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Test Valley Local Plan Review
Sites 136 138, Romsey

Agricultural Land Classification
ALC Map and Report

January 1997

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

TEST VALLEY LOCAL PLAN REVIEW
SITES 136-138 ROMSEY HAMPSHIRE

SEMI DETAILED SURVEY

INTRODUCTION

1 This report presents the findings of a semi detailed Agricultural Land Classification (ALC) survey of approximately 34 hectares of land near Chandler s Ford south 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 Land to the immediate east of the current area of survey was surveyed in 1993 (RPT Job Number 1512/110/93) and so was not re visited on this occasion

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 agricultural land on this site was mostly in permanent grassland the northern central field was being stripped for turf The area shown as Other Land comprises woodland and scrub Land in the south of the site is mapped as Agricultural land not surveyed permission to survey this land was not obtained

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 2 borings every 3 hectares A total of 20 borings and one soil pit were described

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	/ surveyed area	/ site area
3a	7 8	28 5	23 3
3b	19 6	71 5	58 5
Agricultural land not surveyed	3 0	N/A	9 0
Other land	3 1	N/A	9 2
Total surveyed area	27 4	100 0	
Total site area	33 5		100 0

8 The majority of land at this site has been classified as Subgrade 3b (moderate quality) Subgrade 3a (good quality) occurs on the mid slopes

9 The majority of the soil profiles suffer from wetness problems to varying degrees arising from the interbedded deposits of the Bracklesham Beds Subgrade 3a land comprises loamy soils which overlie clay subsoils at moderate depth within the soil profile The clay acts to impede soil drainage resulting in some restrictions to the flexibility of cropping stocking and cultivations Where the clay occurs at shallow depths the drainage will be severely impeded At this locality such land is classified as Subgrade 3b

FACTORS INFLUENCING ALC GRADE

Climate

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

11 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)

Table 2 Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	SU 415 216	SU 414 219
Altitude	m AOD	50	40
Accumulated Temperature	day°C (Jan June)	1496	1507
Average Annual Rainfall	mm	821	820
Field Capacity Days	days	175	176
Moisture Deficit, Wheat	mm	106	107
Moisture Deficit, Potatoes	mm	99	101
Overall climatic grade	N/A	Grade 1	Grade 1

12 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

13 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

14 The combination of rainfall and accumulated temperature at this site mean that there is no overall climatic limitation However climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations At this locality the climate is relatively wet in regional terms As a result the likelihood of soil wetness problems may be increased The data in Table 2 shows that there is an important field capacity day (FCD) boundary across the site (from 175 FCD to 176 FCD) Land in the north of the site falls within a slightly wetter climatic regime than the remainder of the site Thus similar profiles may have a different soil wetness limitation according to the FCD range which is applicable No local climatic factors such as exposure or frost risk are believed to adversely affect the land quality on the site This site is climatically Grade 1

Site

15 The highest land occurs in the south of the site and lies at an altitude of approximately 50 m AOD The land gently falls (1 4) typically in a northerly direction, to lie at approximately 35 m AOD adjacent to the railway line Nowhere on the site do gradient or microrelief adversely affect agricultural land quality

Geology and soils

16 The published geology map (BGS 1987) shows the entire site to be underlain by Bracklesham Beds (interbedded sands and clays)

17 The most detailed published soil map for this area (SSEW 1983) shows the entire site to comprise soils of the Wickham 3 Association These soils are 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 (SSEW 1983)

Agricultural Land Classification

18 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

19 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 II page 8

Subgrade 3a

20 The land classified as Subgrade 3a (good quality) is limited either by soil wetness and workability or by soil droughtiness Where soil wetness is limiting the topsoils comprise non calcareous medium clay loams These overlie similarly textured or heavy clay loam upper subsoils which are permeable and moderately structured At approximately 42 to 55 cm these pass into plastic clay lower subsoils which are poorly structured and slowly permeable Given the relatively wet local climate these profiles are assessed as being imperfectly drained (Wetness Class III) as indicated by gleying from the surface The interaction between these soil drainage characteristics and the medium topsoils with the relatively wet local climate means that this land will have some restrictions on the flexibility of cropping stocking and cultivations

21 Elsewhere medium clay loam topsoils overlie similarly textured or heavy clay loam topsoils These profiles are slightly better drained but contain more stone (approximately 2 10% and 5 20% total flints in the topsoil and upper subsoil respectively) At approximately 45 to 50 cm depth, these profiles proved impenetrable to a soil auger because of stonier lower subsoils The interaction between these soil characteristics with the prevailing climate results in the amount of soil water being inadequate to fully meet crop needs in some years This may cause crops to suffer drought stress and thereby adversely affect yield potential

