

WILLITON, SITE 2

AGRICULTURAL LAND CLASSIFICATION

Report of Survey

1. INTRODUCTION

Thirteen hectares of land at a site on the west side of Williton were graded using the Agricultural Land Classification (ALC) System in April 1993. The survey was carried out for MAFF as part of its statutory role in connection with the West Somerset District Local Plan.

The fieldwork was carried out by ADAS Resource Planning Team (Taunton Statutory Unit) at a scale of 1:10 000, with one sample point approximately every hectare. The information is correct at this scale but any enlargement would be misleading. A total of 14 auger borings and one soil profile pit were examined.

The published Provisional 1" to one mile ALC map, Sheet 164 (MAFF 1971), shows the site to be Grade 3. The recent survey supersedes this map having been carried out at a more detailed level and using the Revised Guidelines and Criteria for Grading the Quality of Agricultural Land (MAFF 1988).

The Agricultural Land Classification provides 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 the appendix.

Table 1 Distribution of ALC grades: Williton, Site 2

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	9.8	76	81
3A	2.3	18	19
Non-agricultural	0.1	1	
Urban	0.6	5	
TOTAL	12.8	100%	100%

2. 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.

Estimates of climatic variables were obtained for the site by interpolation from the 5 km grid Meteorological Office Database (Meteorological Office 1989) and are shown in Table 2.

The parameters used for assessing overall climatic limitation are accumulated temperature (a measure of the relative warmth of a locality), and average annual rainfall (a measure of overall wetness). The values shown in Table 2 reveal that there is no overall climatic limitation.

No locally limiting climatic factors such as exposure were noted in the survey area. Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat (MDW) and potatoes (MDP) are also shown. These data are used in assessing the soil wetness and droughtiness limitations referred to in Section 5.

Table 2 Climatic Interpolations: Williton, Site 2

Grid Reference	ST 074 414	ST 074 409
Height (m)	30	35
Accumulated Temperature (day °)	1541	1535
Average Annual Rainfall (mm)	822	831
Overall Climatic Grade	1	1
Field Capacity (days)	179	180
Moisture Deficit, Wheat (mm)	101	100
Potatoes (mm)	93	92

3. RELIEF

The site is virtually flat with a maximum gradient of 1°. Altitude ranges from 30 to 35 m AOD.

4. GEOLOGY AND SOILS

The published 1:50 000 geology map, sheet 294 (Geological Survey of England and Wales 1974), shows the site to be underlain by upper (Keuper) marl in the west and valley gravel in the east. Auger borings showed the valley gravel to be present over the entire site and no solid Keuper marl was found.

The Soil Survey of England and Wales mapped the soils of the area in 1983, at a reconnaissance scale of 1:250 000. This shows soils of the Worcester Association to occupy most of the site, with soils of the Newnham Association, fine loamy soils developed on valley gravel, confined to the north-east corner and eastern boundary.

The recent ALC Survey indicates that in fact soils typical of the Newnham Association occupy the majority of the site and these are described below.

5. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades identified in the survey area is detailed in Section 1 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Grade 2

Most of the site was found to be Grade 2, typically with around 30 cm of medium clay loam topsoil, with up to 10% small and very small stones. Subsoil textures are heavier, with heavy clay loam or clay to a depth of 40-50 cm and clay below. The stone content increases rapidly in the subsoil over most of the area, with 30 or 35% by volume in the subsoil to 40-50 cm, increasing to 50-55% at depth. These percentages were measured by sieving and displacement in water for smaller stones. Stones in the lower profile tend to be small and very small and derived from shale occurring as alluvial gravel. The stone content influences the soil by improving drainage but also leads to a slight droughtiness limitation. These soils are Wetness Class I. However, the main limitation over the site is that of workability due to the texture of the topsoil in relation to the number of Field Capacity days of the site.

Profiles in the south-west corner of the site tended to show a lower stone content, but at no point was solid Keuper marl found to be the parent material.

Subgrade 3a

A small area of approximately 2.3 ha at the north end of the site has been classified as 3a due to a heavier topsoil texture, heavy clay loam. In one profile, manganese nodules and slight gleying was found in the subsoil but this profile is still Wetness Class I. Otherwise the profiles were similar to those classified as Grade 2 over the rest of the site.

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1974) Solid and Drift edition. Sheet 294 Dulverton, Provisional 1:50 000 scale

MAFF (1971) Agricultural Land Classification Map Sheet 164. Provisional 1:63 360 scale.

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

DESCRIPTION OF THE GRADES AND SUB-GRADES

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 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.

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.

SITE NAME Williton 2		PROFILE NUMBER 1	SLOPE AND ASPECT 0		LAND USE Ploughed	Av Rainfall :- ATO :- FC Days :- 180			PARENT MATERIAL Drift: Valley Gravels			
JOB NO 14/93		DATE 20/4/93	GRID REFERENCE ST 074 413		DESCRIBED BY PRW			Climatic grade :- 1				

Horizon Number	Lowest Av Depth	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots Abundance Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and Form
1	0-28	5YR34	MCL	>2cm 1% Total 12% HR Sieved	None	MMSAB	Good	-	Friable	Many Fine	None	None	Smooth sharp
2	28-55	5YR44	C	40% ZR Sieved	None	MMSAB	Good	Good	Friable	Common Fine	None	None	Clear smooth
3	55-100+	2.5YR54	C	55% ZR Sieved	None	-	-	Moderate	-	Few Fine	None	None	

Profile Gleyed From:- Not gleyed Depth to Slowly Permeable Horizon:- None Wetness Class :- I Wetness Grade :- 2	Available Water Wheat :- 118 mm Potatoes :- 97 mm Moisture Deficit Wheat :- 100 mm Potatoes :- 92 mm Moisture Balance Wheat :- +18 mm Potatoes :- +5 mm Droughtiness Grade :- 2 (calculated to 120 cm)	Final ALC Grade :- 2 Main Limiting Factor(s) :- Workability Remarks :-
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