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Kennet Local Plan,  
Sites of Marlborough

**AGRICULTURAL LAND CLASSIFICATION  
REPORT OF SURVEY**

Resource Planning Team  
Taunton Statutory Unit

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**ADAS** 

# AGRICULTURAL LAND CLASSIFICATION

## KENNET LOCAL PLAN SITES AT MARLBOROUGH, WILTSHIRE

### REPORT OF SURVEY

1. The 3 sites, shown on the accompanying map as A, B, and C cover a total area of 17.8 ha around Marlborough. The land was graded using the Agricultural Land Classification (ALC) system in July 1993. The survey was carried out on behalf of MAFF as part of its statutory role in consultation with Kennet District Council regarding the Kennet Local Plan.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000. The information is correct at this scale but any enlargement would be misleading. A total of 17 auger borings and a soil profile pit were examined.

The distribution of ALC grades identified in the survey area is detailed below and illustrated on the accompanying map.

#### Distribution of ALC grades; Marlborough

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
Area A			
2	2.6	70.3	70.3
3b	<u>1.1</u>	<u>29.7</u>	<u>29.7</u>
TOTAL	3.7	100	100% (3.7 ha)
Area B			
2	<u>5.5</u>	<u>100</u>	<u>100</u>
TOTAL	5.5	100	100% (5.5 ha)
Area C			
2	6.0	69.8	100
Non Agric	1.1	12.8	
Urban	<u>1.5</u>	<u>17.4</u>	
TOTAL	8.6	100%	100% (6.0 ha)

There is no overall climatic limitation for the survey area. The main limitation is a slight drought restriction which is caused by shallow chalky soils and leads to a grading of 2. There is a small area of site A which is limited to Subgrade 3b with a slope limitation.

## 2. INTRODUCTION

A total area of 17.8 hectares of land around Marlborough was surveyed on behalf of MAFF, as part of its statutory role in the consultation with Kennet District Council regarding the Kennet Local plan. The survey was carried out in July 1993 by ADAS (Resource Planning Team, Taunton Statutory Unit) using the Agricultural Land Classification (ALC) system and conducted at a scale of 1:10,000 (approximately one sample point for every hectare of agricultural land). The 17 borings were supplemented by a soil inspection pit used to assess subsoil conditions. The information is correct at the scale shown but any enlargement would be misleading.

The published Provisional 1" to the mile ALC map of this area (MAFF 1973) shows sites A, B and most of C to be Grade 3 with a narrow strip of urban on the northern edge of C. The current survey supersedes any previous surveys and was undertaken to provide a more detailed representation of the agricultural land quality using the Revised Guidelines and Criteria (MAFF 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The grading takes account of the top 120 cm of the soil profile. A description of the grades used in the ALC System can be found in Appendix 2.

## 3. CLIMATE

The grade of the land is determined by the most limiting factor present. The overall climate is considered first because it can have an overriding influence on restricting land to lower grades despite other favourable conditions.

Climatic data for the site was interpolated from the published Agricultural Climate Dataset (Meteorological Office 1989). The parameters used for assessing climate are accumulated temperature (a measure of the relative warmth of a locality) and average annual rainfall (a measure of overall wetness). The results shown in Table 1 indicate that there is no overall climatic limitation.

Table 1 Climatic interpolations: Marlborough

Site	A	B	C
Grid Reference	SU187 709	SU192 384	SU195 684
Height (m)	129	140	153
Accumulated Temperature (day deg)	1389	1391	1362
Average Annual Rainfall (mm)	769	761	777
Overall Climatic Grade	1	1	1
Field Capacity (Days)	170	169	172
Moisture Deficit, Wheat (mm)	93	101	91
Potatoes (mm)	81	92	78

Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat (MDW) and potatoes (MDP) are also shown. This data is used in assessing the soil wetness and droughtiness limitations referred to in Section 6. A description of the Wetness Classes used can be found in Appendix 3.

#### **4. RELIEF AND LAND COVER**

Site A site occupies a north facing slope, the southern part has slopes of greater than 7° and thus restricted to Subgrade 3b with a slope limitation. This field was in set aside at the time of survey. Site B occupies a gently sloping valley feature of 150 m AOD. The land use at the time of survey was barley and wheat crops. Site C also occupies a similar valley feature of between 140 and 150 m AOD. The old railway running along the north of the site is marked as non agricultural and urban whilst the rest of the site was a grass ley at the time of survey.

#### **5. GEOLOGY AND SOILS**

The published 1:50,000 scale solid and drift geology map, sheet 266 (Geological Survey of England and Wales 1974) shows site A to comprise mostly Middle Chalk with narrow bands of valley gravel and alluvium in the north east corner. Sites B and C comprise Upper Chalk with a Central band of Valley Gravel along the valley floor.

