

## **AGRICULTURAL LAND CLASSIFICATION**

### **LAND NORTH OF MELBOURNE ROAD, LOUNT, LEICESTERSHIRE**

#### **1.0 BACKGROUND**

- 1.1 The site covers an area of 38.3 ha and is the subject of planning application for commercial development.
- 1.2 ADAS Statutory Resource Planning Team undertook an Agricultural Land Classification (ALC) survey on the site. This survey consisted of a semi-detailed survey on the larger western part as this was restored land following open cast coal extraction and a detailed survey of undisturbed land in the east of the site. The survey was carried out during January 1996. Information was collected from 19 auger borings to a depth of 120 cm unless prevented by impenetrable material. Subsoil conditions were assessed from six inspection pits.
- 1.3 At the time of the survey the restored area was under grass and the undisturbed area under autumn sown oil seed rape.
- 1.4 On the published 1:63 360 scale provisional ALC map (MAFF, 1971) the site is shown as grade 3. This map however is of a reconnaissance nature and the current survey was undertaken to provide more detailed site specific information on land quality.

## 2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

### Climate

- 2.1 Climate criteria are considered when classifying land as these may have an overriding limitation in terms of the agricultural use of the land. The main parameters used in the assessment of the overall climate limitation are average annual rainfall as a measure of overall wetness and accumulated temperature (day °C Jan-June) as a measure of the relative warmth of an area.
- 2.2 A detailed assessment of the prevailing climate for the site has been made by interpolation from the 5 km grid data set produced by the Meteorological Office (Met. Office 1989). The details are given in Table 1 and show that there is no overall climatic limitation affecting this site.

**Table 1 : Climatic Interpolation**

Grid Reference	SK 394 198
Altitude (m)	120
Accumulated temperature (Day °C Jan-June)	1329
Average Annual Rainfall (mm)	675
Moisture Deficit, Wheat (mm)	97
Moisture Deficit, Potatoes (mm)	86
Field Capacity (Days)	153
Overall Climatic Grade	1

### Altitude and Relief

- 2.3 The central and southern parts of the site are uniformly even at a height of 110 m AOD. The northern part of the site rises steeply to a height of 120 m AOD giving rise to slopes in excess of 7° thereby restricting the ALC grading on gradient to subgrade 3b. The area on the eastern side is at a height of 120 m AOD falling in an easterly direction to 100 m AOD but the gradient does not impose any limitation to the ALC grading.

## Geology and Soils

- 2.4 On the 1:50 000 geology map (GSEW. 1976) the area is mapped as Carboniferous coal measures with beds of sandstone.
- 2.5 The reconnaissance soil survey map (SSEW. 1983) shows the northern and central part of the site to comprise soils of the Bromsgrove Association (\*1) whilst the southern part of the site comprises soils of the Bardsey Association (\*2). It should be noted that the majority of the site has undergone open cast coal extraction and has been restored to agricultural use. The eastern part of the site is not disturbed and is the only part which is likely to correspond to the mapped soil associations (Bromsgrove Association).
- 2.6 The present survey of the site shows the presence of two soil types.

The first soil type, in the restored area, comprises non calcareous very slightly stony heavy clay loam (occasionally medium clay loam) topsoil over clay subsoils (occasionally heavy clay loam upper subsoil overlaying clay lower subsoil). Gleying and common distinct ochreous mottling generally occurred at 35/40 cm. However these could be relic and not indicative of the present soil water regime. Wetness class was therefore determined from assessment of soil structure in soil pits resulting in a wetness class of IV being ascribed to the majority of the restored area. The second soil type, in the undisturbed area, comprises non calcareous, very slightly stony sandy clay loam topsoil over slightly stony red clay subsoil. Stoniness increased with depth and consisted of soft sandstone tabular plates surrounded

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- (\*1) Bromsgrove Association: well drained reddish coarse loamy soils mainly over soft sandstone, but deep in places. Associated fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Risk of water erosion.
- (\*2) Bardsey Association: slowly permeable seasonally waterlogged loamy over clayey and fine silty soils over soft rock. Some well drained coarse loamy soils over harder rock.

by weathered sandstone which gave rise to sandy clay and occasionally sandy clay loam lenses. Dependent upon depth to the clay horizon the wetness class assessment was III or IV. Sandstone bedrock was encountered between 80 and 120 cm depth.

### 3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The breakdown of Agricultural Land Classification (ALC) grades in hectares and percentages is shown below.

#### AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
3a	4.2	11.0
3b	23.2	60.6
Other Land	10.9	28.4
TOTAL	<u>38.3</u>	<u>100.0</u>

The definition of the ALC grades is shown in Appendix 1.

#### Subgrade 3a

3.2 Land graded subgrade 3a occurs on the western part of the undisturbed land. The soils are imperfectly drained (wetness class III), dependent on the depth to a slowly permeable layer, and comprise fine loamy over slowly permeable clay soils. The major limitation associated with these soils is a wetness and workability restriction which limits them to subgrade 3a.

#### Subgrade 3b

3.3 Land graded subgrade 3b occurs in two areas of the site. The soils in the area on the eastern side of the undisturbed land are poorly drained (wetness class IV), dependant on the depth to a slowly permeable layer and comprise fine loamy over slowly permeable clay soils. The slowly permeable clay is nearer to the surface than on the western side. The soils on the restored area are poorly

drained (wetness class IV) and comprise fine loamy over clay soils with depth to a slowly permeable layer being at 35/40 cms. On the north western section slopes are in excess of 7° restricting this area to subgrade 3b on gradient limitation. The plateau area at the northern end of the site is in some places better drained (wetness class III) but these areas are too small to map separately. Consequently the soils in these two areas are subject to a moderately severe wetness and workability limitation, restricting the land to subgrade 3b.

#### Other Land

- 3.4 Other land consists of woodland, a dwelling plus garden, roads, soil bunds and plant storage areas.

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## **REFERENCES**

**GEOLOGICAL SURVEY OF GREAT BRITAIN (England and Wales) 1976,**  
Sheet 141, Solid and Drift edition. 1:50 000 scale.

**MAFF, 1972. Agricultural Land Classification map. Sheet 121, Provisional 1:63 360,**  
scale.

**MAFF, 1983. Agricultural Land Classification of England and Wales. Revised**  
Guidelines and Criteria for Grading the Quality of Agricultural Land. Alnwick.

**METEOROLOGICAL OFFICE, 1989. Climatological data for Agricultural Land**  
Classification. Met. Office, Bracknell.

**SOIL SURVEY OF ENGLAND AND WALES, 1983. Sheet 3, Midland and Western**  
England. 1:250 000 scale.

## Appendix 1

### **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 include 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 and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable crops. The level of yield is generally high but may be lower or more variable than Grade 1.

### **Grade 3 - good to moderate quality agricultural land**

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where 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 levels of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yield of which are variable. In most 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 very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.*