8FCS 4125

6/91

FALMOUTH AND PENRYN LOCAL PLAN REVIEW
MAWNAN SMITH, STITHIANS AND PONSANOOTH

Agricultural Land Classification Report of Survey

1 The Agricultural Land Classification (ALC) system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on its use for agriculture

A detailed ALC survey was requested by Kerrier District Council on land around the three settlements, Mawnan Smith, Stithians and Ponsanooth This work formed part of MAFF's input to the revision of the Falmouth and Penryn Local Plan, additional survey work had been carried out earlier for Carrick District Council around Falmouth and Penryn

Survey work was conducted in February, 1991, by members of the Resource Planning Group (South West Region) at a scale of 1 10,000 (ie approximately one soil observation per hectare) MAFF's Revised Guidelines and Criteria for Grading Agricultural Land" were used throughout

Details of the distribution of grades and sub-grades are given below for each settlement separately, and illustrated on individual ALC maps The ALC information is accurate at the base scale shown, but any enlargement would be misleading

Survey results reveal the poorest land quality around Stithians (mainly 3B and 4), Ponsanooth has large areas of poor land but also has some Grade 2 adjacent to the south-eastern fringe, Mawnan Smith has a significant block of Grade 2 along its western edge, with poorer quality land to the east

The results of this survey supercede any previous ALC information

A general indication of the amount of high quality land in Cornwall compared to the South West region and the national situation is attached, together with a general description of the main ALC grades

2 **Mawnan Smith**

MAFF was requested to survey approximately 18 hectares around the village, on its western and eastern fringes A total of 16 borings and 2 pits were described The distribution of grades is detailed below in Table 1

Table 1 Distribution of Grades and Sub-grades, Mawnan Smith

Grade	Area (ha)	% of Survey Area	% of Agricultural Area
2	13 4*	73 6	81 8
3B	3 0	16 4	18 2
Urban	1 8	10 0	
	18 2 ha	100%	100% (16 4 ha)

*Grade 2 and subgrade 3A are considered 'best and most versatile'

Climate Overall, the area may be placed in climatic grade 1 There is a climatic variation across the site, reflecting the 50 m range in altitude, but this is not significant The climate has been assessed at two representative points by interpolation from a Met Office/MAFF 5 km grid dataset, and is outlined below in Table 2

Table 2 Climatic Interpolations

Grid Reference	SW777293	SW782291
Altitude (m)	70	25
Average Annual Rainfall (mm)	1139	1086
Accumulated Temperature (° days)	1574	1626
Climatic Grade	1	1
Field Capacity (days)	221	213
Moisture Deficit, Wheat (mm)	88	96
Moisture Deficit, Potatoes (mm)	77	87

Grade 2 Workability is the main limitation for these soils Typically, they exhibit a medium clay loam topsoil overlying an upper and lower subsoil of heavy clay loam The soils exhibit no evidence of wetness Subsoil stone contents vary between 10 and 50%, but the structural conditions are good for roots extracting moisture at depth

Sub-grade 3B All these areas have been downgraded due to a locally significant gradient limitation

3 Stithians

A linear block was surveyed to the south of the main village road, including part of the wet floodplain and its associated steep slopes

The distribution of the grades is shown in Table 3 below

Table 3 Distribution of the Grades and Sub-grades, Stithians

Grade	Area (ha)	% of Survey Area	% of Agricultural Area
3A	2 2*	8 2	9 3
3B	18 4	69 1	78 2
4	3 0	11 1	12 5
Non Agric	2 0	7 4	
Urban	1 1	4 2	100% (23 52 ha)
	26 7 ha	100%	

*Grades 2 and 3A are considered 'best and most versatile'

Climate The combined effect of temperature and rainfall means that the soils in the survey area can be graded no higher than Grade 2 (see Table 4) The high level of the field capacity days places an additional workability limitation on the medium clay loam topsoils, meaning that they can be graded no higher than Sub-grade 3A

