TETBURY, GLOUCESTERSHIRE

AGRICULTURAL LAND CLASSIFICATION
REPORT OF SURVEY

1. INTRODUCTION

In May 1989 the Resource Planning Group carried out a detailed Agricultural Land Classification (ALC) survey of two blocks of land totalling 15 hectares to the north-east of Tetbury in Gloucestershire. The work was requested as part of MAFF's input to the Cotswold District Council Market Towns Local Plan and was aimed at classifying the land according to the extent to which its physical or chemical characteristics impose long-term limitations on its use for agriculture.

The fieldwork was conducted at an approximate auger sampling density of one boring per hectare, a total of 15 borings and one soil pit were examined. Details of the soil descriptions are provided in the appendices and the sample locations are illustrated on the Auger Sample Point Map. The distribution of the grades and sub-grades for the site are outlined in Table 1 below and are shown on the accompanying ALC map at a scale of 1: 5,000. The information is accurate at the scale shown, but any enlargement of the map would be misleading

Table 1: The Distribution of ALC Grades and Sub-Grades

Grade	Area (ha)	% of Survey Area	% of Agricultural Area
2	3.57	23.2	25.5
3A	4.54	29.4	32.4
3B	3.02	19.6	21.5
4	0.80	5.3	5.7
5	2.09	15.5	14.9
Non-Agric	1.23	7.8	100% (14.02 ha)
Farm Bldgs	0.19	1.2	
	15.44 ha	100%	

2. Climate

Estimates of important climatic variables were obtained by interpolation from a 5 kilometre grid database in order to assess any overall climatic limitation. The results are given in Table 2 below.

Table 2: Climatic Interpolations*

Accumulated Temperature (° days)	:	1387
Average Annual Rainfall (mm)	:	900
Field Capacity Days	:	197
Moisture Deficit, Wheat (mm)	:	84
Moisture Deficit, Potatoes (mm)	:	70

*For grid reference 38991943 at an average altitude of 128 m.

Accumulated temperature is a measure of the relative warmth of a locality and average annual rainfall is a measure of overall wetness. In combination, these interpolations reveal that there is no overall climatic limitation affecting the site.

3. Agricultural Land Classification

3.1 **Northern Block:** : grades 2 and 3A have been identified. In the 3A map unit the soils are typically deep FSZLs which overlie clay in the lower subsoil. The clay forms a slowly permeable layer (SPL) and results in evidence of wetness between 40-70 cm. Wetness Class III is therefore the prevailing wetness class and this, combined with the light topsoil textures and the Field Capacity value of 197 days, results in an ALC classification of sub-grade 3A.

The grade 2 soils are placed in wetness class 2 because of deeper SPLs. Individual profiles may show no evidence of wetness but, partly because of a slight variation in profile depth, no Grade I land has been identified.

3.2 **Southern Block** : grades 3B, 4 and 5 have been identified. The grade 4 and 5 land occupies the steep slopes and base of a narrow river valley and floodplain. The slopes are complicated by a terracette microrelief and the land has therefore been assigned to an ALC category on the basis of the general slope of the landform. Part of the Grade 5 land includes the permanently wet area of the river course and environs.

The 3B land occupies the gently sloping area above the top of the river valley. Here, MCL topsoils are directly underlain by heavy clay. The clay acts as an SPL, and there is clear evidence of wetness in the top 40 cm. Wetness class IV results, and produces an ALC grade of 3B.

3.3 The disused railway line which forms the southern boundary of the Southern Block is classified as Non-Agricultural.

Tetbury, Gloucester

SOIL PIT DESCRIPTION

Topsoil	0-23 cm FSZL 10YR43
Subsoil 1	23-44 cm FSZL/MCL 10YR54 Moderately Developed, Coarse Sub-angular Blocky Friable (= MOderate Structure) Porous (>0.5%, >0.5 mm)
Subsoil 2	44-120+ cm C 2.5Y54/64 (+Some weathering colours 7.5YR68) Very many distinct mottles (2.5Y62) Very Coarse Platy; at least very firm Degree of development not easy to assess (compacted/apedal) (= Poor Structure)
ALC Wetness	Gley from 44 cm SPL from 44 cm Wetness Class III; FCD = 197 days

Grade according to wetness (the most limiting factor) = 3A

Soil Profile Descriptions: Explanatory Note

Soil texture classes are denoted by the following abbreviations:

Sand **S**; Loamy Sand **LS** Sandy Loam **SL**; Sand Silt Loam **SZL**; Silt Loam **ZL**;

Medium Silty Clay Loam **MZCL**; Medium Clay Loam **MCL**; Sandy Clay Loam **SCL**;

Heavy Silty Clay Loam **HZCL**; Heavy Clay Loam **HCL**; Sandy Clay **SC**;

Silty Clay **ZC**; Clay **C**

For the sand, loamy sand, sandy loam and sandy silt loam classes the predominant size of sand fraction may be indicated by the use of prefixes, thus:

F fine (more than $\frac{2}{3}$ of sand less than 0.2 mm)
C coarse (more than $\frac{1}{3}$ of sand greater than 0.6 mm)
M medium (less than $\frac{2}{3}$ fine sand and less than $\frac{1}{3}$ coarse sand)

The sub-divisions of clay loam and silty clay loam classes according to clay content are indicated as follows:-

M medium (less than 27% clay); **H** heavy (27-35% clay)

Other possible texture classes include:

Peat **P**; Sandy Peat **SP**; Loamy Peat **LP**; Peaty Loam **PL**;
Peaty Sand **PS**; Marine Light Silts **MZ**

The prefix **"Calc"** is used to identify naturally calcareous soils containing more than 1% Calcium Carbonate.

For organic mineral soils, the texture of the mineral fraction is prefixed by **"org"**.

Other notation:

st	stones (6 cm)
sst	small stones (2 cm - 6 cm)
vsst	very small stones (2 mm - 2 cm)
Mn	manganese
cdom/cfom	common distinct/feint ochreous mottles
mpom	many prominent ochreous mottles (**VMPOM** = very many ..)

Few = 1-5%; **common** = 6-15%; **many** = 16-35%; **very many** = +35%

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: golf courses, 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.