

Blunsdon, Swindon
Agricultural Land Classification

June 1998

Resource Planning Team
Bristol
FRCA Western Region

Job Number 39/98

MAFF Ref: EL45/0860



BLUNSDON, SWINDON
AGRICULTURAL LAND CLASSIFICATION SURVEY

CONTENTS

	Page
INTRODUCTION	1
SUMMARY	1
CLIMATE	2
RELIEF	2
GEOLOGY AND SOILS	2
AGRICULTURAL LAND CLASSIFICATION AND MAP	3
REFERENCES	5
APPENDIX I Description of the Grades and Subgrades	6
APPENDIX II Definition of Soil Wetness Classes	8
APPENDIX III Survey Data:	9
	Sample Point Location Map
	Pit Descriptions
	Boring Profile Data
	Boring Horizon Data
	Abbreviations and Terms used in Survey Data

BLUNSDON, SWINDON

AGRICULTURAL LAND CLASSIFICATION SURVEY

INTRODUCTION

1. This report presents the findings of a reconnaissance Agricultural Land Classification (ALC) survey of 511.1 ha of land at Blunsdon, Swindon. Field survey was based on 98 auger borings and 4 soil profile pits, and was completed in May 1998.
2. The survey was conducted by the Resource Planning Team of FRCA Western Region on behalf of MAFF in its statutory role in the preparation of the Local Plan.
3. Information on climate, geology and soils, and from previous ALC surveys was considered and is presented in the relevant section. Apart from the published regional ALC map (MAFF 1977), which shows the site at a reconnaissance scale as Grade 3 except for Grade 4 along the River Ray and on the slope below Blunsdon, the site had not been surveyed previously. The current survey uses the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF, 1988) and supersedes any previous ALC survey. Grade descriptions are summarised in Appendix I.
4. An area adjacent to the current site, at Blunsdon St Andrew was surveyed at 1:10 000 in 1995 (ADAS 1995). The site was shown as all Subgrade 3a with a moderate droughtiness and workability limitation.
5. At the time of survey land cover was a mix of arable and grassland. Other land which was not surveyed included an area being landfilled, farm buildings and woodland.

SUMMARY

6. The distribution of ALC grades is shown on the accompanying 1: 15 000 scale ALC map. The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas. Areas are summarised in the Table 1.

Table 1: Distribution of ALC grades: Blunsdon, Swindon

Grade	Area (ha)	% Surveyed Area (511.1 ha)
3a	52.1	10
3b	426.0	83
Other land	33.0	7
Total site area	511.1	100

7. The majority of the site is Subgrade 3b found on the poorly drained clays. On the higher land better drained soils are found on the Coral Rag which have a moderate droughtiness limitation and are Subgrade 3a.

CLIMATE

8. Estimates of climatic variables for this site were derived from the published agricultural climate dataset "Climatological Data for Agricultural Land Classification" (Meteorological Office, 1989) using standard interpolation procedures. Data for key points around the site are given in Table 2 below.

9. Since the ALC grade of land is determined by the most limiting factor present, overall climate is considered first because it can have an overriding influence by restricting land to a lower grade despite more favourable site and soil conditions. Parameters used for assessing overall climate are accumulated temperature, a measure of relative warmth and average annual rainfall, a measure of overall wetness. The results shown in Table 2 indicate that there is no overall climatic limitation.

10. Climatic variables also affect ALC grade through interactions with soil conditions. The most important interactive variables are Field Capacity Days (FCD) which are used in assessing soil wetness and potential Moisture Deficits calculated for wheat and potatoes, which are compared with the moisture available in each profile in assessing soil droughtiness limitations. These are described in later sections. Two sets of values for the site were used, one for the lower land and one for the high land where moisture deficits were critical to the grading.

Table 2: Climatic Interpolations: Blunsdon

Grid Reference	SU 136 903	SU 120 915	SU 133 911
Altitude (m)	140	80	90
Accumulated Temperature (day °C)	1369	1438	1426
Average Annual Rainfall (mm)	702	683	685
Overall Climatic Grade	1	1	1
Field Capacity Days	157	155	155
Moisture deficit (mm): Wheat	99	105	105
Potatoes	88	97	96

RELIEF

11. Altitude ranges from 145 metres at Upper Widhill Farm to 80 metres along River Ray with some steep limiting slopes around Upper Widhill Farm.

