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TEST VALLEY LOCAL PLAN
SITE 225
- LAND AT HALTERWORTH FARM
ROMSEY HAMPSHIRE
AGRICULTURAL LAND CLASSIFICATION
ALC MAP AND REPORT
JUNE 1993

AGRICULTURAL LAND CLASSIFICATION

TEST VALLEY LOCAL PLAN

SITE 225 LAND AT HALTERWORTH FARM, ROMSEY, HAMPSHIRE

1 SUMMARY

1 1 ADAS was commissioned by MAFF s Land Use Planning Unit to provide information on land quality on a number of sites in the Test Valley District in Hampshire The work forms part of MAFF s input to the Test Valley Borough Local Plan

1 2 27 4 hectares of land relating to site 225 at Romsey in Hampshire was surveyed during May 1993 The survey was undertaken at a detailed level of approximately one soil auger boring per hectare A total of 20 borings and one soil inspection pit were assessed in accordance with MAFF s 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 its agricultural use

1 3 At the time of survey the land was under permanent pasture with a turfing operation in progress

1 4 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below The map has been drawn at a scale of 1 5000 It is accurate at this scale but any enlargement may be misleading

Table 1 Distribution of Grades and Subgrades

Grade	Area (ha)	% total agricultural area
3a	5 0	19 6
3b	17 8	69 8
4	2 7	10 6
Total agricultural area	25 5 ha	100%
Non-agricultural	0 6	
Urban	1 3	
Total area of site	27 4 ha	

1 5 A description of the grades and subgrades and land use categories identified in this survey is attached as an appendix

1 6 The majority of land in the site area was classified as subgrade 3b due to a significant droughtiness limitation associated with profile stone volumes Also in places topsoil stone volumes larger than 2 cm limit land to this subgrade Additionally slope gradient limits land to subgrade 3b A small area of less stony less droughty soils was classified as subgrade 3a To the north land was classified as grade 4 with soils suffering from a severe wetness limitation In some areas slope gradient also limits land to this grade

2 CLIMATE

2 1 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

2 2 The main parameters used in the assessment of the overall climatic limitation are annual average rainfall as a measure of overall wetness and accumulated temperature as a measure of the relative warmth of a locality

2 3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset (Met Office 1989) The details are given in the table below and these show that there is no overall climatic limitation affecting the site

2 4 No local climatic factors such as exposure or frost-risk affect the site

Table 2 Climatic Interpolation

Grid Reference	SU377220	SU378219	SU377216
Altitude (m)	25	35	40
Accumulated Temperature (°days Jan-June)	1525	1514	1508
Average Annual Rainfall (mm)	815	817	818
Field Capacity Days	175	175	175
Moisture Deficit Wheat (mm)	109	108	107
Moisture Deficit Potatoes (mm)	103	102	101
Overall Climatic Grade	1	1	1

3 Relief

3 1 The site lies at an altitude of 25-40 metres AOD Towards the south of the site land is flat but north of Halterworth Farm it falls away steeply towards a railway line at the northern site boundary Slope gradient here is mainly between 7 5 and 9° limiting land to subgrade 3B In places slope gradients of between 12 and 14° were measured further limiting land to grade 4

4 GEOLOGY AND SOIL

4 1 British Geological Survey (1973) Sheet 315 Southampton shows the majority of the site to be mapped as Plateau Gravel with a small area of Brickearth to the southeast On sloping land to the north is mapped Eocene Bracklesham Beds (clay and sand) which gives way to alluvium to the extreme north on flatter land

4 2 The published soils map sheet 6 'Soils of South East England" (SSEW 1983) shows the site to be mapped as Hamble 2 Association - "Deep stoneless well drained silty soils affected by groundwater over gravel locally '

4 3 Detailed field examination of the soils on the site reveals the presence of variably stony fine loamy soils moderately to significantly droughty

5 AGRICULTURAL LAND CLASSIFICATION

5 1 Table 1 provides the details of the area measurements for each grade The distribution of each grade is shown on the attached ALC map

5 2 The location of the soil observation points is shown on the attached Auger Sample Point map

Subgrade 3A

5 3 Good quality agricultural land is mapped to the south Profiles typically comprise topsoils of medium clay loam containing 5-22% total flints by volume (0-12% >2 cm) overlying upper subsoils of similar texture containing 5-12% total flints Lower subsoils are variable in texture but typically comprise sandy clay loam, heavy clay loam or clay containing 3-30% total flints Profiles are well drained, wetness class I However due to significant volumes of profile stone these soils are limited to subgrade 3A due to droughtiness On occasion topsoil stone volumes >2cm in size also limit land to this subgrade (i e where the volume >2cm exceeds 10%)

