8FCS 4554

41/92

TRURO LOCAL PLAN: Village sites

AGRICULTURAL LAND CLASSIFICATION

Report of survey

This report should be read in conjunction with the report describing the findings of the ALC surveys carried out around Tregony, Grampound Road, Playing Place, Feock, Penpol and point, Carnon Downs, Probus, Perranarworthal, Threemilestone, Perranwell Station and Devoran in January 1992.

1. INTRODUCTION

Land around five villages was graded under the Agricultural Land Classification (ALC) in May and June 1992. The surveys were carried out as part of MAFF's statutory role in response to the revision of the Truro 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) for the villages of Tresillian, Trispen and St Erme, Shortlanesend and Chacewater. 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).
The area of interest around Zelah had been surveyed in 1983 as part of the proposed Zelah By-Pass. The survey was carried out under the Original Guidelines for grading agricultural land. The area of interest was resurveyed under the Revised Guidelines and the results are included in this report.

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 villages are treated separately. The distribution of ALC grades identified in the survey area is detailed below and illustrated on the ALC accompanying maps.

Table 1 Distribution of ALC grades: Tresillian

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	1.6	8.8	9.3
3B	14.0	76.9	81.4
4	1.0	5.6	5.8
5	0.6	3.2	3.5
Non Agric	0.8	4.4	100%(17.2ha)
Urban	0.2	1.1	
TOTAL	18.2	100%	

Table 2 Distribution of ALC grades: Trispen and St Erme

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3A	27.7	74.5	100
Non Agric	2.9	7.8	100%(27.7ha)
Urban	6.0	16.1	
Farm Bdgs	0.6	1.6	
TOTAL	37.2	100%	

Table 3 Distribution of ALC grades: Shortlanesend

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	19.0	82.7	97.9
3B	0.4	1.7	2.1
Non Agric	1.7	7.4	100%(19.4ha)
Urban	1.5	6.5	
Farm Bdgs	0.4	1.7	
TOTAL	23.0	100%	

Table 4 Distribution of ALC grades: Chacewater

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	10.3	34.8	42.6
3A	1.0	3.4	4.1
3B	8.7	29.4	36.0
4	4.0	13.5	16.5
5	0.2	0.7	0.8
Non Agric	2.1	7.1	100% (24.2ha)
Urban	3.3	11.1	
TOTAL	29.6	100%	

Table 5 Distribution of ALC grades: Zelah

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	17.5	91.1	100
Non Agric	1.3	6.8	100% (17.5ha)
Urban	0.4	2.1	
TOTAL	19.2	100%	

Table 6 Summary of land surveyed (for all 16 Villages)

Village	Area of Best & Most Versatile Land (ha)	Area of Grades 3b, 4 & 5	Total Agricultural Land
Tregony	8.6	6.5	15.1
Grampound Road	21.6	4.9	26.5
Playing Place	21.9	6.5	28.4
Feock	19.4	2.7	22.1
Penpol and Point	33.9	9.8	43.7
Carnon Downs	35.7	4.5	40.2
Probus	23.6	14.4	38.0
Perranarworthal	27.9	8.6	36.5
Threemilestone	17.6	3.0	20.6
Perranwell Station	21.8	5.5	27.3
Devoran	5.4	2.9	8.3
Tresillian	1.6	15.6	17.2
Trispen/St Erme	27.7	0.0	27.7
Shortlanesend	19.0	0.4	19.4
Chacewater	11.3	12.9	24.2
Zelah	17.5	0.0	17.5

2. TRESILLIAN

2.1 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 7 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 later Sections.

Table 7 Climatic Interpolations: Tresillian

Grid Reference	SW 862 463	SW 860 459
Height (m)	75	30
Accumulated Temperature (° days)	1560	1611
Average Annual Rainfall (mm)	1123	1088
Overall Climatic Grade	1	1
Field Capacity (Days)	218	213
Moisture Deficit, Wheat (mm)	90	97
Potatoes (mm)	80	88

2.2 Relief

The survey area slopes to the south east. Some of the slopes are very steep whilst all but a small area has gradients over 7 degrees. The survey area rises from 15m to 75m.

2.3 Geology and soils

The survey area is underlain by sandstone and slates of the Portscatho Series as shown on BGS sheets 352.

The soils across the survey area are stoney with medium clay loam topsoils.

2.4 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in the Introduction and shown on the

accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading. Except for a small area of land the area was graded by limiting gradients.

Grade 2
A small area in the centre of the survey area was less steep than elsewhere and slope was not the most limiting factor. Here there was no evidence of wetness. With a medium clay loam topsoil and the prevailing FCD level these soils can be graded no better than grade 2. This workability limitation means that there is a restricted window of access onto the land when damage to soil structure will not occur.

