75/95

South Somerset Local Plan Yeovil 1996 Agricultural Land Classification

Prepared for MAFF by P Barnett ADAS Statutory Unit Bristol





SOUTH SOMERSET LOCAL PLAN YEOVIL

AGRICULTURAL LAND CLASSIFICATION

CONTENTS

.

		Page						
SUMMARY								
1 INTRODU	ICTION	2						
2 CLIMATE		2						
3 VAGG FA	VAGG FARM SITE							
4 NASH YE	NASH YEOVIL							
5 UP MUDF	UP MUDFORD SITE							
APPENDIX 1	References	8						
APPENDIX 2	Description of the grades and subgrades	9						
APPENDIX 3	Definition of Soil Wetness Classes	11						

MAPS

SOUTH SOMERSET LOCAL PLAN YEOVIL

AGRICULTURAL LAND CLASSIFICATION SURVEY

SUMMARY

The survey was carned out by ADAS on behalf of MAFF as part of its statutory role in the preparation of the South Somerset Local Plan Fieldwork completed in January 1996 covered 3 sites at Yeovil further to those surveyed in 1995 (ADAS Resource Planning Team October 1995) These were at Vagg Farm on the north side of Yeovil Nash on the south side and Up-Mudford to the north east of the town This survey was carned out at semi-detailed density for mapping 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 maps and summanised below. Information is correct at this scale but could be misleading if enlarged

Distribution of ALC grades Vagg Farm

Grade	Area (ha)	% of Survey Area	% of Agrıcultural Land	(75 1 ha)
1	17 0	20 8	22 6	
2	15 2	18 6	20 2	
3a	32 9	40 2	43 8	
3b	10 0	12 2	13 3	
Other Land	67			
TOTAL	81 8			

87% of the agnoultural land surveyed was found to be best and most versatile with minor and moderate limitations mainly due to wetness

Distribution of ALC grades Nash

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	(93 7 ha)		
1	89 9	84 1	95 9			
3a	38	36	4 1			
Other Land	13 02	12 3				
TOTAL	106 9					

All the agricultural land surveyed was found to best and most versatile nearly all Grade I with no significant limitation

Distribution of ALC grades Up-Mudford

Grade	Area (ha)	% of Survey Area	% of Agrıcultural Land	(90 3 ha)		
1	16 1	17 8	17 8			
2	66	73	73			
3a	29 9	33 1	33 1			
3b	37 7	41 7	41 7			
TOTAL	90 3					

58% of the agricultural land surveyed was found to best and most versatile with minor and moderate limitations mainly due to wetness

1 INTRODUCTION

An Agncultural Land Classification (ALC) Survey was carried out in January 1996 at three sites around Yeovil on behalf of MAFF as part of its statutory role in the preparation of the South Somerset Local Plan The fieldwork covering 279 ha of land was conducted by ADAS at semi detailed density with approximately one boring per 2 hectares of agricultural land for mapping at 1 10 000 scale A total of 138 auger borings were examined and 8 soil profile pits used to assess subsoil conditions

The published provisional one inch to the mile ALC map of this area (MAFF 1970) shows the grades of the sites on the basis of a reconnaissance survey at that time

The area was also surveyed in 1981 at a scale of 1 25 000 but this was to a previous classification system and although the patterns of ALC grades shown in both this and the one inch reconnaissance survey are reflected in the recent survey there are unavoidable variations both in boundaries and grades

The recent survey supersedes these previous surveys having been camed out 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 overnding 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 the relevant tables indicate there is no overall climatic limitation at any site

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 VAGG FARM SITE

3 1 81 8 hectares of land at Vagg Farm mainly south of Tintinhill Road on the north side of Yeovil were surveyed at semi detailed density in January 1996 by examining a total of 41 auger bonngs and 4 soil profile pits

3 2 Climate

Climatic data for the site was interpolated as described in Section 2. The results are shown below and indicate that there is no overall climatic limitation. In addition, no local climatic limitations were noted

Table 1 Climatic Interpolations Vagg Farm

Grid Reference		ST 535 181	ST 529 175	ST 540 178
Altıtude (m)		105	90	90
Accumulated Temperati	ure (day)	1455	1472	1472
Average Annual Rainfai	i (mm)	866	801	802
Overall Climatic Grade		1	1	1
Field Capacity Days		172	171	172
Moisture deficit (mm)	Wheat	99	101	101
	Potatoes	90	92	92

3 3 Relief and Landcover

Altitude ranges from 85 to 109 m AOD with mainly gentle and moderate slopes which are not limiting. One small area at the extreme east of the site near Coppits Hill Lane was found to be strongly sloping, but is included in a larger area of Subgrade 3b.