Subgrade 3B

5 4 Moderate quality agricultural land covers the majority of the site The land is limited by slope, topsoil stoniness and droughtiness either in isolation or in combination The majority of soil inspections proved to be impenetrable below the topsoil However a soil inspection pit within this map unit revealed the presence of a very stony subsoil Full profiles assumed from pit 1 comprise medium clay loam topsoils containing 5-38% total flints by volume Subsoils consist of similar textures containing 3-40% flints in total Lower subsoils comprise clay with a total stone content of 65% Profiles are well drained, wetness class I but suffer significant droughtiness problems as evidenced by high profile stone content which will restrict available water for crop growth Land is therefore classified as subgrade 3B Soils also exhibit high quantities of stone in the topsoil A stone content of 16-23% >2cm also limits profiles to this subgrade Such topsoil stone contents will affect the cost and efficiency of farm machinery and cultivations Additionally some areas of land are limited by slope gradient Using an optical reading clinometer slope angles of 7 5-9° were recorded also limiting land to this subgrade

Grade 4

5 5 This land makes up the lowest part of the site bounded by a railway line to the north At the time of survey the land was saturated to the surface with established growth of wet vegetation Also in places land was on the verge of being classified as non-agricultural In view of the above a wetness class of V was assigned and the land classified as grade 4 accordingly Additionally two small areas of land were also assigned to this grade due to slope gradient Again using an optical reading clinometer slope angles of 11-14° were recorded Slope gradient such as this significantly impairs the safe and efficient operation of machinery

5 6 The areas marked as non-agricultural include a verge between a road and field and a garden

5 7 The areas mapped as urban include a metalled road and houses and gardens with predominantly built-up or hard uses

ADAS Ref 1512/61/93

MAFF Ref EL 6105

Resource Planning Team
Guildford Statutory Group
ADAS Reading

Sources of Reference

BRITISH GEOLOGICAL SURVEY 1973 Geology Map Sheet 315 Southampton 1 50 000 scale Solid and Drift edition

MAFF 1988 Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land (Alnwick)

METEOROLOGICAL OFFICE 1989 Climatic datasets for agricultural land classification

SOIL SURVEY OF ENGLAND AND WALES 1983 Soils Map Sheet 6 Soils of South East England 1 250 000 scale and accompanying legend

APPENDIX I

DESCRIPTION OF THE GRADES AND SUB GRADES

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 on 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 When more demanding crops are grown yields are generally lower or more variable than on land in grades 1 and 2

Sub grade 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

Sub grade 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 (eg 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 very severe limitations which restrict use to permanent pasture or rough grazing except for occasional pioneer forage crops

Urban

Built up or hard uses with relatively little potential for a return to agriculture housing industry commerce education transport religious buildings cemeteries Also hard surfaced sports facilities permanent caravan sites and vacant land all types of derelict land including mineral workings which are only likely to be re claimed using derelict land grants

Non agricultural

Soft uses where most of the land could be returned relatively easily to agriculture including private parkland 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

Woodland

Includes commercial and non commercial woodland

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 eg buildings in large grounds and where map scale permits the cover types may be shown separately Otherwise the most extensive cover type will be shown

APPENDIX II

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

The soil profile is not wet within 70cm depth for more than 30 days in most years

Wetness Class II

The soil profile is wet within 70cm depth for 31 90 days in most years **or** if there is no slowly permeable layer within 80cm depth it is wet within 70cm for more than 90 days but not wet within 40cm depth for more than 30 days in most years

Wetness Class III

The soil profile is wet within 70cm depth for 91 180 days in most years **or** if there is no slowly permeable layer within 80cm depth it is wet within 70cm for more than 180 days but only wet within 40cm depth for 31 90 days in most years

Wetness Class IV

The soil profile is wet within 70cm depth for more than 180 days but not wet within 40cm depth for more than 210 days in most years **or** if there is no slowly permeable layer within 80cm depth it is wet within 40cm depth for 91 210 days in most years

Wetness Class V

The soil profile is wet within 40cm depth for 211 335 days in most years

Wetness Class VI

The soil profile is wet within 40cm depth for more than 335 days in most years

(The number of days is not necessarily a continuous period In most years is defined as more than 10 out of 20 years)

