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**TEST VALLEY LOCAL PLAN REVIEW
Sites 72 73 75 & 76 Romsey, Hampshire
Agricultural Land Classification
ALC Map & Report
Semi Detailed Survey**

January 1997

**Resource Planning Team
Eastern Region
FRCA Reading**

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AGRICULTURAL LAND CLASSIFICATION REPORT

TEST VALLEY LOCAL PLAN REVIEW SITES 72 73 75 & 76 ROMSEY HAMPSHIRE

INTRODUCTION

1 This summary report presents the findings of a semi detailed Agricultural Land Classification (ALC) survey on approximately 69 hectares of land around Ganger Farm to the north east of Woodley near Romsey in Hampshire. The survey was carried out during January 1997.

2 The survey was commissioned by the Ministry of Agriculture Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading in connection with the Test Valley Local Plan Review. The results of this survey supersede any previous ALC information for this land. Information from a recent survey on adjacent land (ADAS Ref 1512/169/96) was also used in the grading of this site.

3 Prior to 1 April 1997 the work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS. After this date the work was completed by the same team as part of the Farming and Rural Conservation Agency (FRCA) Reading. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF 1988). A description of the ALC grades and subgrades is given in Appendix I.

4 At the time of survey the majority of the agricultural land was under permanent pasture with a small area of horticultural land to the north of the site. Land shown as Other mainly comprises woodland as well as farm buildings and trackways.

SUMMARY

5 The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. It is accurate at this scale but any enlargement would be misleading.

6 The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1 overleaf.

7 The fieldwork was conducted at an average density of approximately 1 boring every 2 hectares. A total of 25 borings and 3 soil pits were described.

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	/ surveyed area	/ site area
2	10.4	21.7	15.0
3a	0.7	1.4	1.0
3b	36.9	76.9	53.2
Land Not Surveyed	1.8		2.6
Other land	19.6		28.2
Total surveyed area	48.0	100.0	69.2
Total site area	69.4		100.0

8 The horticultural land to the north of the site has been classified as Grade 2 (very good quality). The profiles here are deep comprising variably stony medium or light textured topsoils over moderately well structured but generally heavier subsoils. Occasional poorly structured lower subsoils occur which slightly impede drainage. This results in a minor soil wetness and workability restriction as wet soils can inhibit root development and restrict the timing of cultivations. In other profiles soil droughtiness is the main restriction. The combination of soil textures, structures and stone contents slightly limits the amount of profile available water for crops and thus reduces crop yields.

9 Subgrade 3a (good quality) land has been mapped in the north west corner of the site in conjunction with results from an adjacent survey. Here the soils are limited by soil wetness. The profiles are similar to those described as Grade 2 above but the poorly structured subsoils occur at slightly shallower depths thus increasing the effects of waterlogging.

10 The majority of the agricultural land on this site has been classified as Subgrade 3b (moderate quality) due mainly to soil droughtiness and/or topsoil stoniness limitations. These soils comprise variably stony light to medium textured topsoils and upper subsoils which become impenetrable to the soil auger at shallow depths. The soil inspection pits showed the subsoils to be either lighter and increasingly gravelly or heavier less stony and poorly structured at shallow depths. The former are therefore limited by soil droughtiness while the latter are restricted by soil wetness. In places the overriding limitation is topsoil stoniness as the large number of stones can damage root crops and farm machinery. To the south of the site the land is limited by a gradient restriction where a steeply sloping (7-11°) bank, limits the safe and effective use of some agricultural machinery.

