DAWS FARM, BRIDGWATER

AGRICULTURAL LAND CLASSIFICATION

Report of survey

1. INTRODUCTION

Fifty seven hectares of land at Daws Farm, Bridgwater were graded under the Agricultural Land Classification (ALC) System in June and September 1992. The survey was carried out for MAFF as part of its statutory role in the preparation of the Bridgwater 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 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 55 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: Daws Fram

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
1	3.9	6.9	7.1
2	10.9	19.3	19.8
3A	8.4	14.9	15.2
3B	32.1	56.9	57.9
Urban	0.1	0.2	100% (55.3ha)
Non Agric	0.2	0.4	
Farm Buildings	0.8	1.4	
TOTAL	56.4	100%	

The land around Stock Moor Rhyne is of lower quality than further to the south. The land to the south has a mixture of higher and lower quality land. The land around Daws Farm is of high quality.

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.

Table 2 Climatic Interpolations: Daws Farm

Grid Reference	ST 304 347
Height (m)	10
Accumulated Temperature (° days)	1561
Average Annual Rainfall (mm)	758
Overall Climatic Grade	1
Field Capacity (Days)	164
Moisture Deficit, Wheat (mm)	111
Potatoes (mm)	105

3. RELIEF

The survey area is predominantly flat with a small rise in the south and south east. The height is around 10m. There is higher land to the south.

4. GEOLOGY AND SOILS

Most of the survey area is underlain by alluvial deposits. The higher land in the south east is underlain by sandstone as shown on BGS sheet 295.

The soils across the survey area are variable, typical of alluvial deposits. The alluvial soils are generally heavier and wetter. Over part of the sandstone there are free draining soils with medium clay loam topsoils. Many of the subsoils in the area are clays often restricting drainage.

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 1

An area of land north of Dawss Farm has been classified as Grade 1. These soils are free draining and have medium clay laom topsoils. The subsoils are heavy clay laoms until about 60cm when they become clays. With these soil textures and the local climatic situation the soils have nmo limitations to agricultural use and can be Grade 1.

Grade 2

Three areas of Grade 2 were identified. The southern areas lies over sandstone and are free draining. The soils show no evidence of wetness and the stone content is minimal. The most southern area has heavy clay loam topsoils so these soils are limited by a workability limitation. This means that for the local climatic situation the number of days in which access could be made onto the soil without causing structural damage is restricted.
The middle area has a medium clay loam topsoil lying over a clay from 25cm. The clay extends to depth. The limitation to these soils is the available water to crops. The high moisure deficits here mean that there is a lower water availability in these soils. A soil pit confirmed these findings.
The third area of Grade 2 shows some evidence of wetness in the subsoils. Gleying occurs within 40cm but slowly permeable clays do exist until deep in the profile if at all and so these soils are assigned to Wetness Class II. With a medium clay loam topsoil and the prevailing FCD level in the area these soils are limited to Grade 2.

Subgrade 3a

Two areas of Subgrade 3a were found in the area surveyed. The central area has heavy clay loam topsoils which become heavier with depth. The upper subsoils are gleyed which occurs within 40cm and this gleying continues down the profile. This evidence of restictions in drainage place the soils into Wetness Class II. This combined with topsoil texture and the FCD value means the soils are limited to Subgrade 3a.
The other areas of 3a have a lighter topsoil, a MCL but the degree of wetness is worse. Gleying is evident in the profile from 45cm and a slowly permeable layer was found below 50cm. This places the soils into Wetness Class III,

but with the lighter topsoil these soils can still be Subgrade 3a.

Subgrade 3b

Over half the survey area has been classified as Subgrade 3b. Here the soils show evidence of wetness. The topsoil texture is a heavy clay loam. Two types of profile were identified in these areas. Firstly profiles with heavy clay loam topsoils becoming clays in the subsoils. The subsoils showed gleying within 40cm and became slowly permeable below 45cm, ranging from 50cm to 70cm. These soils therefore fall into Wetness Class III. Secondly profiles with heavy clay loam topsoils also becoming clays in the subsoil, but with gleying and slowly permeable layers at shallower depths. These soils are assigned to Wetness Class IV. Both these types of soil are eligible for Subgrade 3b.

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.