

AGRICULTURAL LAND CLASSIFICATION  
LAND AT PARSONAGE FARM,  
HENFIELD, WEST SUSSEX

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#### 1. INTRODUCTION

- 1.1 In March 1993 an Agricultural Land Classification (ALC) survey was carried out approximately 20 hectares land at Parsonage Farm, Henfield, West Sussex. ADAS was commissioned by MAFF to determine the quality of land in connection with proposals contained in the Horsham District Local Plan.
- 1.2 The survey work was carried out at a detailed level of approximately one boring per hectare. A total of 22 soil auger borings and 2 soil inspection pits were assessed using MAFF's revised guidelines and criteria for assessing the quality of agricultural land (MAFF, 1988). These guidelines provide a framework for classifying agricultural land according to the extent to which the physical or chemical characteristics impose long term limitations on its agricultural use.
- 1.3 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below. The map has been drawn at a scale of 1:5000. Any enlargement of this scale would be misleading.

Table 1: Distribution of Grades and Subgrades

| <u>Grade</u>       | <u>Area (ha)</u> | <u>% total agricultural land</u> |
|--------------------|------------------|----------------------------------|
| 3A                 | 12.0             | 62.2                             |
| 3B                 | 7.3              | 37.8                             |
|                    |                  | <u>100% (19.3 ha)</u>            |
| Woodland           | 0.2              |                                  |
| Urban (road)       | 0.4              |                                  |
| Total area of site | <u>19.9</u>      |                                  |

- 1.4 A general description of the grades and land cover categories is attached.
- 1.5 The majority of the site comprises good quality, subgrade 3A land which is limited by moderate wetness limitations associated with slowly permeable layers in the lower subsoil.
- 1.6 The remainder of the site comprises moderate quality subgrade 3B land which is limited by significant wetness limitations due to slowly permeable layers in the upper subsoil.
- #### 2. PHYSICAL FACTORS AFFECTING LAND QUALITY

##### Altitude and Relief

- 2.1 The site lies at an altitude of 15-23 metres AOD. The highest land being to the south and gently falls northwards. Neither gradient or altitude represent a limitation to agricultural land quality.

## Climate

- 2.2 Estimates of climatic variables were obtained by interpolation from a 5 km grid database (Met Office, 1989) for a representative location in the survey area.

Table 2: Climatic Interpolation

| Grid Reference                              | TQ211 169 | TQ211 166 |
|---|-----------|-----------|
| Altitude (m)                                | 15        | 23        |
| Accumulated Temperature<br>(°days Jan-June) | 1520      | 1511      |
| Average Annual Rainfall (mm)                | 808       | 814       |
| Field Capacity Days                         | 171       | 172       |
| Moisture Deficit: wheat (mm)                | 111       | 110       |
| Moisture Deficit: potatoes (mm)             | 107       | 105       |

- 2.3 These climatic variables do not impose any climatic limitation on the site area. However climate and soil factors do interact to affect soil wetness limitations.

## Geology and Soils

- 2.4 The published 1:50,000 scale Solid and drift edition geology map sheet 318/333, Brighton/Worthing, (Geological Survey, 1984) shows the majority of the site to be mapped as Quaternary 2nd and 3rd River Terrace deposits. To the west in the vicinity of Parsonage Farm is mapped Cretaceous Weald Clay and to the east Quaternary Head deposits.
- 2.5 The published 1:250,000 soils map "Soils of South East England" shows the site to be mapped as Fyfield 4 Association - "Deep well drained often stoneless coarse loamy and sandy soils. Some fine loamy soils with slowly permeable subsoils ... and some slowly permeable seasonally waterlogged fine loamy over clayey soils". (SSEW, 1983).
- 2.6 A detailed examination of soils broadly confirms the presence of one soil type similar to that described above.

## 3. AGRICULTURAL LAND CLASSIFICATION

### Subgrade 3A

- 3.1 Good quality agricultural land represents the majority of the site area. Profiles are non calcareous and comprise very slightly stony (2-3% flints by volume) medium clay loam topsoils. Upper subsoils consist of medium or heavy clay loams and sandy clay loam which is stoneless to very slightly stony (0-5% flints). Lower subsoils typically comprise stoneless to slightly stony (0-10% flints by volume) slowly permeable clay, occasionally heavy clay loam or sandy clay loam. Soils are limited by moderate wetness limitations with a wetness class of III and slowly permeable layers typically occurring between 50 and 70 cm depth. Occasionally better and poorer drained profiles were found but were included in the map unit due to their limited number and extent.

Subgrade 3B

- 3.2 Moderate quality agricultural land covers the remainder of the site area. Profiles are non calcareous and comprise very slightly stony (1-3% flints by volume) topsoils of medium clay loam. Subsoils consist of slowly permeable clay, occasionally medium or heavy clay loam grading to slowly permeable clay which is stoneless to very slightly stony (0-5% flints by volume). Soils are limited by significant wetness limitations with a wetness class of IV and slowly permeable layers typically occurring between 28 and 45 cm depth.

Source of References

- GEOLOGICAL SURVEY, 1984. Geology Map Sheet 318/333  
Brighton/Worthing 1:50,000 scale
- MAFF, 1988 Agricultural Land Classification of England and Wales.  
Revised guidelines and criteria for grading the quality  
of agricultural land. (ALNWICK).
- METEOROLOGICAL OFFICE, 1989. Climatological datasets for  
Agricultural Land Classification.
- SOIL SURVEY OF ENGLAND AND WALES, 1983. Sheet 6, Soils of South East  
England 1:250,000 scale.
- SOIL SURVEY OF ENGLAND AND WALES, 1984. Bulletin 15. Soils and their  
use in South East England.

## DESCRIPTION OF THE GRADES AND SUBGRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur, typical cropping range and the expected level and consistency of yield. In practice, the grades are defined by reference to physical characteristics and the grading guidance and cut-offs for limitation factors in Section 3 enable land to be ranked in accordance with these general descriptions. The most productive and flexible land falls into Grades 1 and 2 and Subgrade 3a and collectively comprises about one-third of the agricultural land in England and Wales. About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4. Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in Grade 5, which mostly occurs in the uplands.

Descriptions are also given of other land categories which may be used on ALC maps.

### **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 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 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 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 parkland, 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.

##### **Woodland**

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

##### **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 map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will usually be shown.

### Definition of Soil Wetness Classes

| 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 not wet within 40 cm depth for more than 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 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. |
| 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 <i>or</i> , 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.     |
| 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.  |

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

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