Sub-grade 3b
The majority of the survey area has been classified as 3b. Here the main limitation to agriculture is the gradient of the land. Here the variety of equipment that can be used is restricted in terms of safety. This reduces the versatility of the land. The gradients range from over 7 degrees to 11 degrees.

Grades 4 and 5
The remaining areas have greater slopes. Here the machinery that can be safely used is further reduced and the risk of soil erosion increased. The grade 5 land is only siutable for grazing.

3. TRISPEN AND ST ERME

3.1 Climate

Climatic interpolations as described previously were carried out for Trispen and St Erme. The results shown in Table 8 reveal that there is a climatic limitation across the survey area. Above 103m the land can be graded no better than grade 2. Slight exposure was noted across part of the survey area but this was no greater than the other limitations refered to in section 3.4.

Table 8 Climatic Interpolations: Trispen/St Erme

Grid Reference	SW841501	SW841499	SW841501
Height (m)	105	80	100
Accumulated Temperature (^{o} days)	1524	1552	1529
Average Annual Rainfall (mm)	1132	1114	1128
Overall Climatic Grade	2	1	1
Field Capacity (Days)	220	217	219
Moisture Deficit, Wheat (mm)	87	91	88
Potatoes (mm)	76	80	77

3.2 Relief

Trispen sits on the top of a small hill and the survey areas fall away to the south and east. The lowest points are at 80m rising to 105m.

3.3 Geology and soils

The survey area is underlain by Grampound Grit as shown on BGS Sheet 346.

The soils across the survey area are uniform reflecting the uniformity of the geology. Medium clay loams with around 13% quartz stone become heavier and stonier (slaty stones) with depth. The lowest subsoil from 45cm is a clay and shows evidence of restricted drainage.

3.4 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in the Introduction and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading. A total of 26 borings and 1 soil pit were examined around Trispen and St Erme.

Sub-Grade 3a

The whole of the survey area has been classified as sub-grade 3a. The soils in the area are stoney with slightly impaired drainage at depth. A soil pit was dug which revealed the extent of the stone content of the soil horizons. The topsoil medium clay loam had only 1% stones over 2cm but 12 % stones 2mm-2cm. These % were obtained by sieving and displacement in water. From 20cm depth the stone content increased in the MCL matrix to 34%. While the stone in the topsoil was hard quartz, in the subsoils it was slaty material. A thin band of heavy clay loam with 53 % stone gave way to clays with 32% stone. These clays from 45cm were gleyed showing that there is a slight restriction to drainage. These soils must therefore be assigned to wetness class II and with the FCD value of around 220 days on a MCL topsoil, the soils can be graded no higher than 3a. The restriction to available water to crops imposed by the high stone content of the soil does not impose a greater limitation.

4. SHORTLANESEND

4.1 Climate

Climatic interpolations as described previously were carried out for Shortlanesend. The results are shown in Table 9 and reveal that there is no climatic limitation across the

survey area. Slight risk from exposure was noted in the area, but this was considered to be no greater a limitation than those described in Section 4.4.

Table 9 Climatic Interpolations: Shortlanesend

Grid Reference	SW 807 479	SW 804 473
Height (m)	95	50
Accumulated Temperature (° days)	1537	1589
Average Annual Rainfall (mm)	1123	1087
Overall Climatic Grade	1	1
Field Capacity (Days)	218	213
Moisture Deficit, Wheat (mm)	88	95
Potatoes (mm)	77	85

4.2 Relief

The survey area slopes to the south west. The highest point in the east is at 95m dropping to 50m in the west. The eastern part sits on a small plateau.

4.3 Geology and soils

The survey area is underlain by Grampound Grit comprising of sandstones and slates, as shown on BGS sheet 352.

The soils in the survey area are medium clay loams with medium sandy loams at depth. The upper subsoils are stoney with between 20 and 25% hard stones.

4.4 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in the Introduction and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading. A total of 19 borings and 1 soil pit were examined around Shortlanesend.

Grade 2

Almost all the survey area has been classified as Grade 2. The main limitation here is called a workability limitation. These soils show no evidence of weteness and so can be assigned to Wetness Class I. The topsoils here are medium clay loams. The combination of topsoil texture, good drainage and the local FCD value mean that the soils can be graded no better than grade 2. This limitation reflects itself in the reduction of acceptible timing of cultivations and grazing when damage to soil structure will not occur. Structurally damaged soils can have reduced drainage capacity. The stone content of the soils do not impose a greater limitation in terms of droughtiness than that already mentioned.

Sub-grade 3b
A small area in the west has been downgraded because of a slope limitation. Here the versatility of the land is reduced by the dificulties of using machinery on steeper slopes.