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents

SOIL PROFILE DESCRIPTIONS EXPLANATORY NOTE

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

Boring Header Information

1 **GRID REF** national 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 **HRT** Horticultural Crops **PGR** Permanent Pasture **LEY** Ley Grass **RGR** Rough Grazing
SCR Scrub **CFW** Coniferous Woodland **DCW** Deciduous Woodland **HTH** Heathland **BOG** Bog or Marsh
FLW Fallow **PLO** Ploughed **SAS** Set aside **OTH** Other

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

4 **GLEY/SPL** Depth in cm to gleying or slowly permeable layers

5 **AP (WHEAT/POTS)** Crop adjusted available water capacity

6 **MB (WHEAT/POTS)** Moisture Balance

7 **DRT** Best grade according to soil droughtiness

8 If any of the following factors are considered significant an entry of Y will be entered in the relevant column

MREL Microrelief limitation **FLOOD** Flood risk **EROSN** Soil erosion risk **EXP** Exposure limitation **FROST** Frost
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** Soil Erosion Risk **WD** Combined 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
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 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

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

6 **STONE LITH** One of the following is used

HR all hard rocks and stones **MSST** soft medium or coarse grained sandstone
SI soft weathered igneous or metamorphic **SLST** soft oolitic or dolimitic limestone
FSST soft fine grained sandstone **ZR** soft argillaceous or silty rocks **CH** chalk
GH gravel with non porous (hard) stones **GS** gravel with porous (soft) stones

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

7 **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

8 **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

9 **SUBS STR** Subsoil structural condition recorded for the purpose of calculating profile droughtiness

G good **M** moderate **P** poor

10 **POR** Soil porosity If a soil horizon has less than 0 5% biopores >0 5 mm a Y will appear in this column

11 **IMP** If the profile is impenetrable a Y will appear in this column at the appropiate horizon

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

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

14 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

SAMPLE NO	GRID REF	ASPECT USE	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M REL DRT	EROSN FLOOD	FROST EXP	CHEM DIST	ALC LIMIT		COMMENTS
1P	SU37702170	PGR N				1	1	070	-38	073	-29	3B				DR	3B	PIT TO 65
3	SU37802200	PGR N		0	022	5	4		0		0					WE	4	MARSH
4	SU37502190	PGR N	05			1	1	062	-46	062	-40	3B				DR	3B	IMP 25
5	SU37602190	PGR N	04			1	1		0		0					ST	3B	IMP 20
9	SU37602180	PGR				1	1		0		0					ST	3B	IMP 20
10	SU37702180	PGR N	01			1	1		0		0					ST	3B	IMP 32
11	SU37802180	PGR				1	1	128	20	104	2	2				DR	2	
12	SU37502170	PGR				1	1		0		0					ST	3B	IMP 25
13	SU37602170	PGR				1	1	066	-42	066	-36	3B				DR	3B	IMP 50
14	SU37702170	PGR				1	1	069	-39	069	-33	3B				DR	3B	IMP 45
15	SU37802170	PGR				1	1	076	-32	076	-26	3B				DR	3B	IMP 50
16	SU37402160	PGR				1	1		0		0					ST	3B	IMP 25
17	SU37502160	PGR				1	1	045	-63	045	-57	4				DR	4	IMP Q3B SEE 1P
18	SU37602160	PGR				1	1	092	-16	096	-6	3A				DR	3A	IMP 75 3A TSST
19	SU37702160	PGR				1	1	104	-4	106	4	3A				DR	3A	IMP 80
20	SU37802160	PGR				1	1	091	-17	100	-2	3A				DR	3A	IMP 62
21	SU37402150	PGR				1	1		0		0					ST	3B	IMP 25
22	SU37502150	PGR				1	1	091	-17	100	-2	3A				DR	3A	IMP 68
23	SU37602150	PGR				1	1	075	-33	075	27	3B				DR	3B	IMP 45
24	SU37702150	PGR				1	1	031	-77	031	-71	4				DR	4	IMP Q3B SEE 1P
25	SU37802150	PGR		058	058	3	3A	133	25	113	11	2				WE	3A	SPL 58