FACTORS INFLUENCING ALC GRADE

Climate

11 Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

12 The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met Office 1989).

13 The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions

Table 2 Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	SU 377 229	SU 377 235
Altitude	m AOD	43	50
Accumulated Temperature	day°C (Jan June)	1504	1496
Average Annual Rainfall	mm	816	816
Field Capacity Days	days	176	176
Moisture Deficit Wheat	mm	107	106
Moisture Deficit Potatoes	mm	101	99
Overall climatic grade	N/A	Grade 1	Grade 1

14 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR) as a measure of overall wetness and accumulated temperature (AT0 January to June) as a measure of the relative warmth of a locality

15 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. However climatic factors can interact with soil properties to influence soil wetness and droughtiness. At this locality the field capacity day values are relatively high which will have an impact upon the assessment of soil wetness

16 Local climatic factors such as frost risk and exposure are unlikely to adversely affect agricultural land use on this site. The site is climatically Grade 1

Site

17 The land on this site is generally undulating with steep slopes to the southern end of the site. The highest point is along the north eastern boundary where the land lies at 51m AOD. The river valley along the south western edge constitutes the lowest lying area at 25m

18 The steeply sloping land (7:1) to the south of the site has been classified as Subgrade 3b due to a significant gradient restriction. Microrelief does not affect land quality in this area

19 Land immediately adjacent to the river valley in the south west of the site may also be subject to seasonal flooding though it is unlikely to affect agricultural land quality in this area

Geology and soils

20 The relevant geological sheets (BGS 1973 & 1980) map the Bagshot Beds to the north, London Clay across the centre of the site and the Wittering Formation in the south. Drift deposits overlying the solid geology comprise plateau gravel and river terrace deposits to the centre and central west of the site and alluvium in the valley bottom to the south

21 The most recently published soils information for this area (SSEW 1983) maps the Shirrell Heath soil association across most of the site with a small area of Wickham 3 soils towards the south. The former soil association is described as comprising Well drained very acid sandy soils with a bleached subsurface horizon. Some similar soils with slowly permeable subsoils and slight seasonal waterlogging. Some sandy and coarse loamy soils affected by groundwater often with humose surface horizon (SSEW 1983). The Wickham 3 soil association on the other hand as described as Slowly permeable seasonally waterlogged fine loamy over clayey and coarse loamy over clayey soils and similar more permeable soils with slight waterlogging. Some deep coarse loamy soils affected by groundwater. Landslips with irregular terrain locally (SSEW 1983).

22 Detailed field examination broadly confirmed the existence of soils similar to those described above. However the Shirrell Heath soils tend to be more stony than is suggested here.

AGRICULTURAL LAND CLASSIFICATION

23 The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1 page 2.

24 The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix III.

Grade 2

25 The horticultural land towards the central north of the site has been classified as Grade 2. Approximately half of the soil profiles here comprise well drained slightly stony (3-6% flints by v/v) medium clay loam topsoils over moderately well structured very slightly flinty (0-2%) medium or heavy clay loam upper subsoils. At depth the lower subsoils occasionally pass to poorly structured gleyed stoneless clays but these are generally too deep to cause a significant drainage impedance. This land is therefore consistent with Wetness Class I (Appendix II). However in this locally warm and wet climatic regime the medium clay loam topsoils are more susceptible to structural damage through over trafficking by agricultural machinery or grazing livestock. As a result the timing and flexibility of cultivations is slightly restricted. This land has therefore been classified as Grade 2 due to a minor workability limitation.

26 Other soil profiles within this mapping unit are typified by soil inspection Pit 2. These profiles comprise slightly stony (5-8% flints by v/v) medium sandy loam topsoils over variably flinty (0-20%) medium or fine sandy loam upper subsoils. At approximately 50cm depth the profiles become less flinty (0-2%) well structured and lighter in texture (e.g. loamy medium sands and medium sands). However between 60-75cm depth the profiles become distinctly heavier with a combination of gleyed moderately well structured medium sandy loams and heavy clay loams over poorly structured slowly permeable clay lower subsoils. Occasionally the slowly permeable subsoils occur within 80cm and therefore cause a very slight drainage impedance. As a result some of these profiles have been assessed as Wetness Class II (Appendix II) and classified as Grade 2 as wet soils such as these can inhibit seed germination and root development. The overriding limitation on this land is however soil

droughtiness as the combination of soil textures structures and stone contents slightly depletes the amount of profile available water for crops As a result the level and consistency of crop yields will be slightly reduced

27 Occasional borings of slightly lower quality were also included in this mapping unit as they were too limited in number and extent to map separately

