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AGRICULTURAL LAND CLASSIFICATION

WEST SOMERSET DISTRICT LOCAL PLAN, SITE AT WILLITON

Report of survey

1.0 INTRODUCTION

1.1 The site, an area of 14.7 ha, is being considered for development in the context of the West Somerset District Local Plan. The survey work was completed on behalf of MAFF as part of its statutory input to the planning procedure. ADAS' Bristol based Resource Planning Team carried out a detailed Agricultural Land Classification (ALC) survey of the site in January 1993 at a boring density of approximately one per hectare. These borings were supplemented by a soil inspection pit in order to assess subsoil conditions.

1.2 On the published ALC Map sheet No. 164 (MAFF 1971) the northern half of the site is mapped as Grade 2; the southern half as Grade 1. The site comprises part of an area which was surveyed in 1985 using the original guidelines. This information indicated that the likely grade of the site was 3A with smaller areas of Grade 2 and possibly Grade 1. The current survey 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 120cm of the soil profile.

1.3 The proportion of ALC grades are shown in the table below and are illustrated on the accompanying map. A description of the grades used in the ALC system can be found in Appendix 1.

Table 1 Distribution of ALC grades: Williton

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3A	11.8	80.3	80.3	
3B	2.1	14.3	14.3	
4	0.8	5.4	5.4	
TOTAL	14.7	100%	100%	(14.7 ha)

1.4

Over three-quarters of the agricultural land surveyed was found to be best and most versatile.

2.0 CLIMATE

2.1

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.

2.2

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 2 indicate that there is no climatic limitation.

Table 2 Climatic interpolations: Williton

Grid Reference	ST085407
Height (m)	45
Accumulated Temperature (°days)	1523
Average Annual Rainfall (mm)	838
Overall Climatic Grade	1
Field Capacity (Days)	180
Moisture Deficit, Wheat (mm)	99
Potatoes (mm)	91

2.3

No local 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. This data is used in assessing the soil wetness and droughtiness limitations referred to in Section 5.

3.0 RELIEF

3.1

The northern part of the survey area is gently undulating, lying at approximately 25m AOD. However, in the southern part of the site land rises from 30m AOD to 45m AOD. These slopes impose Subgrade 3B and Grade 4 limitations.

4.0 GEOLOGY AND SOILS

4.1

The published 1:50,000 scale solid and drift geology map, sheet 295, (Geological Survey of England and Wales 1975) shows most of the site to be underlain by Upper Sandstone (Lower Keuper Marl and Upper Bunter), with an area of Upper (Keuper) Marl along the lower north-western part of the site.

4.2

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 the soils to comprise the Bromsgrove Association*. During the recent field survey a single soil type was identified, although stone contents varied slightly.

4.3

Soils comprise heavy clay loam and occasionally medium clay loam topsoils over very slightly stony sandy clay loam and heavy clay loam upper subsoils. In the northern part of the site, lower subsoils (below approximately 70cm) comprise stone free clay textures. However, subsoils on the high land comprise lighter textures (medium sandy loam and sandy clay loam) to depth.

5.0 AGRICULTURAL LAND CLASSIFICATION

5.1

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

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* 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.

Subgrade 3A

5.2 Land graded 3A corresponds to the well drained soils (Wetness Class I and II) described in paragraph 4.3. However, the clay loam topsoils and relatively high Field Capacity value (180 days) imposes moderate workability and wetness limitations. Consequently this land is assessed as Subgrade 3A (good quality agricultural land).

Subgrade 3B and Grade 4

5.3 All land graded Subgrade 3B and Grade 4 corresponds to the steeper slopes situated to the south of the site. These have gradients of over 7 and 11 degrees respectively. This land has an increased risk of soil erosion and limits the range of agricultural machinery which can be used safely.

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REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1975). Solid and Drift edition. Sheet 295 Taunton, Provisional 1:50,000 scale.

MAFF (1971). Agricultural Land Classification Map sheet 164 Provisional 1:63,360

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

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 an 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	PROFILE NUMBER	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Fox Farm	2	1° NE	Arable	Av Rainfall :- 787 ATO :- 1301 FC Days :- 179 Climatic grade:- 2	Limestone
	DATE 9.10.90	GRID REFERENCE 41342280			

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	23	10YR44	MCL	< 1% eye	none	-	common	-	-	common	-	none	gradual wavy
2	45	10YR46	HCL MCL	0	none	mdc sa	common	moderate	firm	few	-	few	distinct & wavy
3	83+	10YR64	C	none	cdogm	sdmp	few	poor	v. firm	few through peds	-	none	
Pit dug to 83 cm													

Depth to Slowly Permeable Horizon :- 45 cm

Wetness Class :- III

Wetness Grade :- 3a

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Available Water Wheat :- 173

Potatoes :-

Moisture Deficit Wheat :- 84 82

Potatoes :-

Moisture Balance Wheat :-

Potatoes :-

Droughtiness Grade :- 1

Final ALC Grade :- 3a

Main Limiting Factor(s) :- Soil wetness

Remarks :-

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1975). Solid and Drift edition. Sheet 295 Taunton, Provisional 1:50,000 scale.

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