

8FCs 4797

79/92

COTSWOLD DISTRICT LOCAL PLAN: CLAPTON-ON-THE-HILL

AGRICULTURAL LAND CLASSIFICATION

Report of survey

1. INTRODUCTION

Two hectares of land at Clapton-on-the-Hill were graded under the Agricultural Land Classification (ALC) System in September 1992. The survey was carried out for MAFF as part of its statutory input to the draft consultation on the Cotswold District Local Plan.

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 2 borings and 1 soil pit 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: Clapton on the Hill

| Grade | Area (ha) | % of Survey Area | % of Agricultural Land |
|-------|------------|------------------|------------------------|
| 2 | <u>2.0</u> | <u>100</u> | <u>100</u> |
| TOTAL | 2.0 | 100% | 100% |

The survey area was found to be Grade 2.

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 a climatic limitation across the survey area. The land can be graded no better than Grade 2.

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: Clapton on the Hill

| | |
|--|------------|
| Grid Reference | SP 161 178 |
| Height (m) | 220 |
| Accumulated Temperature ($^{\circ}$ days) | 1265 |
| Average Annual Rainfall (mm) | 792 |
| Overall Climatic Grade | 2 |
| Field Capacity (Days) | 178 |
| Moisture Deficit, Wheat (mm) | 79 |
| Potatoes (mm) | 62 |

3. RELIEF

The survey area at Clapton-on-the-Hill is a flat site situated high (220 m) in the Cotswold Hills.

4. GEOLOGY AND SOILS

All of the survey area is underlain by Inferior Oolite as shown on BGS sheet 235.

The topsoils of the survey area are medium and heavy clay loams. The soils are free draining and become stonier with depth. The stone contents of the soil prevented deep penetration with a soil auger. The stone percentages were determined by sieving horizons in a soil pit. The topsoil content was found to be 3%, increasing to 40% in the subsoil.

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

The whole of the survey area has been classified as Grade 2. The topsoil texture was variable, with heavy clay loams in the south and medium clay loams to the north. The subsoils become stonier and heavier (heavy clay loams) with depth. A soil profile pit was dug and confirmed that the soils are free draining and show no evidence of wetness. The soils are therefore placed into Wetness Class I. For the medium topsoils Grade 1, and for the heavier topsoils Grade 2 could be assigned if there were no other limitations in the local climatic regime. The stone content of the soil was measured in the soil pit by sieving the soil. All the stones were soft Oolitic Limestone. The topsoil stone content was found to be 3% increasing to 40% in the subsoil. The high percentages of stones slightly limit the available water to crops but the limitation does not exceed other limitations. The main limitation across the survey area is climate which limits the site to Grade 2.

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 Queensbury Farm Sutton Benger | PROFILE NUMBER 4 | SLOPE AND ASPECT 0° | LAND USE Arable | Av Rainfall :- 739 | PARENT MATERIAL Valley Gravels |
| | DATE 5/7/90 | GRID REFERENCE ST 954782 | | ATO :- 1475 | |

| 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 | 15 | 10YR43 | HZCL | - | - | wdm Sab | > .5% | Good | Friable | Common | x | - | Clear |
| 2 | 28 | 10YR54 | C | - | cfogm | mdc Sab | > .5% | Moderate | Firm | Common | | - | Clear |
| 3 | 35 | 10YR56 | C | Gritty | cfogm | wdm Sab | > .5% | Good | Friable | Common | | Few | Clear |
| 4 | 55 | 10YR58 | LMS | 5% sieve 25% < 2 cm visual | cdom | wdc Sab | > .5% | Good | Friable | - | / | Common | |
| 5 | 100+ | 10YR46 | LMS | 10% sieve gritty 25+% < 2 cm | | Too stoney/gritty to assess | | | | - | / | | |
| Pit dug to 100 cm | | | | | | | | | | | | | |

Depth to Slowly Permeable Horizon :- None

Wetness Class :- I

Wetness Grade :- 2

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Available Water Wheat :- 73.5

Potatoes :-

Moisture Deficit Wheat :- 105

Potatoes :-

Moisture Balance Wheat :- - 31.5

Potatoes :-

Droughtiness Grade :- 3B

Final ALC Grade :- 3B

Main Limiting Factor(s) :- droughtiness

Remarks :- Although the soil pit is 3B the unit in which it falls has deeper non stoney subsoils which are graded 3A

| | | | | | |
|---|---------------------|-----------------------------|--------------------|--------------------|-----------------------------------|
| SITE NAME Queensbury Farm Sutton Benger | PROFILE NUMBER 3 | SLOPE AND ASPECT 0° | LAND USE Arable | Av Rainfall :- 739 | PARENT MATERIAL Valley Gravels |
| | DATE 5/7/90 | GRID REFERENCE ST 955784 | | ATO :-1475 | |

| 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 | 15 | 10YR43 | MCL | 1% sieve 5% < 2 cm | - | wdm Sab | > .5 | Good | Friable | Common | / | - | abrupt smooth |
| 2 | 34 | 10YR56 | LMS | 5% > 2 cm 20% < 2 cm V gritty | - | Apedal single grain | > .5 | Moderate | Loose | Few | / | fmn | abrupt smooth |
| 3 | 43 | 10YR62 | LMS | 5% > 2 cm 20% < 2 cm | - | single grain | > .5 | Moderate | Loose | Few | / | Cmn | abrupt smooth |
| 4 | 50 | 10YR56 | LMS | 5% > 2 cm 20% < 2 cm | - | single grain | > .5 | Moderate | Loose | - | / | Cmn | abrupt smooth |
| 5 | 60 | 10YR62 | LMS | 5% > 2 cm 25% < 2 cm | - | single grain | > .5 | Moderate | Loose | - | / | Cmn | abrupt smooth |
| 6 | 75 | 10YR56 | LMS | 10% > 2 cm sieve 25% < 2 cm | - | single grain | > .5 | Moderate | Loose | - | / | - | abrupt smooth |
| 7 | 100+ | 10YR52 | C | visual 10% > 2 cm visual pockets of horizon 6 | cdm | Difficult to assess because of stone content tending to wdm Sab | > .5 | | Firm | - | | None | |

Depth to Slowly
Permeable Horizon :- None

Wetness Class :- WC I

Wetness Grade :- I

RPG0023/WJC

Available Water Wheat :- 41

Potatoes :-

Moisture Deficit Wheat :- 105

Potatoes :-

Moisture Balance Wheat :- - 64

Potatoes :-

Droughtiness Grade :- 4

Final ALC Grade :- 3a

Main Limiting Factor(s) :- Droughtiness

Remarks :- Although the soil pit is 4 the unit in which it falls has deeper topsoils and is graded 3B