Subgrade 3a

28 A small area of Subgrade 3a land has been mapped in the north west corner of the site The soil profiles here are similar to those described as Grade 2 in paragraph 25 However in these profiles gleying starts at 20cm from the surface and the slowly permeable clay subsoils appear at 75cm depth This land has therefore been classified as Wetness Class II (Appendix II) and placed in Subgrade 3a due to the combination of the slightly wet soils and medium textured topsoils in this locally warm and wet climatic regime This land is limited by a slight soil wetness and workability limitation

Subgrade 3b

29 The majority of the agricultural land on this site has been classified as Subgrade 3b The main limitation is soil droughtiness with some associated topsoil stone restrictions The profiles in the south of the site generally comprise very stony (40-50% total flint by v/v with 20-35% measuring >2cm in diameter) medium clay loam topsoils that become impenetrable to the soil auger at 20-30cm depth Soil inspection Pit 1 shows that the soil resource does continue with a moderately stony (20%) medium sandy loam upper subsoil over a stoneless medium sand to approximately 60cm depth Below this depth the heavy clay loam and clay lower subsoils are poorly structured and slowly permeable In general the resultant drainage impedance is only very minor Instead the combination of soil textures structures and stone contents significantly reduces the amount of available water for crops This land is therefore distinctly drought prone Where the amount of large topsoil stones (i.e. >2cm in diameter) exceeds 15% of the soil volume there is also a significant topsoil stoniness limitation This is due to the increased damage caused to root crops and wear to farm machinery and tyres

30 Some of these profiles comprise poorly structured slowly permeable horizons from the upper subsoil In this locally warm and wet climatic regime the resultant drainage impedance leads to a soil wetness limitation consistent with Wetness Class IV (Appendix II) Such wet soils are placed in Subgrade 3b as this degree of soil wetness can significantly restrict crop establishment and reduce the period of time when the land can be effectively cultivated

31 The Subgrade 3b profiles in the north of the site are again limited by soil droughtiness and topsoil stone limitations The soils here comprise slightly to moderately stony (10-35% total flint by v/v with >18% measuring >2cm in diameter) medium sandy loam or medium clay loam topsoils and upper subsoils The profiles then become impenetrable to the soil auger at 25-45cm depth due to the high stone content in the subsoil Soil inspection Pit 3 shows that at 40cm depth a very stony (42% flint by v/v) medium sand lower subsoil occurs which overlies the gravel deposits at approximately 60cm depth Though the gravel is loose and allows roots to extract water from depth the high stone content and light soil textures once again reduce the amount of easily available water for crops At this particular location the soil droughtiness limitation is consistent with Grade 4 However this is considered to be more

severe than elsewhere on the site where Subgrade 3b is more appropriate. As in paragraph 28 above, the amount of large flints in the topsoil also limits some areas to Subgrade 3b due to topsoil stoniness restriction.

32 The steeply sloping land in the extreme south of the site has been classified as Subgrade 3b as gradients between 7:1 limit the amount of agricultural equipment that can safely and effectively be used.

33 Again, some of the profiles within this mapping unit are of either slightly higher or lower quality. They have not been mapped separately as they are too limited in number and extent.

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SOURCES OF REFERENCE

British Geological Survey (1973) *Sheet 315 Southampton* 1 50 000 Series Solid & Drift
BGS London

British Geological Survey (1980) *Sheet 299 Winchester* 1 50 000 Series Solid & Drift
BGS London

Ministry of Agriculture Fisheries and Food (1988) *Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land*

MAFF London

Met Office (1989) *Climatological Data for Agricultural Land Classification*
Met Office Bracknell

Soil Survey of England and Wales (1983) *Sheet 6 Soils of South East England*
SSEW Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England*
SSEW Harpenden

DESCRIPTIONS OF THE 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 includes 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 or horticultural crops can usually be grown but on some land of this 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 land.