GEOLOGY AND SOILS

12. The underlying geology of the site is shown on the published geology map (IGS, 1974) as Jurassic Oxford Clay except for alluvium along the River Ray, Coral Rag on high ground at Blunsdon and Rhaxella Chert at the boundary of the clay and Coral Rag. The recent survey found soils developed on Clay and Coral Rag, but the scale of survey did not identify any soils associated with the Chert.

13. Soils were mapped by the Soil Survey of England and Wales at a reconnaissance scale of 1:250 000 (SSEW, 1983) as slowly permeable Evesham 2 and Wickham 2 Associations on the lowland, with Thames Association along the River Ray and Sherborne on the higher land.

14. Evesham 2 and Wickham are both slowly permeable clayey soils, Wickham having more loamy or silty topsoils. Thames is also clayey and affected by ground water. Sherborne is described as shallow well drained brashy calcareous clayey soils over limestone.

15. The soils found in the recent survey were typical of the mapped associations being mainly clayey. The soils on the lowland were poorly drained and those on the high land stony.

AGRICULTURAL LAND CLASSIFICATION

16. The distribution of ALC grades found by the current survey is shown on the accompanying 1: 15 000 scale map and areas are summarised in Table 1. The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas.

Subgrade 3a

17. An area of best and most versatile land is mapped on the highest land. These soils are well drained but stony. They are clays which combined with Wetness Class I (see Appendix II) mean that there is a moderate workability limitation, Subgrade 3a. The soils also have a moderate droughtiness limitation. The stone in the subsoil is a mixture of hard and soft limestone derived from the Coral Rag. The stone restricts the water available to growing crops. Stone contents were measured in a pit by sieving and displacement in water. The survey intensity was increased to semi-detailed scale within the area of best and most versatile land. Reference was also made to the findings of the adjacent survey (ADAS, 1995).

Subgrade 3b

18. The rest of the survey area has a moderate wetness limitation. The soils are poorly drained with generally heavy clay loam topsoils over slowly permeable clay subsoils. The presence of the SPL's was confirmed in three soil pits. The soils were assessed as Wetness Class IV with occasional Wetness Class III. Included in the area of 3b are restored landfill sites around Chapel Farm. Although the land is unlikely to have stabilised following restoration, a provisional grading has been applied to these areas. The soils were not markedly different from the surrounding agricultural land.

Other Land

19. Areas not mapped included a current area of landfill, farms buildings and woodland.

G M SHAW
Resource Planning Team
FRCA Bristol
June 1998

REFERENCES

ADAS RESOURCE PLANNING TEAM, (1995) Agricultural Land Classification Survey of Blunsdon St Andrew. Scale 1: 10 000, Reference 58/95, ADAS Bristol.

INSTITUTE OF GEOLOGICAL SCIENCES (1974) Sheet 252, Swindon, 1: 63 360 series Solid and Drift edition. IGS, London.

HODGSON, J M (Ed) (1997) Soil Survey Field Handbook. Soil Survey Technical Monograph No 5, Silsoe.

MAFF (1977) 1:250 000 series Agricultural Land Classification, South West Region. MAFF Publications, Alnwick.

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

METEOROLOGICAL OFFICE (1989) Climatological Data for Agricultural Land Classification. Meteorological Office, Bracknell.

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

SOIL SURVEY OF ENGLAND AND WALES (1984) Soils and Their Use in South West England, Bulletin No 14. SSEW, Harpenden.

APPENDIX I

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.

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

APPENDIX II

DEFINITION OF SOIL WETNESS CLASSES

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile.

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 (Ed) (1997) Soil Survey Field Handbook. Soil Survey Technical Monograph No 5, Silsoe.

APPENDIX III

ABBREVIATIONS AND TERMS USED IN SURVEY DATA

Soil pit and auger boring information collected during ALC survey is held on a computer database and is reproduced in this report. Terms used and abbreviations are set out below. These conform to definitions contained in the Soil Survey Field Handbook (Hodgson, 1997).

1. Terms used on computer database, in order of occurrence.

GRID REF: National 100 km grid square and 8 figure grid reference.