Subgrade 3b

22 The majority of land on the site has been classified as Subgrade 3b (moderate quality) because of significant soil wetness and workability limitations Topsoils comprise non calcareous medium and heavy clay loams Occasionally these overlie permeable heavy clay loam upper subsoils which pass into clay lower subsoils within 40 cm depth typically however these profiles pass directly into clay subsoils The clay subsoils are poorly structured and slowly permeable As such, these profiles are poorly drained (Wetness Class IV) These profiles are typified by Pit 1 (see Appendix II) The interaction between the topsoil textures poor soil drainage and the relatively wet local climate means that this land is limited by soil wetness Soil wetness can adversely affect seed germination and survival and can inhibit the development of a good root system It also influences the sensitivity of soil to structural damage and is therefore a major factor in determining the number of days when cultivation trafficking or grazing can take place

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SOURCES OF REFERENCE

British Geological Survey (1987) *Sheet No 315 Southampton 1 50 000 (solid and drift edition)* 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 1 250 000 and accompanying legend* SSEW Harpenden.

APPENDIX I

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 DATA

Contents

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	**OTH**	Other
DCW	Deciduous woodland	**BOG**	Bog or marsh	**SAS**	Set Aside
HTH	Heathland	**HRT**	Horticultural crops	**PLO**	Ploughed

3 **GRDNT** Gradient as estimated or measured by a hand held optical clinometer

4 **GLEY/SPL** 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	**ST**	Topsoil Stoniness
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
EX	Exposure				

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 **GLEY** 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	**FSST**	soft fine grained sandstone
ZR	soft argillaceous or silty rocks	**CH**	chalk
MSST	soft medium grained sandstone	**GS**	gravel with porous (soft) stones
SI	soft weathered igneous/metamorphic rock	**GH**	gravel with non porous (hard) stones

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		
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 TESTVALLEYLP SITES136138 Pit Number 1P

G id Reference SU41552162 Average Ann al Rainfall 820 mm
Accumulated Temperature 1513 degree days
Field Capacity Level 175 days
Land Use Permanent G ass
Slope and Aspect 01 degrees E

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 26	MCL	10YR34 00	2	10	HR					
26 55	C	10GY06 00	0	0		M	WKACPR	VM	P	

Wetness Grade 3B Wetness Class IV
Gleying 026 cm
SPL 026 cm

Drought Grade APW mm MBW 0 mm
APP mm MBP 0 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Wetness

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS- CLASS	-WHEAT GRADE	AP	MB	POTS AP	MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU41522206	LEY			0	025	4	3B		0		0					WE	3B	
1P	SU41552162	PGR	E	01	026	026	4	3B		0		0					WE	3B	
2	SU41302196	PGR	N	01	0	042	3	3A		0		0					WE	3A	
3	SU41502200	PGR	N	01	032		1	2	125	18	112	11	2				WD	2	
4	SU41302190	PGR	N	02	0	055	3	3A		0		0					WE	3A	
5	SU41402190	PGR	N	02	032	032	4	3B		0		0					WE	3B	
6	SU41502190	PGR	N	02	042		1	1	153	46	115	15	1					1	
7	SU41602190	LEY	E	02	0		2	2	076	31	076	25	3B				DR	3A	Imp45 Prob3aDR
8	SU41702195	LEY			0	025	4	3B		0		0					WE	3B	
9	SU41502180	PGR	S	01	028	028	4	3B		0		0					WE	3B	Q mcl t/soil
10	SU41702180	PGR	N	02	0	030	4	3B		0		0					WE	3B	
11	SU41402170	PGR	NE	02	030	030	4	3B		0		0					WE	3B	
12	SU41602170	PGR	NE	02	025	038	4	3B		0		0					WE	3B	
13	SU41552162	PGR	N	01	025	040	4	3B		0		0					WE	3B	
14	SU41702160	PGR	NW	01	0	027	4	3B		0		0					WE	3B	
15	SU41602150	PGR			030	030	4	3B		0		0					WE	3B	B1 e s/soil
16	SU41852196	PGR	NE	02	025	025	4	3B		0		0					WE	3B	
17	SU41832185	PGR	W	02			1	1	072	35	072	29	3B				DR	3A	Imp50 Prob3aDR
18	SU41772194	PGR	NW	04	030	030	4	3B		0		0					WE	3B	
19	SU41822170	PGR	N	01	0	040	4	3B		0		0					WE	3B	
20	SU41802160	PGR	N	01	028	040	4	3B		0		0					WE	3B	