Grade 3 Good to Moderate Quality Land

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When 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 the level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist 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 severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

APPENDIX II

SOIL WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Wetness Class	Duration of waterlogging ¹
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years ²
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 only wet within 40 cm depth for 30 days in most years
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 present within 80 cm depth it is wet within 70 cm for more than 180 days but only wet within 40 cm depth for between 31-90 days in most years
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years or if there is no slowly permeable layer present within 80 cm depth it is wet within 40 cm depth for 91-210 days in most years
V	The soil profile is wet within 40 cm depth for 211-335 days in most years
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years

Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land* (MAFF 1988).

¹ The number of days is not necessarily a continuous period

² In most years is defined as more than 10 out of 20 years

APPENDIX III

SOIL DATA

Contents

Sample location map

Soil abbreviations Explanatory Note

Soil Pit Descriptions

Soil boring descriptions (boring and horizon levels)

Database Printout Horizon Level Information

SOIL PROFILE DESCRIPTIONS EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database. This uses notations and abbreviations as set out below.

Boring Header Information

- 1 **GRID REF** national 100 km grid square and 8 figure grid reference
- 2 **USE** Land use at the time of survey. The following abbreviations are used

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

- 3 **GRDNT** Gradient as estimated or measured by a hand held optical clinometer
- 4 **GLEYSPL** Depth in centimetres (cm) to gleying and/or slowly permeable layers
- 5 **AP (WHEAT/POTS)** Crop adjusted available water capacity
- 6 **MB (WHEAT/POTS)** Moisture Balance (Crop adjusted AP - crop adjusted MD)
- 7 **DRT** Best grade according to soil droughtiness
- 8 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				

- 9 **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				

Soil Pits and Auger Borings

1 **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)

2 **MOTTLE COL** Mottle colour using Munsell notation

3 **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% +

4 **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

5 **PED COL** Ped face colour using Munsell notation

6 **GLEYS** If the soil horizon is gleyed a **Y** will appear in this column If slightly gleyed an **S** will appear

7 **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/metamorphic rock		

Stone contents (>2cm >6cm and total) are given in percentages (by volume)

8 **STRUCT** the degree of development size and shape of soil peds are described using the following notation

degree of development **WK** weakly developed **MD** moderately developed
 ST strongly developed

ped size **F** fine **M** medium
 C coarse **VC** very coarse

ped shape **S** single grain **M** massive
 GR granular **AB** angular blocky
 SAB sub angular blocky **PR** prismatic
 PL platy

9 **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

10 **SUBS STR** Subsoil structural condition recorded for the purpose of calculating profile droughtiness **G** good **M** moderate **P** poor

11 **POR** Soil porosity If a soil horizon has less than 0.5% biopores >0.5 mm a Y will appear in this column

12 **IMP** If the profile is impenetrable to rooting a Y will appear in this column at the appropriate horizon

13 **SPL** Slowly permeable layer If the soil horizon is slowly permeable a Y will appear in this column

14 **CALC** If the soil horizon is calcareous a Y will appear in this column

15 Other notations

APW available water capacity (in mm) adjusted for wheat
APP available water capacity (in mm) adjusted for potatoes
MBW moisture balance wheat
MBP moisture balance potatoes

SOIL PIT DESCRIPTION

Site Name TEST VALLEY LP 72 76 Pit Numbe 1P

Grid Reference SU37602270 Average Annual Rainfall 816 mm
 Accumulated Temperature 1504 degree days
 Field Capacity Level 176 days
 Land Use Permanent Grass
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 36	MCL	10YR42 00	20		40	HR					
36 47	MSL	05Y 72 00	0		20	HR	M				M
47 61	MS	75YR58 00	0		0			WKCB	FR		G
61 73	HCL	05Y 72 00	0		0		M	MDCPL	FM		P
73-120	C	05Y 71 00	0		0		M	STCPL	FM		P