At the time of survey landcover was mainly grass with one small area in cereal stubble Despite its location on the urban finge land owners in the south centre of the site are continuing with conscientious hedge management several of the hedges having been laid and fenced in recent years and one hedge was being laid at the time of the survey

34 Geology and Soils

The geology of the site is shown on the published 1 50 000 scale Solid and Dnft Geology Map Sheet 312 Yeovil Institute of Geological Sciences 1973 This shows that the south centre of the site is underlain by Yeovil Sands with Pennard Sands of the Middle Lias penod around the north west and north east sides of the site Ferruginous and Argillaceous Limestone of the Junction Beds are shown lying across the centre of the site but the current survey found less evidence of these than expected as they were found mainly confined to a small area in the south centre of the site

Soils mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1 250 000 showed only soils of the Curtisden Association These are described as silty soils over siltstone with slowly permeable subsoils and slight seasonal waterlogging Some similar well drained soils and some coarse well drained loamy soils over sandstone with slumping locally This was largely borne out by the current survey

3 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 Vagg Farm

Grade	Area (ha)	% of Survey Area	% of Agrıcultural Land	(75 1 ha)		
1	17 0	20 8	22 6			
2	15 2	186	20 2			
3a	32 9	40 2	43 8			
3b	10 0	12 2	13 3			
Other Land	67					
TOTAL	81 8					

Grade 1

Topsoil textures were found to be mainly medium clay loam or medium silty clay loam occasionally fine sandy silt loam all Wetness Class I (See Appendix 3) Although many of the bonngs identified as Grade 1 showed no evidence of wetness a significant number particularly towards the south of the mapping unit showed strong gleying within 70 cm. This is illustrated by pit 3 which was found to be gleyed from 50 cm and strongly gleyed from 65 cm. Good porosity below 65 cm prevented the identification of a slowly permeable layer but where this is not the case a profile would be down graded to Grade 2 or Subgrade 3a on wetness.

Grade 2

The areas mapped as Grade 2 show minor limitations mainly due to wetness Much of the site was found to be bordenine between Grade 2 and Subgrade 3a with a sometimes inconclusive slowly permeable layer hovening at around 60 cm or below. Gleying generally occurs below 40 cm and where the slowly permeable layer starts below 62 cm this give rise to Wetness Class II Grade 2 Topsoil textures are mainly medium clay loam or medium silty clay loam.

Subgrade 3a

Soils of this subgrade were found in intermittently with the Grade 2 profiles described above mainly where the slowly permeable layer was found to start above 65 cm (Wetness Class III) with mainly medium clay loam or medium silty clay loam topsoil textures Occasionally heavy silty clay loam topsoil textures were found which indicates Subgrade 3a at Wetness Class II This is illustrated by pit 1

Subgrade 3b

Small areas of Subgrade 3bwere found in the north centre (Wetness Class IV profiles) and north east of the site the latter being associated with a small area of strongly sloping land limited to Subgrade 3b by its gradient

Other Land

Areas shown as other land are mainly residential now including Vagg Farm itself and a horse inding school on the north side of Tintinhull Road

4 NASH YEOVIL

4.1 An area of 10 hectares to the south of Yeovil and the east of Nash was surveyed at semi detailed density in January 1996 A total of 48 auger bonngs were examined and 2 soil profiles pits were used to assess subsoil conditions

4 2 Climate

Climatic data for the site was interpolated as described in Section 2. The results are shown below and indicate that there is no overall climatic limitation. In addition no local climatic limitation was noted

Table 3 Climatic Interpolations Nash

Grid Reference		ST 551 143	ST 539 143	ST 543 134
Altıtude (m)		80	90	60
Accumulated Temperate	ure (day)	1484	1473	1508
Average Annual Rainfal	l (mm)	850	855	841
Overall Climatic Grade	. ,	1	1	1
Field Capacity Days		180	181	179
Moisture deficit (mm)	Wheat	100	98	101
	Potatoes	91	89	94

4 3 Relief and Landcover

The site occupies land on the southern edge of Yeovil between Nash and Keyford House It is gently undulating with all gradients being less than 7° It has a low point of 60 m AOD at Redlands Farm and a high point of 90 m AOD on West Coker Road in the north west corner At the time of the survey the site was being used for a range of crops including winter wheat fodder crops and permanent pasture

44 Geology and Soils

The geology of the site is shown on the published geology map (institute of Geological Sciences 1973) this shows that the whole site is underlain by Yeovil Sands apart from the south west corner which is underlain by inferior Oolite

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1 250 000 This shows that the whole site consists of soils from the South Petherton Association which are described as being deep well drained silty soils sometimes over soft rock

The soils found during the recent survey were very similar to those found in the 1983 survey. The profiles were deep and well drained with sandy loam and sandy silty loam topsoils over sandy loam subsoils. A small area of soils in the south west corner had medium clay loam topsoils over clayey subsoils and showed evidence of restricted drainage.