LAND USE: At the time of survey

WHT: Wheat	SBT: Sugar Beet	HTH: Heathland
BAR: Barley	BRA: Brassicas	BOG: Bog or Marsh
OAT: Oats	FCD: Fodder Crops	DCW: Deciduous Wood
CER: Cereals	FRT: Soft and Top Fruit	CFW: Coniferous Woodland
MZE: Maize	HRT: Horticultural Crops	PLO: Ploughed
OSR: Oilseed Rape	LEY: Ley Grass	FLW: Fallow (inc. Set aside)
POT: Potatoes	PGR: Permanent Pasture	SAS: Set Aside (where known)
LIN: Linseed	RGR: Rough Grazing	OTH: Other
BEN: Field Beans	SCR: Scrub	

GRDNT: Gradient as estimated or measured by hand-held optical clinometer.

GLEY, SPL: Depth in centimetres to gleying or slowly permeable layer.

AP (WHEAT/POTS): Crop-adjusted available water capacity.

MB (WHEAT/POTS): Moisture Balance. (Crop adjusted AP - crop potential MD)

DRT: Best grade according to soil droughtiness.

If any of the following factors are considered significant, 'Y' will be entered in the relevant column.

MREL: Microrelief limitation	FLOOD: Flood risk	EROSN: Soil erosion risk
EXP: Exposure limitation	FROST: Frost prone	DIST: Disturbed land
CHEM: Chemical limitation		

LIMIT: The main limitation to land quality: The following abbreviations are used.

OC: Overall Climate	AE: Aspect	EX: Exposure
FR: Frost Risk	GR: Gradient	MR: Microrelief

FL: Flood Risk	TX: Topsoil Texture	DP: Soil Depth
CH: Chemical	WE: Wetness	WK: Workability
DR: Drought	ER: Erosion Risk	WD: Soil Wetness/Droughtiness
ST: Topsoil Stoniness		

TEXTURE: Soil texture classes are denoted by the following abbreviations:-

S: Sand	LS: Loamy Sand	SL: Sandy Loam
SZL: Sandy Silt Loam	CL: Clay Loam	ZCL: Silty Clay Loam
ZL: Silt Loam	SCL: Sandy Clay Loam	C: Clay
SC: Sandy clay	ZC: Silty clay	OL: Organic Loam
P: Peat	SP: Sandy Peat	LP: Loamy Peat
PL: Peaty Loam	PS: Peaty Sand	MZ: Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes:-

F: Fine (more than 66% of the sand less than 0.2mm)
M: Medium (less than 66% fine sand and less than 33% coarse sand)
C: Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content: **M:** Medium (< 27% clay) **H:** heavy (27 - 35% clay)

MOTTLE COL: Mottle colour using Munsell notation.

MOTTLE ABUN: Mottle abundance, expressed as a percentage of the matrix or surface described.

F: few <2% **C:** common 2 - 20% **M:** many 20 - 40% **VM:** very many 40%+

MOTTLE CONT: Mottle contrast

F: faint - indistinct mottles, evident only on close inspection
D: distinct - mottles are readily seen
P: Prominent - mottling is conspicuous and one of the outstanding features of the horizon.

PED. COL: Ped face colour using Munsell notation.

GLEYS: If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

STONE LITH: Stone Lithology - One of the following is used.

HR: All hard rocks and stones **SLST:** Soft oolitic or dolimitic limestone

CH:	Chalk	FSST:	Soft, fine grained sandstone
ZR:	Soft, argillaceous, or silty rocks	GH:	Gravel with non-porous (hard) stones
MSST:	Soft, medium grained sandstone	GS:	Gravel with porous (soft) stones
SI:	Soft weathered igneous or metamorphic rock		

Stone contents are given in % by volume for sizes >2cm, >6cm and total stone >2mm.

STRUCT: The degree of development, size and shape of soil pedes are described using the following notation

<u>Degree of development</u>	WA: Weakly developed Adherent	WK: Weakly developed
	MD: Moderately developed	ST: Strongly developed
<u>Ped size</u>	F: Fine	M: Medium
	C: Coarse	VC: Very coarse
<u>Ped Shape</u>	S: Single grain	M: Massive
	GR: Granular	AB: Angular blocky
	SAB: Sub-angular blocky	PR: Prismatic
	PL: Platy	

CONSIST: Soil consistence is described using the following notation:

L: Loose	VF: Very Friable	FR: Friable	FM: Firm
VM: Very firm	EM: Extremely firm	EH: Extremely Hard	

SUBS STR: Subsoil structural condition recorded for the purpose of calculating profile droughtiness: **G:** Good **M:** Moderate **P:** Poor

POR: Soil porosity. If a soil horizon has poor porosity with less than 0.5% biopores >0.5mm, a 'Y' will appear in this column.