Wetness Grade 3A Wetness Class III
 Gleying 036 cm
 SPL 061 cm

Drought Grade 3A APW 101mm MBW 6 mm
 APP 072mm MBP 29 mm

FINAL ALC GRADE 38
 MAIN LIMITATION Topsoil Stoniness

SOIL PIT DESCRIPTION

Site Name TEST VALLEY LP 72 76 Pit Number 2P

Grid Reference SU37602330 Average Annual Rainfall 816 mm
 Accumulated Temperature 1504 degree days
 Field Capacity Level 176 days
 Land Use Horticultural Crops
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 31	MSL	10YR43 00	3	8	HR					
31 52	FSL	10YR54 00	0	20	HR		MDCSAB	FR	M	
52 63	LMS	10YR64 74	0	2	HR	C	WKCSAB	FR	G	
63- 80	HCL	10YR63 62	0	2	HR	C	MDCSAB	FM	M	
80 100	C	10YR52 62	0	0		M	MDCPL	FM	P	

Wetness Grade 2 Wetness Class I
 Gleying 052 cm
 SPL 080 cm

Drought Grade 2 APW 131mm MBW 24 mm
 APP 101mm MBP 0 mm

FINAL ALC GRADE 2
 MAIN LIMITATION Soil Wetness/Droughtine

SOIL PIT DESCRIPTION

Site Name TEST VALLEY LP 72 76 P t Numbe 3P

G id Reference SU37302320 Ave ge Annual Rainfall 816 mm
 Accumul ted Temperature 1504 degree days
 Field Capacity Level 176 d ys
 Land Use Permanent G ass
 Slope and Aspect degree

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0-26	MSL	10YR31 32	4		20	HR					
26-40	LMS	10YR54 00	0		31	HR				M	
40-58	MS	10YR43 00	0		42	HR				M	
58-80	GH		0		0					P	

Wetness Grade 1 Wetness Class I
 Gleying cm
 SPL No SPL

Drought Grade 4 APW 051mm MBW 58 mm
 APP 052mm MBP 51 mm

FINAL ALC GRADE 4
 MAIN LIMITATION Droughtiness

SAMPLE NO	GRID REF	ASPECT USE	WETNESS			WHEAT		POTS		M REL		EROSN	FROST	CHEM	ALC	COMMENTS
			GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	
1	SU37622348	HRT S	02			1	1	046	-61	046	55	4			DR 4	I30 See 3P
1P	SU37602270	PGR		036	061	3	3A	101	-6	072	29	3A			TS 3B	At AB 21
2	SU37302340	PGR				1	2	053	54	053	-48	4			DR 3B	I32 See 3P
2P	SU37602330	HRT		052	080	1	2	131	24	101	0	2			WD 2	At AB 7
3	SU37502340	PLO S	01			1	2	155	48	117	16	1			WK 2	
3P	SU37302320	PGR				1	1	051	58	052	51	4			DR 4	At AB 6
4	SU37702340	HRT W	02	025		1	1	147	40	100	1	2			DR 2	
5	SU37152335	PGR		020	075	2	3A	132	25	115	14	2			WE 3A	
6	SU37402330	PGR				1	1	036	71	036	65	4			DR 4	I26 See 3P
7	SU37602330	HRT W	01	060	072	2	2	129	22	099	2	2			WD 2	See 2P
8	SU37302320	PGR				1	2	037	70	037	64	4			DR 4	I25 See 3P
9	SU37502320	PLO W	01			1	1	095	12	096	5	3A			DR 3A	I80 Q DR2
10	SU37702320	HRT S	01			1	1	064	43	064	37	3B			DR 3B	I45 See 3P
11	SU37402310	PGR E	02			1	2	049	58	049	52	4			DR 3B	I40 See 1P
12	SU37602310	HRT		060	095	1	2	144	37	114	13	1			WK 2	
13	SU37802310	HRT		040	040	4	3B	081	26	089	12	3B			WE 3B	I65 F11 ts
14	SU37152305	PGR NE	02			1	2	061	46	061	40	3B			DR 3B	I45 F11 ts
15	SU37302300	PGR NE	03	060		1	2	108	1	112	11	3A			DR 3A	I80 F11 ts
16	SU37502300	PGR W	01	030		2	3A	071	36	076	25	3B			TS 3B	I60 F11 ts
17	SU37702300	PGR		035		2	3A	110	3	112	11	3A			WE 3A	I80 F11nts
18	SU37602288	PGR SW	02	025	025	4	3B	067	40	067	34	3B			WE 3B	I50 F11 ts
19	SU37762288	PGR				1	2	021	86	021	80	4			DR 3B	38 T/S Stone
20	SU37702280	PGR				1	2	021	86	021	80	4			DR 3B	38 T/S Stone
21	SU37602270	PGR				1	2	029	78	029	72	4			TS 3B	I30 F11 ts
22	SU37802270	PGR S	01			1	2	059	48	059	42	3B			TS 3A	I45 See 1P
23	SU37702260	PGR		038	038	4	3B	095	12	100	1	3A			WE 3B	
24	SU37602250	PGR				1	2	042	65	042	59	4			TS 3A	I40 F11 ts
25	SU37502240	RGR SW		0	035	5	4	092	15	099	2	3A			WE 4	R she