45 Agricultural Land Classification

The distribution of ALC grades is shown in Table 4 and on the accompanying ALC map This information could be misleading if shown at a larger scale

Table 4 Distribution of ALC grades Nash

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (93 7 ha)		
1	89 9	84 1	95 9		
3a	38	36	4 1		
Other Land	13 02	12 3	0 0		
TOTAL	106 9	100 0	100 0		

Grade 1

The majority of the site was mapped as Grade 1 having no limitation to its agricultural use These profiles had fine sandy loam and fine sandy silt loam topsoils over fine sandy loam subsoils The profiles were deep and well drained with low stone contents throughout their depth. Due to the absence of stones within the profiles and the relatively high local rainfall there is no drought limitation. With profiles being deep and well drained they were assessed as Wetness Class 1

Subgrade 3a

A small area of land in the south west corner of the site was mapped as Subgrade 3a with a moderate wetness limitation. The profiles in this area have medium clay loarn topsoils over medium and heavy clay loarn upper subsoils with clay lower subsoils. Evidence of wetness was found in both the upper and lower subsoils. The clay lower subsoils which start at a depth of 45 50 cm were found to be slowly permeable. The profiles were therefore assessed as Wetness Class III

Other Land

Residential areas roads and tracks and other areas of non agricultural land were not surveyed

5 UP-MUDFORD SITE

5 1 90 3 hectares of land south of Up-Mudford were surveyed at semi detailed density in January 1996 by examining 50 auger borings and 2 soil profile pits

5 2 Climate

Climatic data for the site was interpolated as described as in Section 2. The results are shown below and indicate that there is overall climatic limitation. In addition no local climatic limitations were noted

Table 5 Climatic Interpolations Up-	-Mudford
-------------------------------------	----------

Gnd Reference		ST 570 180	ST 581 185
Altitude (m)		75	30
Accumulated Temperatu	ire (day)	1488	1539
Average Annual Rainfall	(mm)	797	748
Overall Climatic Grade		1	1
Field Capacity Days		171	164
Moisture deficit (mm)	Wheat	103	110
	Potatoes	95	105

5 3 Relief and Landcover

Altitude ranges from 30 to 75 m AOD with gentle and moderate slopes which are not limiting

At the time of survey land cover was mainly grass with one large field in winter cereals

54 Geology and Soils

The geology of the site is shown on the published 1 50 000 scale Solid and Drift Geology Map (Institute of Geological Sciences 1973) This shows that the site is underlain mainly by Pennard Sands of the Middle Lias penod mainly silts and marks in the lower half of the site and a small area of alluvium by the niver

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1 250 000 showing mainly soils of the Curtisden Association with a small area of Teme Association on lower land by the river

Curtisden Association is described as silty soils over siltstone with slowly permeable subsoils and slight seasonal waterlogging Some similar well drained soils and some well drained coarse loamy soils over sandstone

Teme Association is described as deep stoneless permeable silty soils some variably affected by gravelly subsoils in places. Risk of flooding on flat land

This distribution was largely borne out by the current survey

5 5 Agricultural Land Classification

The distribution of ALC grades is shown in Table 6 and on the accompanying ALC map This information could be misleading if shown at a larger scale

Table 6

Distribution of ALC grades Up-Mudford

Grade	Area (ha)	% of Survey Area	% of Agncultural Land	(90 3 ha)		
1	16 1	17 8	17 8			
2	66	73	73			
3a	29 9	33 1	33 1			
3b	37 7	41 7	41 7			
TOTAL	90 3					

Grade 1

The area shown as Grade 1 was found to be Wetness Class I with mainly medium silty clay loam topsoils. Several profiles showed extensive gleying at variable depths but below 40 cm This is illustrated by Pit 1.