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES- COL	ABUN	CONT	PED COL	GLEY	STONES- 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
1	0 25	mcl	10YR42 00	10YR46 00	C			Y	0	0	HR	2							
	25-70	c	10YR61 00	10YR58 00	M			Y	0	0		0		P			Y		
1P	0-26	mcl	10YR34 00						2	0	HR	10							
	26 55	c	10GY06 00	75YR68 00	M			Y	0	0		0	WKACPR	VM P		Y		Y	
2	0 33	mcl	10YR42 00	10YR46 00	C			Y	0	0	HR	2							
	33-42	mcl	10YR54 00	10YR56 00	C			S	0	0		0		M					
	42-80	c	10YR53 00	10YR58 00	M			Y	0	0		0		P			Y		
3	0 32	mcl	10YR42 00	10YR56 00	F				0	0	HR	2							
	32 70	msl	25 Y53 00	10YR58 00	C			Y	0	0	HR	3		M					
	70-80	lms	05 Y72 00	75YR58 00	C			Y	0	0		0		M					
	80 120	ms	05 Y72 00	75YR58 00	C			Y	0	0		0		M					
4	0 30	mcl	10YR42 00	10YR56 00	C			Y	0	0		0							
	30 42	mcl	10YR54 00					Y	0	0		0		M					
	42 55	hcl	10YR53 00	75YR58 00	C		10YR61 00	Y	0	0		0		M					
	55-80	c	10YR53 00	75YR58 00	M		10YR61 00	Y	0	0		0		P			Y		
5	0 32	mcl	10YR42 00						0	0	HR	1							
	32 70	c	25 Y61 00	75YR68 00	M			Y	0	0		0		P			Y		
6	0-25	mcl	10YR43 00						0	0		0							
	25-42	mcl	10YR54 00						0	0		0		M					
	42 50	c	10YR63 73	75YR58 00	C			Y	0	0		0		M					
	50 85	msl	10YR73 00	75YR58 00	C			Y	0	0		0		M					
	85-100	lms	25 Y72 00	75YR58 00	C			Y	0	0		0		M					
	100 120	msl	25 Y72 00	75YR58 00	C			Y	0	0		0		M					
7	0 30	mcl	10YR42 00	10YR46 00	C			Y	2	0	HR	2							
	30-45	mcl	10YR62 00	10YR56 00	M			Y	0	0	HR	5		M					Imp 45 stones
8	0 25	hcl	10YR41 00	10YR56 00	C			Y	0	0		0							
	25-60	c	10YR51 00	75YR58 00	C		25 Y71 00	Y	0	0		0		P			Y		
9	0 28	hcl	10YR43 00						0	0	HR	5							
	28 60	c	25Y 71 62	75YR58 68	M			Y	0	0		0		P			Y		
10	0 30	mcl	10YR42 00	10YR56 00	C			Y	0	0		0							
	30 70	c	10YR61 00	75YR68 00	M			Y	0	0		0		P			Y		
11	0 30	hcl	25Y 41 42						0	0	HR	5							
	30 60	c	25Y 41 00	75YR58 00	C			Y	0	0	HR	2		P			Y		
12	0-25	mcl	10YR53 00						2	0	HR	8							
	25-38	hcl	10YR53 51	10YR58 00	M			Y	0	0	HR	15		M					

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES- COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
13	0-25	mcl	10YR32 00						0	0	HR	5							
	25-40	hcl	10YR52 53	10YR56 00	C			Y	0	0	HR	5		M					
	40 60	c	05Y 63 61	10YR68 00	C			Y	0	0		0		P			Y		
14	0 27	hcl	10YR53 00	10YR58 00	C			Y	0	0	HR	5							
	27 60	c	25Y 71 62	75YR68 00	M			Y	0	0		0		P			Y		
15	0-30	hcl	10YR32 00						0	0	HR	5							
	30 60	c	05G 42 00	75YR68 00	C			Y	0	0		0		P			Y		
16	0-25	mcl	10YR42 43						0	0	HR	6							
	25-40	c	25Y 63 00	10YR58 00	C			Y	0	0	HR	15		P			Y		Probably spl
	40-65	c	25Y 52 53	75YR58 00	M			Y	0	0	HR	2		P			Y		
17	0 20	mcl	10YR42 43						0	0	HR	10							
	20-50	hcl	75YR56 00						0	0	HR	20		M					Imp 50 stones
18	0 30	mcl	10YR42 00	10YR56 00	F				0	0	HR	2							
	30 60	c	25Y 62 63	10YR56 58	M			Y	0	0	HR	2		P			Y		
19	0 32	mcl	10YR41 00	10YR44 00	C			Y	0	0	HR	2							
	32 40	hcl	25 Y53 00	10YR56 00	C			Y	0	0	HR	2		M					
	40 70	c	25 Y62 00	75YR68 00	M			Y	0	0		0		P			Y		
20	0 28	mcl	10YR43 00						0	0	HR	5							
	28 35	hcl	10YR53 00	10YR58 00	C			Y	0	0	HR	5		M					
	35-40	hcl	10YR53 00	10YR58 00	C			Y	0	0	HR	25		M					
	40 70	c	10YR64 00	75YR58 00	M			Y	0	0	HR	2		P			Y		