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES-			PED		STONES-			STRUCT/		SUBS			CALC		
				COL	ABUN	CONT	COL	GLE	2	6	LITH	TOT	CONSIST	STR	POR	IMP		SPL	
1	0-30	msl	10YR32 00						6	2	HR	10							Imp V Flnty
1P	0-36	mc1	10YR42 00						20	8	HR	40							
	36-47	msl	05Y 72 00	75YR68	58	M			Y	0	0	HR	20		M				
	47-61	ms	75YR58 00						Y	0	0	0	WK	CAB	FR	G			
	61-73	hc1	05Y 72 00	75YR58	00	M	00MN00	00	Y	0	0	0	MD	CPL	FM	P	Y	Y	
	73-120	c	05Y 71 00	10YR58	00	M	00MN00	00	Y	0	0	0	ST	CPL	FM	P	Y	Y	
2	0-26	mc1	10YR42 00						3	1	HR	6							S1 Sandy
	26-32	mc1	10YR43 53	75YR58	00	F			0	0	HR	8			M				Imp Flinty
2P	0-31	msl	10YR43 00						3	0	HR	8							
	31-52	fs1	10YR54 00						0	0	HR	20	MD	C	SAB	FR	M		PSD almost MSL
	52-63	lms	10YR64 74	10YR58	00	C			Y	0	0	HR	2	WK	C	SAB	FR	G	
	63-80	hc1	10YR63 62	75YR58	00	C			Y	0	0	HR	2	MD	C	SAB	FM	M	
	80-100	c	10YR52 62	10YR58	46	M			Y	0	0	0	MD	C	P	FM	P	Y	Y
3	0-35	mc1	10YR53 00						1	0	HR	3							
	35-60	hc1	10YR58 00						0	0	HR	1			M				
	60-120	hc1	10YR58 00	10YR58	00	C			S	0	0	0			M				
3P	0-26	msl	10YR31 32						4	1	HR	20							PSD
	26-40	lms	10YR54 00						0	0	HR	31			M				
	40-58	ms	10YR43 00						0	0	HR	42			M				
	58-80	gh							0	0	0	0			P				Q roots 80cm+
4	0-25	msl	10YR32 42						3	0	HR	5							Border LMS
	25-45	msl	10YR51 52	75YR46	00	C			Y	0	0	0			M				
	45-55	msl	10YR53 00	10YR56	58	C			Y	0	0	0			M				
	55-75	lms	10YR52 62	10YR56	00	C			Y	0	0	0			G				
	75-120	msl	10YR51 52	75YR58	00	C			Y	0	0	0			M				S & C Le se
5	0-20	mc1	10YR43 00						0	0	HR	2							
	20-75	hc1	10YR63 00	10YR56	58	C	00MN00	00	Y	0	0	0			M				
	75-120	c	10YR52 53	10YR58	00	M			Y	0	0	HR	5		P	Y	Y		S1 Sandy
6	0-26	msl	10YR32 22						12	5	HR	20							Imp V Flinty
7	0-35	msl	10YR43 00						3	0	HR	6							
	35-50	fs1	10YR54 00						0	0	HR	20			M				
	50-60	ms	10YR66 00						0	0	HR	2			G				
	60-72	msl	10YR74 00	10YR66	00	C			Y	0	0	0			M				
	72-120	c	05Y 71 00	75YR58	00	M			Y	0	0	0			P		Y		Clay Lenses
8	0-25	mc1	10YR32 00						5	1	HR	20							Imp V Flity
9	0-30	fs 1	10YR43 00						6	0	HR	25							
	30-50	mc1	10YR56 00						0	0	HR	30			M				Moist
	50-80	mc1	10YR54 00						0	0	HR	30			M				Wet/Imp Flinty