Table 4 Climatic Interpolations

Grid Reference	SW732362	SW742372
Altitude (m)	118	115
Average Annual Rainfall (mm)	1220	1215
Accumulated Temperature (° days)	1518	1520
Climatic Grade	2	2
MD Wheat (mm)	80	80
MD Pots (mm)	66	67
Field Capacity (days)	237	236

Sub-grade 3A The land above the floodplain, where the gradients are not significant, has been mapped as 3A, with soil workability as the most limiting factor These are deep, well-drained profiles, which show no evidence of soil wetness Medium clay loam topsoils overlie a deep subsoil of similar texture with moderate structural conditions and approximately 25% weathered stone fragments

Sub-grade 3B The flat land of the floodplain has all been placed in this grade Soil wetness is the active limitation, related to locally high water tables and inadequate drainage The slope of the land and the lack of outfall in places means that parts of the floodplain are not considered to be drainable and have therefore been placed in Wetness Class IV The soil itself varies throughout the

floodplain, with some borings revealing gravel deposits at very shallow depths which result in a significant droughtiness limitation

Areas of 3B outside the floodplain have been downgraded where gradients are locally limiting

Grade 4 The steeper valley slopes have all been placed in this grade

4 **Ponsanooth**

A block of land around the eastern fringes of the village was surveyed A total of 6 borings and 1 soil pit were examined The distribution of grades is shown in table 5

Table 5 Distribution of Grades and subgrades, Ponsanooth

Grade	Area (ha)	% of Survey Area	% of Agricultural Area
2	2 4	26 3	36 1
3A	1 1	12 9	17 0
	3 5 ha*	39 2%	53 1%
3B	0 5	5 8	7 6
4	2 1	23 8	31 7
5	0 5	5 4	7 6
Non Agric	1 4	15 6	
Farm bdgs	0 5	5 2	100%(6 56 ha)
Urban	0 4	5 0	
	8 9 ha	100%	

*Grades 2 and 3A are considered 'best and most versatile'

Climate Climatic interpolations show that there is no overall climatic limitation for the survey area, even across the height range of the area Two interpolations from the heighest and lowest land are shown in table 6 The variation in the FC Days and moisture deficit values are not large enough to be significant in terms of ALC grading

Table 6 Climatic Interpolations

Grid Reference	SW762374	SW759377
Altitude (m)	70	20
Average Annual Rainfall (mm)	1571	1628
Accumulated Temperature (° days)	1143	1088
Climatic Grade	1	1
Field Capacity (days)	224	216
Moisture Deficit, wheat (mm)	88	98
potatoes (mm)	77	89

Grade 2 One third of the survey area is classified as grade 2 This area has gentle north facing slopes with deep free draining virtually stoneless soils The soils are limited to grade 2 by workability, which is a combination of wetness class I medium clay loam topsoils and a prevailing field capacity days (FCD) of 224 A soil pit confirmed the well draining drought free soil

Sub-Grade 3A The area of this grade exhibited a slight wetness problem with gleyed subsoils below a medium clay loam topsoil The subsoils were not slowly permeable The soils fall into wetness class 2 which asigns them to subgrade 3A

Sub-grade 3B Two small areas of slopes with 8-11° gradients were measured

Grade 4 A third of the site had 12-18° gradient slopes Slope gradients were measured over a uniform, 25 m length using a clinometer

Grade 5 An area of slopes limited to grade 5 (>18°) were identified in the east of the survey area

DESCRIPTION OF THE GRADES AND SUBGRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur typical cropping range and the expected level and consistency of yield In practice the grades are defined by reference to physical characteristics and the grading guidance and cut offs for limitation factors in Section 3 enable land to be ranked in accordance with these general descriptions The most productive and flexible land falls into Grades 1 and 2 and Subgrade 3a and collectively comprises about one third of the agricultural land in England and Wales About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4 Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates The remainder is very poor quality land in Grade 5 which mostly occurs in the uplands

Descriptions are also given of other land categories which may be used on ALC maps

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 includes 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 golf courses 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

Woodland

Includes commercial and non commercial woodland A distinction may be made as necessary between farm and non farm woodland

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