Grade 2

These soils are found to be mainly Wetness Class II with medium clay loam or medium silty clay loam topsoil and gleying starting in the upper subsoil above 40 cm but no slowly permeable layer. Such profiles are illustrated by Pit 6 in the previous survey of an adjacent site (ADAS ALC Yeovil 1995)

Subgrade 3a

Soils within the area shown as Subgrade 3a exhibit a range of characteristics including Wetness Class III with gleying evident above a slowly permeable layer starting above 60 cm with medium sity clay loam topsoil. This is illustrated by Pit 4 of a previous survey on an adjoining site (ADAS ALC Yeovil 1995)

Subgrade 3b

Considerable areas shown as Subgrade 3b are typically Wetness Class IV with medium or heavy silty clay loam topsoil illustrated by Pit 2 On this site Subgrade 3a and 3b are found in intimate mixture with 3b indicated by squelchy conditions in patches under foot at the time of survey Therefore the area shown as 3b includes several borings of higher grades typical of the patchy distribution of such soils

> Resource Planning Team Taunton Statutory Unit January 1996

APPENDIX 1

REFERENCES

ADAS Resource Planning Group (1981) Report of ALC Survey at Yeovil Scale 1 25 000

ADAS Resource Planning Group (October 1995) Report of ALC Survey at Yeovil South Somerset Local Plan Scale 1 10 000

INSTITUTE OF GEOLOGICAL SCIENCES (1973) Solid and Drift Edition Sheet 312 Yeovil 1 50 000 scale

MAFF (1977) Agricultural Land Classification Map. Sheet 177. Provisional 1 63 360 scale

MAFF (1988) Agncultural Land Classification of England and Wales (Revised Guidelines and Criteria for Grading the Quality of Agncultural 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 vanable 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 cemetenes. 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

1

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 NA	ME		PROF	TILE NO	SLOPE	E AND ASPECT		LAND USE		Av	Rainfall	850 mm		PARENT MATERIAL			
Nash, Ye	ovil		Pıt 1		0°	Ley ATO		ю	1484 day °C		Yeovil Sands						
JOB NO			DATE	3	GRID I	REFERENC	E	DES	SCRIBED B	Y	FC	Days	180		SOIL SAMPLI	E REFEREN	CES
75/95			17/1/9	6	ST 548	139 (Asp 31)	PB/C	PB/GMS		Ch Ex	umatic Grade	1		PB 389		
Horizon No	Lowest Av Depth (cm)	Text	ure	Matrix (Ped Face) Colours	Stonine Size Ty Field M	ss pe and lethod	Mottling Abundanc Contrast, Size and Colour	×	Mangan Concs	Structure Ped Developme Size and Shape	ent	Consistence	Structural Condition	Pores (Fissures)	Roots Abundance and Size	Calcium Carbonate Content	Horizon Boundary Distinctness and form
1	23	FS	SL	10YR43	none		none		none	•					CVF		Clear smooth
2	120	FS	SL	10YR44 becoming 7 5YR46 at depth	none		none		none	MCAB		Fnable	Moderate	>0 5	FVF		
3																	
4																	
Profile Gleyed From not gleyed Available Water Wheat 181 m				31 mm	-	·	Final ALC	Grade	1								
Depth to Slowly Permeable Horizon no SPL Wetness Class I			Potatoes126 mmMoisture DeficitWheat100 mm				Main Limit	ing Factor(s	3)								
Wetness Grade					F	otato	es 91	l mm									
		-				Moisture E	Balance W	Vheat	81	l mm					<u></u> . <u>.</u> .		
							P	otato	es 35	5 mm			Remarks				
Droughtiness Grade 1 (Calculated to 120 cm)																	

SITE NAME		PRO	PROFILE NO		SLOPE AND ASPECT		LAND USE			Av F	Rainfall	850 mm		PARENT MATERIAL		
Nash, Ye	ovil	Pit	Pit 2		0°			Cereal			D	1484 day °C		Yeovil Sands		
JOB NO		DA	DATE		GRID REFERENCE		DESCRIBED BY			FCI	FC Days 180		ŀ	SOIL SAMPLE REFERENCES		
75/95		17/	17/1/96		ST 543139 (Asp 27		PB/GMS	'B/GMS		Clin	natic Grade	1		PB 337		
Horizon No	Lowest Av Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness Size Type and Field Method		Mottling Abundanc Contrast Size and Colour	undance Mang ntrast Conc c and lour		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	FSZL 10YR42 1		none	: no		n	none						CVF		Clear smooth
2	45	FSL 10YR43		попе	none		n	none	MCAB	3	Fnable	Moderate	>0 5	FVF		Gradual smooth
3	100+	FSL	10YR44	лопе		none	n	none	MCAB (tending to P at depth)		Friable	Moderate	>0 5	FVF		
4																
Profile Gleyed From not gleyed Depth to Slowly					Available Water Wheat 181 mm Potatoes 126 mm						Final ALC Grade 1					
Permeable Horizon no SPL Wetness Class I				Moisture Deficit Wheat 100 mm						Main Limiting Factor(s)						
Wetness	Grade	1			Potatoes 91 mm											
					Moisture I	Balance W	Vheat 81 mm				Remarks	· - ,	······			
					Potatoes 35 mm											
				Droughtuness Grade 1 (Calculated to 120 cm)												



