21/93

AGRICULTURAL LAND CLASSIFICATION

PLYMOUTH LOCAL PLAN, SITE AT SALTRAM PARK

REPORT OF SURVEY

1.0 SUMMARY

1.1 The site, an area of 71.1 ha of land at Saltram Park, east of Plymouth, was graded using the Agricultural Land Classification (ALC) system in May 1993. The survey was carried out on behalf of MAFF as part of its statutory role in the preparation of the Plymouth Local Plan. The field work was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000. The information is correct at this scale but any enlargement would be misleading. A total of 62 auger borings and 3 soil profile pits were examined. 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: Saltram Park

GRADE	AREA (ha)	% OF SURVEY AREA	% OF AGRICULTURAL LAND
3a	55.9	78.6	94.7
3b	2.2	3.1	3.7
4	0.9	1.3	1.5
Non-agricultural	12.1	17.0	
TOTAL	71.1	100% (71.1 ha)	100% (59 ha)

1.2 The main limitations experienced by these soils are workability and droughtiness, high field capacity days and the heavy clay loam topsoils impose a moderate workability limitation and a Subgrade 3a. The high stone contents and shallow subsoils reduce the available water for plant growth, imposing moderate drought restrictions in places, thus also limiting the land to Subgrade 3a. There is a small area of steeply sloping land which has been graded 3b and 4 and a small area of 3b land due to a wetness limitation.

2.0 INTRODUCTION

2.1 An area of 71.1 ha of land at Saltram Park, Plymouth, was surveyed on behalf of MAFF, as part of its statutory role in the consultation process for the Plymouth City Plan. The survey was carried out in May 1993 by ADAS (Resource Planning Team, Taunton Statutory Unit) using the Agricultural Land Classification (ALC) system and conducted at a scale of 1:10,000 (approximately one sample point for every hectare of agricultural land). The 62 borings were supplemented by 3 soil inspection pits used to assess subsoil conditions. The information is correct at the scale shown, but any enlargement would be misleading.

2.2 The published Provisional 1" to the mile ALC map of this area (MAFF 1973) shows much of the site to be Grade 2, with small areas of Grade 3 in the central and southern parts of the site. A previous survey carried out in 1975, at a scale of 1:25,000, showed very similar grading to the 1" maps. The current survey supersedes any previous surveys and was undertaken to provide a more detailed representation of the agricultural land quality using the Revised Guidelines and Criteria (MAFF 1988). These guidelines provide 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 120 cm of the soil profile. A description of the grades used in the ALC system can be found in Appendix 2.

3.0 CLIMATE

3.1 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.

3.2 Climatic data for the site was interpolated from the published Agricultural Climate Dataset (Meteorological Office 1989). The parameters used for assessing climate are accumulated temperature (a measure of relative warmth of a locality) and average annual rainfall (a measure of overall wetness). The results shown in Table 2 indicate that there is no overall climatic limitation.

Table 2 **Climatic interpolations: Saltram Park, Plymouth**

Grid Reference	SX 511554	SX 527547
Height (m)	20	50
Accumulated Temperature (° days)	1603	1569
Average Annual Rainfall (mm)	1048	1121
Overall Climatic Grade	1	1
Field Capacity (days)	210	221
Moisture Deficit - Wheat (mm)	97	91
Potatoes (mm)	88	80

3.3 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.

4.0 RELIEF AND LANDCOVER

4.1 The site occupies a valley feature which rises from 5 m AOD at the most westerly point to 51 m AOD at the most easterly point. In the central area of the site, slopes are moderately steep imposing subgrade 3b and Grade 4 slope limitations. At the time of survey much of the agricultural land was growing winter cereals, with some grassland in the southern fields and a large block of set-aside on land between Sellars Acres and Wizenford Brake.

5.0 GEOLOGY AND SOILS

5.1 The published 1:50,000 scale solid and drift geology map sheet 349 (Geological Survey of England and Wales, 1974) shows the majority of the site to be underlain by shale. A narrow strip of alluvium occupies the valley floor on the margins of the site.

5.2 The Soil Survey of England and Wales mapped the soils of the area in 1983, at a reconnaissance scale of 1:250,000. This map shows the soils to comprise the Denbigh 2 Association* in the northern half and Nordrach** in the southern half. Soils at Saltram Point and the north-easterly part of larger site comprise the Powys Association***.

5.3 Soils across the whole of the site comprise slightly and moderately stony heavy clay loam and heavy silty clay loam topsoils over silty clay loam subsoils. These horizons are of variable depth and typically contain 55-65% rock (shale). In some areas the soils are shallow and overlie fractured shale (over 70% rock) at 48-55 cm. The gentler sloping higher ground and lower slopes have slightly deeper subsoils over shale at 65-75 cm.

* Denbigh 2 Association: well-drained fine loam over slate or slate rubble.

** Nordrach Association: well-drained fine silty over clayey soils, stoneless or with chert stones, often deep. Shallow silty soils over limestone in places. Mainly on flat or gently sloping ground. Bare rock in places on browns or steep valley sides.

*** Powys Association: shallow well-drained loamy soils over rock. Many steep slopes with some gently sloping interfluves. Bare rock locally.

6.0 AGRICULTURAL LAND CLASSIFICATION

6.1 The distribution of ALC grades identified in the survey area is detailed in Table 3 and shown on the accompanying ALC map. This shows nearly all the agricultural land to be best and most versatile land.

Table 3 Distribution of ALC grades: Saltram Park

GRADE	AREA (ha)	% OF SURVEY AREA	% OF AGRICULTURAL LAND
3a	55.9	78.6	94.7
3b	2.2	3.1	3.7
4	0.9	1.3	1.5
Non-agricultural	12.1	17.0	
TOTAL	71.1	100% (71.1 ha)	100% (59 ha)

Subgrade 3a

6.2 Nearly all the agricultural land has been graded 3a. These soils experience a moderate workability limitation due to the heavy clay loam topsoils and high field capacity days. Soils are well drained, and assessed as wetness class I. In small localised areas slightly less well drained soils have been assessed as wetness class II. On the shallow soils the relatively low available water also limits the land to Subgrade 3a with a droughtiness limitation.

Subgrade 3b and Grade 4

6.3 The small area of land graded 3b north of Sellers Acres comprises soils which are gleyed within 40 cm of the surface and so have been assessed as wetness class III. The steeply sloping land in the centre of the site has been graded 3b where slopes are between 7° and 11° and Grade 4 on the slopes of 11-18°. This land has an increased risk of soil erosion and is unsuitable for the safe operation of machinery used in some crop cultivations and harvests.

Non-agricultural Land

6.4 This land comprises mainly woodland and some rough land dominated by scrub.

APPENDIX 1

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1974) Solid and Drift edition. Sheet 349 1:50,000 scale

MAFF (1973) Agricultural Land Classification Map Sheet 187 Provisional 1:63,360 scale

MAFF (1988) Agricultural Land Classification of England and Wales (revised guidelines and criteria for grading the quality of land) Alnwick

METEOROLOGICAL OFFICE (1989) Published climatic data extracted from the agroclimatic dataset, compiled by the Meteorological Office

SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 5 Soils of South West England 1:250,000 scale