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NORTH CORNWALL LOCAL PLAN

BADASH, LAUNCESTON

AGRICULTURAL LAND CLASSIFICATION

CONTENTS

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BADASH, LAUNCESTON

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 North Cornwall Local Plan. The fieldwork at Badash 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: Badash, Launceston

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (8.6ha)
3b	8.6	92.5	100.0
Urban	0.2	2.2	0.0
Non Agricultural	0.2	2.2	0.0
Agricultural Buildings	0.3	3.2	0.0
TOTAL	9.3	100.0	100.0

All of the agricultural land areas mapped as Subgrade 3b with a moderate workability limitation. The profiles are well drained heavy clay loams over clay with high stone contents (22% < 2cm shale by volume in the topsoil and 50% shale in the subsoil). Due to the high local rainfall there is no drought limitation.

1. INTRODUCTION

An Agricultural Land Classification (ALC) Survey was carried out in August 1995 at Badash, Launceston on behalf of MAFF as part of its statutory role in the preparation of the North Cornwall Local Plan. The fieldwork covering 9.3 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 one 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 grades of the site at a reconnaissance scale. The whole site areas mapped as 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 an overall climatic limitation which restricts the land to Subgrade 3a..

Table 1: Climatic Interpolations: Badash, Launceston

Grid Reference		SX 327 832
Altitude (m)		140
Accumulated Temperature (day °)		1458
Average Annual Rainfall (mm)		1294
Overall Climatic Grade		3a
Field Capacity Days		252
Moisture deficit (mm):	Wheat	62
	Potatoes	44

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 covered the fields around Badash Farm which at the time of survey were all under permanent pasture. The site is relatively flat with gradients of less than 7°, except for a small area to the south of the farm with a gradient of 8°. The site has a minimum and maximum altitude of 140m AOD and 148m AOD respectively.

4. GEOLOGY AND SOILS

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 337 Institute of Geological Sciences 1977. This shows that the whole site is underlain by shale from the Culm Measures.

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000. This shows the whole site to consist of soils from the Denbigh 2 Association. They are described as being well drained fine loamy soils over slate or slate rubble. Some fine loamy soils may be variably affected by groundwater.

The soils found during the recent survey had heavy clay loam topsoils and upper subsoils over clay lower subsoils. They were well drained over slate rubble which are similar to those of the Denbigh 2 Association.

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: Badash, Launceston

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (8.6ha)
3b	8.6	92.5	100.0
Urban	0.2	2.2	0.0
Non Agricultural	0.2	2.2	0.0
Agricultural Buildings	0.3	3.2	0.0
TOTAL	9.3	100.0	100.0

Subgrade 3b

The whole of the site was mapped as Subgrade 3b. The profiles were typically well drained heavy clay loam topsoils and upper subsoils over clay lower subsoils. The profiles were assessed as Wetness Class I (see Appendix 3) which together with the high local Field Capacity Days value and the heavy clay loam topsoil gives a moderate workability limitation. Although the profiles had a high stone content (22% < 2cm, 44% and 50% hard rock by volume in the topsoil, upper and lower subsoils respectively) due to the high local rainfall there is no drought limitation. The small area of steeper land south of the farm is also mapped as Subgrade 3b.

Other land

The farmstead and farm buildings were mapped as such while a small of woodland was mapped as non-agricultural land.

Resource Planning Team
Taunton Statutory Unit
September 1995

APPENDIX 1

REFERENCES

INSTITUTE OF GEOLOGICAL SCIENCES (1977) Drift Edition, Sheet 337, Tavistock 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
Badash, Launceston	Pit 1 (ASP1)	2° West	Permanent Grass	Av Rainfall: 1294 mm ATO: 1458 day °C	Shale
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 252 Climatic Grade: 3a Exposure Grade: -	SOIL SAMPLE REFERENCES
57/95	22/8/95	SX 327 834	GMS/HLJ		RPT/HLJ/179

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	25	HCL	10YR43	22½% <2cmZR (S&D) 22½%ZR TOTAL	None	None	-	-	-	Good	MVF	-	Clear Smooth
2	40	HCL	7.5YR42	40%ZR TOTAL (VIS)	None	None	NFSAB	Friable	Good	Good	MVF	-	Gradual Smooth
3	80+	C	10YR64	55%ZR TOTAL (VIS)	None	None	WFSAB	Friable	Good	Good	CVF	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 3b

Available Water Wheat: 144 mm

Potatoes: 105 mm

Moisture Deficit Wheat: 62 mm

Potatoes: 44 mm

Moisture Balance Wheat: 82 mm

Potatoes: 61 mm

Droughtiness Grade: 1 (Calculated 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Workability

Remarks:

Still roots at 80cm.