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SOUTH SOMERSET LOCAL PLAN : CASTLE CARY

AGRICULTURAL LAND CLASSIFICATION

Report of Survey

1. INTRODUCTION

One hundred and forty four hectares of land around Castle Cary, South Somerset were graded under the Agricultural Land Classification (ALC) System in July 1992. The survey was carried out for MAFF as part of its statutory role in the preparation of the South Somerset District Local Plan. The fieldwork was carried out by ADAS's Resource Planning Team (Wessex Region) at a scale of 1:10,000 (approximately one sample point every hectare). The information is correct at the scale shown but any enlargement would be misleading. This survey supercedes the previous survey of this area carried out in 1986 being at a more detailed level and carried out under the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1989). A reduced boring density was carried out in areas previously surveyed to check those gradings. A total of 56 borings and 2 soil pits were examined.

The ALC 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 120cm of the soil profile. A description of the grades used in the ALC System can be found in the appendix.

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

Table 1 Distribution of ALC grades: Castle Cary

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
1	50.6	35.0	44.2
2	21.0	14.5	18.3
3A	19.0	13.2	16.6
3B	21.9	15.2	19.1
4	2.1	1.5	1.8
Urban	23.8	16.5	100%(114.6ha)
Non Agric	5.3	3.6	
Farm Buildings	0.7	0.5	
TOTAL	144.4	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.

To assess any overall climatic limitation, estimates of important climatic variables were obtained for the site by interpolation from the 5km grid Met Office/Maff Database (Met Office/MAFF/SSLRC 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 reveal that there is no climatic limitation across the survey area. However there is an important Field Capacity Day boundary across the site. Below 70m the FCD range is 151 to 175 days. Above this it is 176 to 225. This affects the grade to which soils can be assigned in terms of their Wetness Class.

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.

Table 2 Climatic Interpolations: Castle Cary

Grid Reference	ST640316	ST630328	ST636330
Height (m)	125	45	70
Accumulated Temperature (days)	1424	1515	1486
Average Annual Rainfall (mm)	877	796	824
Overall Climatic Grade	1	1	1
Field Capacity (Days)	184	172	176
Moisture Deficit, Wheat (mm)	94	106	101
Potatoes (mm)	83	98	93

3. RELIEF

The survey area comprises of a flat valley flood plain, with some locally steep slopes at the spring source. The land rises out of the valley which causes some steep slopes to the south of the site

4.GEOLOGY AND SOILS

About half of this site to the south and east is underlain by mainly sand of the Upper Lias, further west the deposits change to silt and clay of the Middle Lias, which grades into clay with some limestone of the Lower Lias and finally in the extreme west of the site the geology is gravel, a river deposit. This is shown on BGS sheet 296.

The soils across the survey area are of two general types. One typically has topsoils of medium clay loam or medium silty clay loams, which become heavier with depth. The soils are deep but there is evidence of inhibited drainage. The second type typically has topsoils of fine sandy loam or sine sandy silt loams, which grade into a medium or fine sandy loam with depth. The soils are deep and may show some evidence of inhibited drainage at depth, however they are generally well drained.

5. AGRICULTURAL LAND CLASSIFICATION

The distribution of Alc Grades identified in the survey area are 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 1

Almost half of the survey area is of Grade 1. The soils are typically deep with little or no stone present within the profile. The topsoils are generally of fine sandy loam or fine sandy silt loam with a fine or medium sandy loam subsoil. They may show some evidence of wetness at depth, however this is not at a depth which shows a significant drainage limitation and the soils are palced in Wetness Class I. There is no droughtiness limitation in these soils. The soils can therefore be placed in Grade 1.
In the west of the site a pit was dug to show the characteristics of these soils. Here the topsoils are of fine sandy silt loam which grades into a subsoil of heavy clay loam, which becomes heavier with depth. The soils are deep with no stone within the profile. There is evidence of poor drainage at depth but this does not occur until after 70cm and so the soils can still be placed in Wetness Class I. With no significant wetness or droughtiness limitations these soils can be classified as Grade 1.

Grade 2

These soils typically have a topsoil of medium clay loam which becomes a heavy clay loam or clay. The soils are deep with no stone present. Common ochreous mottles were found above a depth of 40cm which indicates that there is a significant drainage problem within these soils. However, drainage was not impeded by a slowly permeable layer, so these soils are placed into Wetness Class II. Some of these soils were gleyed after a depth of 40cm and did have a slowly permeable layer, but because they exist below 70m the FCD value permits them to be Grade 2 for the topsoil texture.

Subgrade 3a

These soils typically have a topsoil of medium clay loam or medium silty clay loam. They are underlain by a heavier subsoil of heavy silty clay loam and or clay. They are deep with no stone present. The main limitation is of wetness. Most of this subgrade is described by a soil pit. There is a significant amount of mottling indicating poor drainage at about 50cm. Drainage is impeded by a slowly permeable layer at a similar depth. The soils are placed into Wetness Class III and with the FCD level and topsoil texture, they can be Subgrade 3a. A small area of this Subgrade is above the critical FCD boundary at 70m. The main limitation here is again wetness. Despite the increased workability limiations of this FCD range the soils can still be placed in 3a.

Subgrade 3b

Some of this subgrade has a gradient of over 7 degrees and therefore the versatility of the land is reduced. The type of machinery that can be safely used is limited.

The remaining areas in the west and north of the site have a main limitation of wetness. The topsoils are variable being FSL, SCL, HCL or MCL with heavier subsoils. The drainage limitations of these soils are more severe than those described for grades 2 and 3a. The soils are gleyed above 40cm with an SPL also above 40cm. They are therefore placed into Wetness Class IV. They can therefore be graded no better than 3b.

Grade 4

The small area of Grade 4 has slopes over 11 degrees. These exclude the safe use of a greater range of machinery and risk soil erosion if cultivated. They are therefore downgraded.