IMP: If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.

SPL: Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.

CALC: If the soil horizon is calcareous with naturally occurring calcium carbonate exceeding 1% a 'Y' will appear this column.

2. Additional terms and abbreviations used mainly in soil pit descriptions.

STONE ASSESSMENT:

VIS: Visual	S: Sieve	D: Displacement
--------------------	-----------------	------------------------

MOTTLE SIZE:

EF: Extremely fine <1mm	M: Medium 5-15mm
VF: Very fine 1-2mm>	C: Coarse >15mm
F: Fine 2-5mm	

MOTTLE COLOUR: May be described by Munsell notation or as ochreous (OM) or grey (GM).

ROOT CHANNELS: In topsoil the presence of 'rusty root channels' should also be noted.

MANGANESE CONCRETIONS: Assessed by volume

N: None	M: Many	20-40%
F: Few <2%	VM: Very Many	>40%
C: Common 2-20%		

POROSITY:

P: Poor - less than 0.5% biopores at least 0.5mm in diameter
G: Good - more than 0.5% biopores at least 0.5mm in diameter

ROOT ABUNDANCE:

The number of roots per 100cm ² :		Very Fine and Fine	Medium and Coarse
F: Few		1-10	1 or 2
C: Common		10.25	2 - 5
M: Many		25-200	>5
A: Abundant		>200	

ROOT SIZE

VF: Very fine <1mm	M: Medium	2 - 5mm
F: Fine 1-2mm	C: Coarse	>5mm

HORIZON BOUNDARY DISTINCTNESS:

Sharp: <0.5cm	Gradual: 6 - 13cm
Abrupt: 0.5 - 2.5cm	Diffuse: >13cm
Clear: 2.5 - 6cm	

HORIZON BOUNDARY FORM: Smooth, wavy, irregular or broken.*

* See Soil Survey Field Handbook (Hodgson, 1997) for details.

SITE NAME		PROFILE NO.	SLOPE AND ASPECT		LAND USE		Av Rainfall: 685 mm		PARENT MATERIAL			
Blunsdon		Pit 1 Boring 8	-		Field beans		ATO: 1426 day °C		Oxford Clay			
JOB NO.		DATE	GRID REFERENCE		DESCRIBED BY		FC Days: 155		PSD SAMPLES TAKEN			
39/98		23/3/98	SU 122 921		V P Redfern		Climatic Grade: 1		-			
Exposure Grade: 1												

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	23	HCL	25Y42	Few, small flints by eye	-	-	N/A	-	-	-	Few, very fine fibrous	-	Sharp Smooth
2	39	C	25Y64	-	10YR68 Common Extremely fine to very fine, distinct.	-	WK developed, adherent medium subangular blocky	Firm	Moderate	0.1%	Few, very fine fibrous	-	Gradual Smooth
3	58	C	25Y63	-	10YR58/68 Many, fine distinct	-	Moderately developed coarse, subangular blocky	Firm	Moderate	0.1%	Few, very fine fibrous	Y	Gradual Smooth
4	80	C	25Y62	-	10YR68 many, medium distinct	-	Massive	Firm	Poor	0.1%	-	Y	

Profile Gleyed From: 23 cm

Slowly Permeable Horizon From: 58 cm

Wetness Class: III

Wetness Grade: 3b

Available Water Wheat: 106 mm

Potatoes: 113 mm

Moisture Deficit Wheat: 105 mm

Potatoes: 96 mm

Moisture Balance Wheat: 1 mm

Potatoes: 17 mm

Droughtiness Grade: 3a (Calculated to 80 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks: Structure very difficult to determine. Possible that it is massive from below topsoil

SITE NAME		PROFILE NO.	SLOPE AND ASPECT		LAND USE		Av Rainfall: 685 mm		PARENT MATERIAL			
Blunsdon		Pit 2 Boring 94	0		PGR		ATO: 1426 day °C		Oxford Clay			
JOB NO.		DATE	GRID REFERENCE		DESCRIBED BY		FC Days: 155		PSD SAMPLES TAKEN			
39/98		27/3/98	SU 132 909		V P Redfern		Climatic Grade: 1		-			
							Exposure Grade: 1					

