8FCs 4912

93/92

TREVEMPER FARM, NEWQUAY

AGRICULTURAL LAND CLASSIFICATION

Report of survey

## 1. INTRODUCTION

Sixty two hectares of land at Trevemper Farm, Newquay were graded under the Agricultural Land Classification (ALC) System in October 1992. The survey was carried out for MAFF as part of its statutory role in response to an ad hoc planning application made to Carrick District Council.

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 1" to the mile ALC map of this area being at a more detailed level and carried out under the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988). A total of 56 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: Trevemper Farm**

| Grade | Area (ha) | % of Survey Area | % of Agricultural Land |
|---|---|---|---|
| 3A | 43.9 | 70.7 | 81.3 |
| 3B | 1.5 | 2.4 | 2.8 |
| 4 | 8.6 | 13.9 | 15.9 |
| Non Agric | 8.1 | 13.0 | 100% (54ha) |
| TOTAL | 62.1 | 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 overall climatic limitation across the survey area.

Across the whole survey are there was evidence of exposure. The exposure risk was assessed by an ADAS Horticultural Advisor and the results of his assessment are included in this report. 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: Trevemper Farm**

| Grid Reference | SW811589 | SW814590 | SW819596 |
|---|---|---|---|
| Height (m) | 50 | 25 | 5 |
| Accumulated Temperature (° days) | 1583 | 1612 | 1634 |
| Average Annual Rainfall (mm) | 987 | 971 | 953 |
| Overall Climatic Grade | 1 | 1 | 1 |
| Field Capacity (Days) | 196 | 194 | 191 |
| Moisture Deficit, Wheat (mm) | 98 | 102 | 105 |
| Potatoes (mm) | 90 | 95 | 98 |

## 3. RELIEF

The survey area slopes to the north east. The maximum height is in the west at 50m dropping to 5m. The slopes are gentle and only near to Trenhaile House are they limiting to agricultural use.

## 4. GEOLOGY AND SOILS

The lower lying areas are underlain by alluvial deposits, whilst the rest of the area has Meadfoot Beds which are grey calcareous slates with thin limestones as shown on BGS sheet 346.

The soils across the survey area fall into different types. The higher areas are well drained but stoney whilst the lower areas are more poorly drained and generally heavier in texture. Particle size analysis shows that the topsoil

textures across most of the site are heavy silty clay loams and heavy clay loams.

## 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.

### Subgrade 3a

Much of the survey area has been classified as Subgrade 3a. Risk of exposure is the main limitation in these areas. Risk from flooding is also an equal limitation in the area near to Trevemper Bridge where there are two small streams. Horticultural advice suggest that only the less demanding horticultural crops and arable crops and grass could be grown in the area. The prevailing south westerlies have pruned the hedgerows and trees in the area, quite severely in places.
The risk of flooding in the area is assessed from circumstantial evidence. Water backs up from the road culvert at Trevemper Bridge up the two small stream channels. Water may rise up to 1 metre when there is a combination of heavy rain and high tides. This may occur several times in the winter. The flooding is a brief event lasting no more than 24 hours. On the basis of the information available the area of land affected by this flooding in the low lying area around the channels can be graded no better than 3a.
Two types of profile are found in the area of 3a. On the higher land generally underlain by Meadfoot Beds the soils are well drained but stoney. A soil profile pit dug in this area showed that there was 2% stone in the topsoil with increased levels in the subsoils, measured by sieving to be 27% and 18% in the subsoils. The stone was generally hard slates with some softer shale. The topsoil textures in these areas are heavy silty clay loam and heavy clay loams. Apart from the exposure limitation these soils could be Grade 2. The second type of soil found in this area has a wetness limitaion. These soils also have heavy clay loam or heavy silty clay loam topsoils but are stone free. The soils show evidence of restricted drainage from the surface in the form of gleying but do not have slowly permeable layers as confirmed by a soil pit. The evidence of restricted drainage places the soils into Wetness Class II and so the soils are graded no better than Subgrade 3a. Most of this area is also affected by the flood risk and exposure.

### Subgrade 3b

A small area near to Trenhaile House has limiting slopes over 7 degrees. Here the versatility of the land is reduced

by the limitation on the type of machinery that can be safely used.

Grade 4

The remaining area has been downgraded on the basis of poorer drainage and heavy topsoils. In this area the topsoils are heavy silty clay loams. Like the wetter 3a soils there is evidence of wetness from the surface but it is caused by slowly permeable layers in the lower subsoils. As a result the soils are placed into Wetness Class IV. These soils have some stones but not as great an amount as in the free draining soils. This area is partly shelterd by the woodland from the south westerly winds and so in terms of exposure could be Grade 2, however the wetness limitation downgrades these soils.

## 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.