The Soil Survey of England and Wales mapped the soils of the area in 1983, at a reconnaissance scale of 1:250,000. This map shows soils over part of site A and all of sites B and C to comprise soils of the Upton 1 Association. These soils are described as shallow well drained calcareous silt soils over chalk, which are mainly on moderately steep sometimes very steep land. The eastern half of site A comprises Coombe 1 Association, these soils are described as well drained calcareous fine silty soils which are deep in valley bottoms and shallow over chalk on valley sides.

The recent survey indicates similar soils over the entire site with the depth to chalk varying from 35 cm to 70 cm. Soils comprise calcareous heavy clay loam topsoils over chalky heavy silty clay loam and silty clay subsoils.

#### **6. AGRICULTURAL LAND CLASSIFICATION**

The distribution of ALC grades identified in the survey area is detailed in Table 2 and shown on the accompanying ALC maps. The information is correct at the scale shown but any enlargement would be misleading.

**Table 2 Distribution of ALC grades; Marlborough**

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
Area A			
2	2.6	70.3	70.3
3b	<u>1.1</u>	<u>29.7</u>	<u>29.7</u>
TOTAL	3.7	100	100% (3.7 ha)
Area B			
2	<u>5.5</u>	<u>100</u>	<u>100</u>
TOTAL	5.5	100	100% (5.5 ha)
Area C			
2	6.0	69.8	100
Non Agric urban	1.1	12.8	
TOTAL	<u>1.5</u>	<u>17.4</u>	
TOTAL	8.6	100%	100% (6.0 ha)

### Grade 2

All the agricultural land at sites B and C and over two thirds of site A has been graded 2. These soils are well drained (wetness Class I) chalky profiles with Heavy clay loam topsoils and shallow upper subsoils. The high chalk stone content ( more than 70% at 35 cms) reduces the amount of moisture available to plant roots , thus imposing a slight drought limitation. However roots were observed to a depth of 80 cm.

### Subgrade 3b

Land in the southern part of site A comprises moderately steep slopes of between 9° and 11°. It is graded 3b due to the limiting affect such slopes have on the use of some types of agricultural machinery.

### Urban and Non Agricultural Land

The railway line in the northern part of site C is marked on the accompanying map as urban . The scrub and woody railway banks are marked as non agricultural land.

## **APPENDIX 1**

### **REFERENCES**

**GEOLOGICAL SURVEY OF ENGLAND AND WALES (1974) Solid and Drift edition. Sheets 266 Marlborough 1:50,000 scale**

**MAFF (1973) Agricultural Land Classification Map Sheet 157 provisional 1:63,360 scale**

**MAFF (1988) Agricultural Land Classification of England and Wales (revised guidelines and criteria for grading the quality of land) Alnwick**

**METEOROLOGICAL OFFICE (1989) Published climatic data extracted from the agroclimatic dataset, compiled by the Meteorological Office**

**SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 5 Soils of South West England 1:250,000 scale**

## APPENDIX 2

### 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 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 root 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 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 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.



## **Descriptions of other land categories used on ALC maps**

### **Urban**

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

### **Non-agricultural**

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: private park land, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

### **Agricultural buildings**

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg polythene tunnels erected for lambing) may be ignored.

### **Open water**

Includes lakes, ponds and rivers as map scale permits.

### **Land not surveyed**

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above land cover types, eg buildings in large grounds, and where may be shown separately. Otherwise, the most extensive cover type will usually be shown.

**Source: MAFF (1988) Agricultural Land Classification of England and Wales (Revised guidelines and criteria for grading the quality of agricultural land) Alnwick.**

## APPENDIX 3

### DEFINITION OF SOIL WETNESS CLASSES

#### **Wetness Class I**

The soil profile is not wet within 70 cm depth for more than 30 days in most years.

#### **Wetness Class II**

The soil profile is wet within 70 cm depth for 31-90 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but not wet within 40 cm depth for more than 30 days in most years.

#### **Wetness Class III**

The soil profile is wet within 70 cm depth for 91-180 days in most years or, if there is no slowly permeable layer 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 and 90 days in most years.

#### **Wetness Class IV**

The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.

#### **Wetness Class V**

The soil profile is wet within 40 cm depth for 211-335 days in most years.

#### **Wetness Class VI**

The soil profile is wet within 40 cm depth for more than 335 days in most years.

**Notes:** The number of days specified is not necessarily a continuous period. 'In most years' is defined as more than 10 out of 20 years.

**Source:** Hodgson, J M (in preparation) Soil Survey Field Handbook (revised edition).