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	16	MCL	10YR42	-	10YR46 Common very fine, distinct. Along root channels	-	N/A	N/A	N/A	N/A	Common, fine fibrous	-	Abrupt Smooth
2	33	C	10Y41 (10YR51)	-	10YR56 Common Vey fine, distinct.	-	MD, Coarse Subangular blocky	Firm	Moderate	0.1%	Common fine fibrous	-	Abrupt Wavy
3	80	C	25Y63 (25Y61)	-	10YR68 Many, fine Prominent	-	MD, Coarse Angular blocky	Very Firm	Poor	0.1%	Few, very fine fibrous to 60 cm	Present in lower part of horizon	

Profile Gleyed From: 0 cm
 Slowly Permeable Horizon From: 35 cm
 Wetness Class: IV
 Wetness Grade: 3b

Available Water Wheat: 99 mm
 Potatoes: 104 mm
 Moisture Deficit Wheat: 105 mm
 Potatoes: 96 mm
 Moisture Balance Wheat: -6 mm
 Potatoes: 8 mm
 Droughtiness Grade: 3a (Calculated to 80 cm)

Final ALC Grade: 3b
 Main Limiting Factor(s): Wetness

Remarks:

SITE NAME		PROFILE NO.	SLOPE AND ASPECT		LAND USE		Av Rainfall: 685 mm		PARENT MATERIAL			
Blunsdon		Pit 3	0°		PGR		ATO: 1426 day °C		Oxford Clay			
JOB NO.		DATE	GRID REFERENCE		DESCRIBED BY		FC Days: 155		PSD SAMPLES TAKEN			
39/98		30/4/98	SU 127 900		GMS/GN		Climatic Grade: 1		-			
							Exposure Grade: 1					

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	20	HCL	10YR32	0% visual	None	None	-	-	-	-	MVF	-	Gradual Smooth
2	40	C	2.5Y53	1% HR (vis)	MDFO 10YR56	Few	Moderate, Coarse Subangular blocky	Friable	Moderate	<0.5% 0.5 mm	CVF&F	-	Gradual Smooth
3	70+	C	2.5Y53	1% HR (vis)	MDFO 10YR56	None	Weak Coarse Subangular blocky	Friable	Moderate	<0.5% 0.5 mm	CVF & F	-	

Profile Gleyed From: 20 cm

Slowly Permeable Horizon From: 40 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 99 mm

Potatoes: 115 mm

Moisture Deficit Wheat: 105 mm

Potatoes: 96 mm

Moisture Balance Wheat: -6 mm

Potatoes: 19 mm

Droughtiness Grade: 3a (Calculated to 70 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks:

SITE NAME		PROFILE NO.	SLOPE AND ASPECT		LAND USE		Av Rainfall: 702 mm			PARENT MATERIAL		
Blunsdon		Pit 4	0°		Ceral		ATO: 1369 day °C			Coral Rag		
JOB NO.		DATE	GRID REFERENCE		DESCRIBED BY		FC Days: 157			PSD SAMPLES TAKEN		
39/98		30/4/98	SU 134 900		GMS/GN		Climatic Grade: 1			-		
							Exposure Grade: 1					

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	28	C	10YR43	3% > 2cm HR(s) [1% > 6cm HR(s)] 24% > 2 mm HR(s+d) 27% HR TOTAL	None	None	-	-	-	Good	VF Common	-	Abrupt Smooth
2	80+	C	10YR76	7% > 2cm HR (s) 43% > 2mm HR(s+d) 50% HR TOTAL	Mottles around stones 7.5YR58	None	Weakly developed Subangular blocky Medium /coarse	Friable	Good & Moderate	Good	Observed at bottom of pit	-	-

Profile Gleyed From: None
 Slowly Permeable Horizon From: None
 Wetness Class: I
 Wetness Grade: 3a

Available Water Wheat: 83 mm
 Potatoes: 82mm
 Moisture Deficit Wheat: 99 mm
 Potatoes: 88 mm
 Moisture Balance Wheat: -16 mm
 Potatoes: -6 mm
 Droughtiness Grade: 3a (Calculated to 80 cm)

Final ALC Grade: 3a
 Main Limiting Factor(s): Workability

Remarks: Stone is predominantly hard limestone, but some softer present. Drought calculations uses HR and Good structural Condition but only calculated to 80 cm. In reality figure may be better since rooting likely to be deeper and some rock is soft limestone.