximately 162 m AOD along the A6075. Therefore there are no relief or gradient limitations to the quality of the agricultural land.

Geology and soils

15. The published 1:63 360 scale geology map of the area (Geol. Survey, 1971) shows the majority of the site to be covered by boulder clay drift. A band of Lower Magnesian Limestone is mapped along the western parts of the site and a small area in the south west is shown as Lower Mottled Sandstone.

16. The 1:250 000 reconnaissance scale soil survey map for the area (Soil Survey, 1983) shows the majority of the site as soils of the Salop Association with a small area in the west mapped as the Aberford Association. The Salop Association is briefly described as slowly permeable seasonally waterlogged reddish fine loamy over clayey, fine loamy and clayey soils associated with fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. The Aberford Association is described as shallow, locally brashy, well drained calcareous fine loamy soils over limestone with some deeper soils in colluvium.

17. During the current, more detailed survey, two soil types have been identified and are described briefly below.

Soil Type I

18. This soil type is found in the north of the site and consists of a very slightly stony medium or heavy clay loam or occasionally sandy clay loam textured topsoil overlying either a thin upper subsoil of reddish clay or a thicker medium clay loam or sandy clay loam upper subsoil. The upper subsoil overlies a slowly permeable red clay lower subsoil at variable depth.

Soil Type II

19. This soil type was found in the slightly higher land in the south of the site. This soil type was variable but essentially consisted of well drained profiles with a medium clay loam or sandy clay loam topsoil usually overlying a similar textured upper subsoil horizon. The upper subsoil in turn overlies either a sandy or a sandy clay textured lower subsoil. Profiles are typically very slightly stony throughout.

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.

Grade 2

22. Land of Grade 2 quality is found in the north west, south west and east of the site and is associated with Soil Type II (paragraph 19) and a limited area of Soil Type I (paragraph 18). The profiles of Soil Type II are slightly droughty but equally limiting for areas of Soil Type II is a climatic limitation which restricts all the land within the survey area to a maximum of Grade 2 quality.

23. Profiles of Soil Type I have also been graded 2 where the upper subsoil is sufficiently thick for soils to be assessed as Wetness Class II. This land is limited to this grade equally by wetness and workability and climatic limitations.

Subgrade 3a

24. Land of Subgrade 3a quality is restricted to those profiles of Soil Type I (paragraph 18) in which the upper subsoil is of sufficient thickness for such profiles to be assessed as Wetness Class III. These profiles are therefore moderately well drained which together with the medium clay loam or sandy clay loam textures of the topsoil and the prevailing climatic conditions restrict such land to Subgrade 3a quality due to a moderate wetness and workability constraint.

Subgrade 3b

25. The areas of the site of Subgrade 3b quality are associated with the relatively poorly drained profiles of Soil Type I (paragraph 18). These profiles are assessed as Wetness Class IV and with a medium clay loam, heavy clay loam or clay textured topsoil and under the prevailing climate for the site these factors result in a significant wetness and workability limitation restricting such land to Subgrade 3b.

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SOURCES OF REFERENCE

British Geological Survey (1971) *Sheet No.* 112, *Chesterfield. Solid and Drift Edition* 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.

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.