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STAUNTON COURT, STAUNTON, GLOUCESTERSHIRE

AGRICULTURAL LAND CLASSIFICATION

Report of survey

1. INTRODUCTION

Nearly one hundred and fifty hectares of land around Staunton Court, Staunton, Gloucestershire were graded under the Agricultural Land Classification (ALC) System in August 1992. The survey was carried out for MAFF as part of its statutory role in response to an ad hoc planning application made to the Forest of Dean District Council.

The fieldwork was carried out by ADAS's Resource Planning Team (Taunton Statutory Unit) 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 at 1" 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 total of 127 borings and 3 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: Staunton Court

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	6.1	4.1	4.2
3A	126.2	84.5	86.6
3B	11.6	7.8	8.0
4	1.3	0.8	0.9
5	0.4	0.3	0.3
Non Agric	0.7	0.5	100%(145.6ha)
Urban	1.9	1.2	
Farm Bdgs	1.0	0.8	
TOTAL	149.2	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.

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. There is an important boundary across the survey area in terms of FCD. Below 33m the FCD values are below 151, but above 33m the values rise over this. This is important in terms of grades asigned to the soil in terms of wetness.

Table 2 Climatic Interpolations: Staunton Court

Grid Reference	SO780280	SO775290	SO776290
Height (m)	20	35	30
Accumulated Temperature (^{o} days)	1498	1480	1486
Average Annual Rainfall (mm)	668	693	686
Overall Climatic Grade	1	1	1
Field Capacity (Days)	147	151	150
Moisture Deficit, Wheat (mm)	111	108	109
Potatoes (mm)	104	100	102

3. RELIEF

The survey area is gently undulating except in the south east where there are some locally steep slopes. The altitude only varies between 20 and 35m.

4. GEOLOGY AND SOILS

The survey area is ubderlain by several different types of geology as shown on BGS sheet 216. The majority of the survey area is underlain by mudstones of the Mercia Group. Along the Clynch Brook are alluvial deposits. Running north south down the centre of the survey area are sand and gravels of the Third Terrace of the River Severn. Near Pittle Mill there is a small outcrop of Arden Sandstone.

The soils across the site are also variable. The majority of the survey area has Medium Clay Loam topsoils with heavier subsoils often with clays at depth. The stone content of the soils varies and is not directly related to the indicated distribution of geology. Some of the soils show evidence of wetness but this again is unevenly distributed across the site.

5. AGRICULTURAL LAND CLASSIFICATION

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

Grade 2

Two small areas of Grade 2 have been identified in the survey area. The western area has free draining stoneless soils but the topsoils are heavy clay loams so with the local FCD value these soils can be graded no better than Grade 2. These factors combined limit the time available to access the land without causing structural damage to the soil. The second area of Grade 2 is similar except the profiles have some stones in them. These do not however impose a restriction on the available water that is greater than that imposed by the workability of the soil.

Subgrade 3a

The majority of the area has been classified as Subgrade 3a. These soils are variable although two main limitations can be identified. Part of the area overlies sand and gravel. These soils are stoney and a soil pit dug here shows that the stone contents exceeded 30% in the subsoil and rose as high as 55% in part of the profile. The stone content in conjunction with the soil texture limits the available water for crop growth. These soils are therefore limited by droughtiness to Subgrade 3a. These profiles had medium clay loam topsoils but the subsoil textures varied, sometimes becoming heavier or sometimes lighter at depth. The second type of profile found within the Subgrade 3a units are profiles which have resticted drainage. The extent of the restriction is variable but the variability falls within that acceptible for Subgrade 3a. Two soil pits were dug in these soils. These soils also have medium clay loam topsoils but become heavier with depth, heavy clay loams and then clays. The profiles vary in stone content but the levels do not reach those described for the other type of 3a soil. These soils displayed evidence of wetness in the form of gleying and slowly permeable layers. The depths at which these were evident in the profiles varied but the soils either fell into Wetness Classes II or III. With the medium clay loam topsoils the profiles are Grade 3a in either case

for the local FCD level. The presence of the slowly permeable layers were confirmed by examining the soil pits dug in the area.

Subgrade 3b

Several areas of Subgrade 3b have been identified along the Clynch Brook. Here the restriction to drainage is greater than described for the 3a land. The topsoils are heavy clay loams which become clays in the subsoils. These clays impede free drainage of the profile although there is adequate outfall into the Brook. As a result the soils show evidence of wetness in the form of gleying. The clays are slowly permeable layers (SPL). The gleying and SPLs are found high in the profile and so the soils must be placed into Wetness Class IV. They can therefore be graded no better than Subgrade 3b.

Grades 4 and 5

There are a few areas where slopes have gradients which are limiting to the type of machinery that can be safely used. The extent of the restriction on versatility depends on the slope. For the steeper slopes over 18 degrees the land is only suitable for grazing and is downgraded to Grade 5. For slopes over 11 degrees downgrading to Grade 4 is adequate.

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.