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
1P	0-26	mcl	10YR43 00						7	0	HR	15						
	26-40	mcl	10YR44 00						0	0	HR	10	MDCSAB FR	M				
	40-65	c	75YR54 00	25YR46 00	C				0	0	HR	65		P				
3	0-22	mcl	10YR41 00	10YR46 00	C			Y	0	0	HR	10						
	22-50	c	25Y 60 00	10YR56 00	M			Y	0	0	HR	5		P		Y		
	50-55	c	25Y 60 00	10YR56 00	M			Y	0	0	HR	50		P		Y		
4	0-25	omcl	10YR31 00						7	0	HR	12						
5	0-20	mcl	10YR43 00						22	0	HR	32						
9	0-20	mcl	10YR43 00						23	0	HR	38						
10	0-30	mcl	10YR42 00						18	0	HR	28						
	30-32	mcl	10YR44 00						0	0	HR	40		M				
11	0-30	mcl	10YR42 00						5	0	HR	17						
	30-55	hcl	10YR44 00						0	0	HR	10		M				
	55-120	c	75YR56 00						0	0	HR	5		M				
12	0-25	mcl	10YR43 00						17	0	HR	27						
13	0-30	mcl	10YR43 00						12	0	HR	27						
	30-50	mcl	10YR44 00						0	0	HR	20		M				
14	0-27	mcl	10YR43 00						0	0	HR	10						
	27-39	mcl	10YR44 00						0	0	HR	5		M				
	39-45	hcl	10YR43 00	75YR56 00	C				0	0	HR	30		M				
15	0-25	scl	10YR43 00						0	0	HR	5						
	25-35	mcl	10YR43 44						0	0	HR	10		M				
	35-50	mcl	10YR44 00						0	0	HR	15		M				
16	0-25	mcl	10YR43 00						16	0	HR	26						
17	0-25	mcl	10YR42 00						7	0	HR	14						
	25-30	mcl	10YR43 00						0	0	HR	25		M				
18	0-27	mcl	10YR42 43						12	0	HR	22						
	27-45	mcl	10YR44 00						0	0	HR	5		M				
	45-73	scl	10YR54 00						0	0	HR	20		M				
	73 75	scl	10YR56 00						0	0	HR	30		M				
19	0-29	mcl	10YR43 00						0	0	HR	7						
	29-45	mcl	10YR43 44						0	0	HR	7		M				
	45-55	mcl	10YR43 44						0	0	HR	15		M				
	55-65	sc	75YR56 00						0	0	HR	20		M				
	65-75	mcl	10YR43 00						0	0	HR	15		M				
	75-80	hcl	10YR43 00						0	0	HR	30		M				

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
20	0-32	mcl	10YR44 54						0	0	HR	5						
	32-42	mcl	10YR54 00						0	0	HR	5		M				
	42-58	c	75YR56 00						0	0	HR	3		M				
	58-62	c	75YR56 00						0	0	HR	20		M				
21	0-25	mcl	10YR43 00						18	0	HR	28						
22	0-29	mcl	10YR43 00						6	0	HR	12						
	29-55	mcl	10YR43 00						0	0	HR	12		M				
	55-65	mcl	10YR43 00						0	0	HR	20		M				
	65-68	mcl	10YR44 00						0	0	HR	30		M				
23	0-30	mcl	10YR43 00						0	0	HR	5						
	30-43	mcl	10YR46 56						0	0	HR	3		M				
	43-45	hcl	10YR56 00						0	0	HR	10		M				
24	0-20	mcl	10YR43 00						0	0	HR	15						
25	0-35	mcl	10YR43 44						0	0	HR	2						
	35-46	hcl	10YR54 00						0	0	HR	2		M				
	46-58	c	10YR54 00	75YR56 00	F				0	0	HR	2		M				
	58-120	c	10YR53 63	05YR56 00	M			Y	0	0	HR	5		P			Y	

SOIL PIT DESCRIPTION

Site Name HALTERWORTH TVLP S 225 Pit Number 1P

Grid Reference SU37702170

Average Annual Rainfall	817 mm
Accumulated Temperature	1514 degree days
Field Capacity Level	175 days
Land Use	Permanent Grass
Slope and Aspect	degrees N

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	MOTTLES	STRUCTURE
0- 26	MCL	10YR43 00	7	15		
26- 40	MCL	10YR44 00	0	10		MDCSAB
40- 65	C	75YR54 00	0	65	C	

Wetness Grade 1

Wetness Class	I
Gleying	000 cm
SPL	No SPL

Drought Grade 3B

APW	070mm	MBW	-38 mm
APP	073mm	MBP	-29 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Droughtiness