55/95

Restormel Local Plan
St Mawgan

Agricultural Land Classification

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RESTORMEL LOCAL PLAN

ST MAWGAN

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RESTORMEL LOCAL PLAN

ST MAWGAN

AGRICULTURAL LAND CLASSIFICATION SURVEY

SUMMARY

The survey was carried out by ADAS on behalf of MAFF as part of its statutory role in the preparation of the Restormel Local Plan. The fieldwork adjacent to Newquay Airport at St Mawgan was completed in August 1995 at a scale of 1:10,000. Data on climate, soils, geology and from previous Agricultural Land Classification (ALC) Surveys was used and is presented in the report. The distribution of grades is shown on the accompanying ALC map and summarised below. Information is correct at this scale but could be misleading if enlarged.

Distribution of ALC grades: St Mawgan

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (9.6 ha)
3a	9.6	100	100
TOTAL	9.6	100	100

All of the site is mapped as Subgrade 3a. The main limitation to the site is a moderate workability limitation imposed by heavy clay loam topsoils. The site also experiences slight exposure and droughtiness limitations.

1. INTRODUCTION

An Agricultural Land Classification (ALC) Survey was carried out in August 1995 adjacent to Newquay Airport at St Mawgan on behalf of MAFF as part of its statutory role in the preparation of the Restormel Local Plan. The fieldwork covering 9.6 ha of land was conducted by ADAS at a scale of 1:10,000 with approximately one boring per hectare of agricultural land. A total of 10 auger borings were examined and 1 soil profile pit used to assess subsoil conditions.

The published provisional one inch to the mile ALC map of this area (MAFF 1961) shows the grade of the site at a reconnaissance scale to be Grade 3.

The recent survey supersedes this map having been carried out at a more detailed level and using the Revised Guidelines and Criteria for grading the quality of agricultural land (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.

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 a lower grade despite other favourable conditions.

Estimates of climatic variables were interpolated from the published agricultural climate dataset (Meteorological Office 1989). The parameters used for assessing overall 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 1 indicate there is no overall climatic limitation..

Table 1: Climatic Interpolations: St Mawgan

Grid Reference		SW 861 654
Altitude (m)		92
Accumulated Temperature (day °)		1531
Average Annual Rainfall (mm)		1010
Overall Climatic Grade		1
Field Capacity Days		197
Moisture deficit (mm):	*Wheat*	91
	Potatoes	81

Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat and potatoes are also shown. These data are used in assessing the soil wetness and droughtiness limitations referred to in later sections.

3. RELIEF AND LANDCOVER

The site forms the edge of a hill top and starts to drop away into a valley to the north. The slopes are gentle and the average altitude of the site is 90m AOD. At the time of survey the two western fields were planted with linseed, whilst in the east was grass.

4. GEOLOGY AND SOILS

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 346 *Institute of Geological Sciences 1981. This map shows the whole site to be underlain by* Dartmouth Beds (purple and green slates with fishes) of the Lower Devonian Era.

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000. This map shows the whole site to consist of soils from the Denbigh 2 Association which are described as being well drained fine loamy soils over slate or slate rubble, some fine loamy soils are variably affected by ground water. Immediately to the north of the site soils from the Powys Association are mapped. These are described as shallow, well drained loamy soils over rock with bare rock locally.

The soils found during the recent survey are typical of the Denbigh 2 Association with heavy clay loam topsoils over clay subsoils with slate rubble.

5. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades is shown in Table 2 and on the accompanying ALC map. This information could be misleading if shown at a larger scale.

Table 2: Distribution of ALC grades: St Mawgan

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (9.6 ha)
3a	9.6	100	100
TOTAL	9.6	100	100

Subgrade 3a

All of the site experiences a moderate workability limitation and is mapped as Subgrade 3a. Heavy clay loam topsoils with 14% (1% > 2cm) slate by volume overlie stonier clays and slate rubble. The soils are well drained and are Wetness Class I (see Appendix 3). The location of the site means that it receives some damaging winds and experiences a slight risk from exposure as seen by wind pruned bushes.

Resource Planning Team
Taunton Statutory Unit
September 1995

APPENDIX 1

REFERENCES

INSTITUTE OF GEOLOGICAL SCIENCES (1981) Drift Edition, Sheet 346 1:50,000.

MAFF (1961) Agricultural Land Classification Map, Sheet 185, Provisional 1:63,360 scale.

MAFF (1988) Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for grading the quality of agricultural land), Alnwick.

METEOROLOGICAL OFFICE (1989) Climatological Data for Agricultural Land Classification.

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

APPENDIX 2

DESCRIPTION OF GRADES AND SUBGRADES

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 most 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 park land, 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 landcover types, eg buildings in large grounds, and where may be shown separately. Otherwise, the most extensive cover type will usually be shown.

Source: MAFF (1988) Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for Grading the Quality of Agricultural Land), Alnwick.

APPENDIX 3

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

The soil profile is not wet within 70 cm depth for more than 30 days in most years.

Wetness Class II

The soil profile is wet within 70 cm depth for 31-90 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but not wet within 40 cm depth for more than 30 days in most years.

Wetness Class III

The soil profile is wet within 70 cm depth for 91-180 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31 and 90 days in most years.

Wetness Class IV

The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.

Wetness Class V

The soil profile is wet within 40 cm depth for 211-335 days in most years.

Wetness Class VI

The soil profile is wet within 40 cm depth for more than 335 days in most years.

Notes: The number of days specified is not necessarily a continuous period. 'In most years' is defined as more than 10 out of 20 years.

Source: Hodgson, J M (in preparation), Soil Survey Field Handbook (revised edition).

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
St Mawgan	Pit 1	0	Linseed	Av Rainfall: 1010 mm ATO: 1531 day °C	Dartmouth Beds
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 197	SOIL SAMPLE REFERENCES
55/95	23/8/95	SW 85 95 6550	GMS	Climatic Grade: 1 Exposure Grade: 2	RPT/GMS 509

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	30	HCL	10YR43	1% > 2cm HR 13% > 2mm ZR 14% TOTAL	None	None	-	-	-	-	CVF	-	Clear Smooth
2	45+	C	10YR54	1% > 2cm HR 18% > 2mm ZR 19% TOTAL	None	None	WFSAB	Friable	Good	Good	CVF	-	

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 3a

Available Water	Wheat:	113 mm
	Potatoes:	124 mm
Moisture Deficit	Wheat:	91 mm
	Potatoes:	81 mm
Moisture Balance	Wheat:	22 mm
	Potatoes:	43 mm
Droughtiness Grade:		2 (Calculated to 70 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Workability

Remarks:

2 on exposure, topsoil clay content 28%