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES			PED		STONES			STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN	CONT	COL	GLE	2	6	LITH		TOT	STR	POR		
10	0 36	msl	10YR42 00						8	2	HR	15					
	36-45	msl	10YR43 00						0	0	HR	15		M			Imp Flinty
11	0 30	mc1	10YR43 00						18	5	HR	30					
	30-40	mc1	10YR52 00						0	0	HR	35		M			Imp Flinty
12	0 30	mc1	10YR43 00						3	0	HR	6					
	30 60	mc1	10YR54 00						0	0	HR	2		M			
	60 95	hc1	10YR63 00	75YR68 00	C			Y	0	0	HR	2		M			S1 Sandy/Soft
	95-120	c	25Y 73 00	75YR58 00	M			Y	0	0		0		P		Y	Firm
13	0-40	mc1	10YR32 00						12	5	HR	20					
	40 65	c	25Y 62 52	75YR58 00	M			Y	0	0	HR	5		P	Y	Y	S1 Sandy Imp Flinty
14	0 30	mc1	10YR43 00						9	0	HR	20					
	30 45	mc1	10YR53 00						0	0	HR	30		M			Imp Flinty
15	0 30	mc1	10YR43 00						6	0	HR	10					
	30 60	mc1	75YR54 00						0	0	HR	2		M			
	60 75	hc1	75YR64 00	10YR68 00	C			Y	0	0	HR	2		M			
	75-80	c	75YR62 00	75YR58 00	M			00MN00 00	Y	0	0	HR	15		P		
16	0 30	mc1	10YR42 00						17	5	HR	25					
	30 40	mc1	10YR53 00	10YR58 00	C			Y	0	0	HR	30		M			
	40 60	mc1	10YR63 00	10YR58 00	C			Y	0	0	HR	30		M			Wet/Imp Flinty
17	0 35	mc1	10YR42 00						6	2	HR	10					
	35-80	hc1	10YR53 00	10YR56 00	C			Y	0	0	HR	2		M			S1 Sandy Imp Flinty
18	0 25	mc1	10YR42 00						8	0	HR	15					
	25-50	c	05Y 71 00	75YR58 00	M			Y	0	0	HR	15		P		Y	Firm/Imp Flinty
19	0 20	mc1	10YR32 42	10YR63 00	F				34	20	HR	45					Imp Flinty
20	0 20	mc1	10YR42 00	10YR63 00	C			Y	35	15	HR	45					Imp Flinty
21	0 30	mc1	10YR42 00						20	8	HR	50					Imp Flinty
22	0 30	mc1	10YR54 00						12	5	HR	25					
	30-45	mc1	75YR54 00	75YR56 00	C			S	0	0	HR	30		M			Imp Flinty
23	0 30	fszl	10YR42 00						11	3	HR	25					
	30 38	c	10YR56 00	75YR58 00	M			S	0	0	HR	25		P			Too to y fo SPL
	38 80	c	05Y 71 00	75YR68 00	M			Y	0	0		0		P		Y	Sandy Le ses
24	0 25	mc1	10YR42 00						14	5	HR	39					
	25 40	mc1	10YR42 00						0	0	HR	45					Imp Flinty

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES			PED	GLEYS	STONES-			STRUCT/	SUBS			CALC
				COL	ABUN	CONT			COL	2	6		LITH	TOT	CONSIST	
25	0-35	mc1	10YR5/1 5/2	10YR6/3	00	C		Y	0	0	0					Anaerobic
	35-65	hc1	10YR5/1 5/2	10YR6/3	00	C		Y	0	0	0		P		Y	Imp Flinty