

**HINCKLEY AND BOSWORTH  
LOCAL PLAN  
*Inglenook/Leicester Road, Barwell*  
111/1/1  
Agricultural Land Classification  
February 1997**

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**ADAS Reference: 95/96u  
MAFF Reference: EL 22/1519b  
LUPU Commission: 02633**

# AGRICULTURAL LAND CLASSIFICATION REPORT

## HINCKLEY AND BOSWORTH LOCAL PLAN Inglenook/Leicester Road, Barwell - 111/1/1

### INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 6.4 ha of land west of Leicester Road at Barwell in Leicestershire. The survey was carried out during February 1997.
2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) Land Use Planning Unit, Cambridge, in connection with Hinckley and Bosworth Local Plan. This survey supersedes previous ALC surveys on this land.
3. The work was conducted by members of the Resource Planning Team in the Eastern Statutory Group in ADAS. 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 at the site was predominantly agricultural, being permanent pasture. A substantial area of the site has been mapped as other land and this consists of: a house and associated gardens and outbuildings at White Oaks; a house and its associated garden, farm buildings, caravan park and horse paddock at Inglenook; two ponds in the north of the site; and a small copse and derelict land northeast of Inglenook.

### 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)	% Total site area
3a	1.1	17
3b	3.5	55
Other land	1.8	28
Total surveyed area	6.4	100

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 8 borings were described on this site, with information supplemented by 2 soil pits on surrounding land.

8. The land at the north of the site has been grade 3a (good quality agricultural land), while a larger area in the south has been graded 3b (moderate quality agricultural land) in relation to varying wetness and workability 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 5 km grid datasets using the standard interpolation procedures (Met. Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SP 453 965
Altitude	m, AOD	100
Accumulated Temperature	day°C (Jan-June)	1361
Average Annual Rainfall	mm	651
Field Capacity Days	days	149
Moisture Deficit, Wheat	mm	100
Moisture Deficit, Potatoes	mm	89

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 it is relatively warm and dry. These climatic characteristics are such that in themselves they impose no limitation to land quality and therefore the climate grade for this site is 1.

### Site

14. The land at the site slopes gently southwards from its highest point in the north at 110 m AOD to 96 m AOD in the south. Therefore neither gradient nor altitude impose limitations to land quality.

## **Geology and soils**

15. The published 1:50 000 scale geology map, sheet 155, Coalville (Geological Survey of Great Britain, 1982) shows the majority of the site to be covered by glacial sand and gravel deposits. The northwestern third of the site is mapped as glacial boulder clay deposits.

16. On the 1:250 000 scale published soils map, sheet 3, Soils of Midland and Western England (Soil survey of England and Wales, 1983) the site is mapped as comprising three soil associations. In the north of the site soils of the Wick 1 Association are depicted. These soils are briefly described as deep well drained coarse loamy and sandy soils, locally over gravel. Some similar soils affected by groundwater. Soils of the Salop Association are mapped in the south of the site. These soils are 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. Whimble 3 Association soils are shown at the eastern edge of the site, which are briefly described as reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some similar clayey soils on brows. Slowly permeable seasonally waterlogged fine loamy and fine silty over clayey soils on lower slopes.

17. The current detailed survey identified two main soil types.

18. In a small area in the north of the site light textured soils are present. Profiles typically comprise very slightly stony medium sandy loam or sandy clay loam topsoils over medium sandy loam or sandy clay loam upper subsoils of a similar stoniness. Lower subsoils are typically slightly stony medium sandy loams which often become fine sandy loams at depth. These soils are typically non-calcareous throughout.

19. The majority of the site has heavier textured soils and typically consists of medium, heavy or sandy clay loam topsoils which overlie slowly permeable clays. Occasionally heavy clay loam upper subsoils are present. These soils are typically very slightly stony and non-calcareous 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 is shown on the attached sample location map.

### *Subgrade 3a*

22. Land at the north of the site has been graded 3a and corresponds with the light textured soils described in paragraph 18. These soils suffer from seasonal waterlogging as a result of groundwater and have been assessed as wetness class III (for definition of wetness classes see Appendix II). This factor combines with the topsoil textures to restrict the timing of cultivations. Therefore moderate wetness and workability imperfections limit this land to subgrade 3a.

23. Although individual profiles of better grades were occasionally noted within the above mapping unit, they occurred too randomly or inextensively to permit separate delineation at the scale shown.

*Subgrade 3b*

24. Land graded 3b occurs in the south of the site and is associated with the fine loamy over clayey soils described in paragraph 19. These soils have been assessed as wetness class IV due to the presence of slowly permeable clays within the subsoils. This factor combines with the topsoil textures to restrict land to subgrade 3b due to significant wetness and workability constraints.

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## **SOURCES OF REFERENCE**

Geological Survey of Great Britain (England and Wales) (1982) *Sheet 155, Coalville*.  
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, Soils of 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

### DESCRIPTION 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 that 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 (eg. 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 that restricts use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

## APPENDIX II

### SOIL WETNESS CLASSIFICATION

#### Definitions of Soil Wetness Classes

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

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Wetness Class	Duration of waterlogging <sup>1</sup>
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years. <sup>2</sup>
II	The soil profile is wet within 70 cm depth for 31-90 days in most years <i>or</i> , if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but only wet within 40 cm depth for 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years <i>or</i> , if there is no slowly permeable layer present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years <i>or</i> , if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

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#### Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

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<sup>1</sup> The number of days is not necessarily a continuous period.

<sup>2</sup> 'In most years' is defined as more than 10 out of 20 years.