5. CHACEWATER

5.1 Climate

Climatic interpolations as described previously were carried out for Chacewater. The results are shown in Table 10 and revael that there is a climatic limitation across part of the survey area. Above 93m the soils can be graded no better than Grade 2. Slight evidence of exposure was noted on the upper slopes of the survey area.

Table 10 Climatic Interpolations: Chacewater

Grid Reference	SW749443	SW749442	SW749448
Height (m)	65	95	90
Accumulated Temperature (° days)	1574	1540	1545
Average Annual Rainfall (mm)	1119	1144	1138
Overall Climatic Grade	1	2	1
Field Capacity (Days)	219	222	221
Moisture Deficit, Wheat (mm)	89	85	85
Potatoes (mm)	78	72	73

5.2 Relief

Chacewater lies in a valley and the survey area covers the surrounding slopes. The lowest parts of the area are at 65m rising to 100m.

5.3 Geology and soils

The survey area is underlain by sandstones and slates of the Falmouth Series, as shown on BGS sheet 352. The river valley running north south has alluvial deposits.

The soils are uniform across the survey area being medium clay loams in the topsoil which become heavier with depth. The soils are stoney with a mix of slates and harder rocks. Many of the stones are under 2cm in size. Stone content rises to 25% in the lower subsoil.

5.4 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in the Introduction and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading. A total of 13 borings and 1 soil pit were examined around

Chacewater. Much of the grading particularly in the west of the area is based upon limiting gradients.

Grade 2
Those parts of the survey area which do not have limiting gradients can be classified as Grade 2. Here as across the majority of the area the soils are well drained and show no evidence of wetness. The stone content of the soil revealed by a soil pit increases with depth. The topsoil, medium clay loam in texture has only 1% hard stones over 2cm but 13% 2mm-2cm. The subsoils have about 25% stone. The combination of topsoil texture, Wetness Class I and the local FCD level means that the soils can be graded no better than Grade 2. This is known as a workability limitation is said to exist. This limitation affects the acceptible timing of cultivations and grazing when damage to the soil will not occur. Structurally damaged soils may be susceptible to poor drainage.

Sub-Grade 3a
A small area east of Station Road has been classified as Sub-Grade 3a. Here the soils show evidence of wetness. Gleying is present from 50cm and a slowly permeable layer in heavy clay loam exists from 70cm. These soils must therefore be asigned to Wetness Class III. With the MCL topsoil these soils can be graded no better than 3a. The lowere horizons are less stoney than the other soils in the area.

Sub-Grade 3b
All the parts of the survey area which have been graded as 3b have limiting gradients. Land over 7 degrees is considered to be less safe for using certain machinery, such as precision seeding equipment. This reduces the versatility of the land.

Grades 4 and 5
The remaining parts of the survey area have been classified as Grades 4 and 5 on the basis of greater slope limitations. These area have gradients over 11 and 18 degrees respectively. The risk of soil erosion is greater on these slopes even if four wheel drive machines are used. The Grade 5 land is only suitable for grazing.

6. ZELAH

6.1 Climate

Climatic interpolations as described previously were carried out for Zelah. The results are shown in Table 11. The results reveal that there is no overall climatic limitation around the village. No local climatic limitations such as exposure were observed in the survey area.

Table 11 Climatic interpolations: Zelah

Grid Reference	SW 809 519
Height (m)	90
Accumulated Temperature (° days)	1541
Average Annual Rainfall (mm)	1101
Overall Climatic Grade	1
Field Capacity (Days)	214
Moisture Deficit, Wheat (mm)	90
Potatoes (mm)	79

6.2 Relief

The survey area slopes gently to the South. There are some parts which have more irregular slopes but these are not limiting.

6.3 Geology and soils

The survey area is underlain by Grampound Grit as shown on BGS sheet 346.

The soils across the survey area vary in texture slightly but they work as medium clay loams. The soils become heavier with depth. A soil pit dug in the area showed that the soil had low percentages of stone present. The soils are free draining and show no evidence of wetness.

6.4 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in the Introduction and shown on the accompanying ALC map. The information is accurate at the scale shown but any enlargement would be misleading. A total of 10 borings and 1 soil pit were examined around Zelah.

Grade 2

The whole of the area surveyed on this occasion has been classified as Grade 2. These soils only have a workability limitation. The soils show no evidence of wetness and are thus assigned to Wetness Class I. The stone content of the soil as found by a soil pit do not impose a droughtiness limitation on these soils. The combination of the topsoil texture of a medium clay loam and the FCD value of 214 means that the soils can be graded no better than Grade 2. This limitaion means that for part of the year it is not possible to access the land without damaging it. This restricts the range of crops that can be grown.

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.