A1

Winchester District Local Plan
Site 143 Forester Road Soberton Heath
Agricultural Land Classification
ALC Map and Report
July 1994

AGRICULTURAL LAND CLASSIFICATION, REPORT

WINCHESTER DISTRICT LOCAL PLAN
SITE 143 FORESTER ROAD SOBERTON HEATH

1 Summary

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

1 2 Site 143 comprises 4 8 hectares of land to the east of Soberton Heath in Hampshire An Agricultural Land Classification (ALC) survey was carried out in July 1994 The survey was undertaken at a detailed level A total of 6 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 it s physical or chemical characteristics impose long term limitations on it s use for agriculture

1 3 The work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS

1 4 At the time of the survey the agricultural land was under permanent grass The Urban area shown is a house and associated driveway The agricultural buildings consist of vehicle and feed storage areas

1 5 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 10 000 It is accurate at this scale but any enlargement would be misleading This map supersedes any previous ALC survey information for this site

Table 1 Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site
3b	4 5	93 7
Agricultural Buildings	0 2	4 2
Urban	0 1	2 1
Total area of Site	4 8ha	100%

1 6 Appendix I gives a general description of the grades subgrades and land use categories identified in the survey The main classes are described in terms of the type of limitation that can occur the typical cropping range and the expected level and consistency of yield

1 7 The agricultural land at this site has been classified as moderate quality (Subgrade 3b) The principal limitation is soil wetness Clay loam topsoils and upper subsoils overlie slowly permeable clay at shallow depths in the profile causing drainage to

be severely impeded This severely restricts the opportunities for cultivation and/or stocking without the risk of structural damage to the soil Occasional observations were found to be impenetrable due to flints in the upper subsoil The pit observation found these to overlie poorly structured slowly permeable clays as above

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 an overall climatic limitation are average annual 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 are believed to affect the site However climatic and soil factors interact to influence soil wetness and droughtiness limitations

Table 2 Climatic Interpolation

Grid Reference	SU607143
Altitude (m AOD)	73
Accumulated Temperature (days Jan June)	1468
Average Annual Rainfall (mm)	888
Field Capacity Days	188
Moisture deficit wheat (mm)	100
Moisture deficit potatoes (mm)	93
Overall Climatic Grade	1

3 Relief

3 1 The site lies at an altitude of 70 75 m AOD falling gently from north to south Nowhere on the site does relief or gradient affect agricultural land quality

4 Geology and Soils

4 1 The published geological information (BGS 1971) shows the entire site to be underlain by Reading Beds comprising mottled clays and sands

4 2 The published soils information (SSEW 1983) shows the site to be underlain by soils of the Windsor Association The legend accompanying the map describes these as Slowly permeable seasonally waterlogged clayey soils mostly with

brown subsoils Some fine loamy over clayey and fine silty over clayey soils Soils of this broad nature were found at this site although stony horizons were encountered at some observation points

5 Agricultural Land Classification

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

5 2 The location of the soil observation points are shown on the attached sample point map

Subgrade 3b

5 3 Land of moderate quality has been mapped for the whole of the agricultural area at this site The principal limitation is soil wetness due to poor drainage Soil profiles typically comprise a very slightly to slightly stony (c 3 10% v/v flints) medium clay loam or medium silty clay loam topsoil commonly passing to a similarly stony gleyed medium or heavy clay loam upper subsoil which was occasionally impenetrable to the soil auger This overlies a deep clay lower subsoil The description for Pit 1 (1P Appendix III) shows that these clays are gleyed and poorly structured and as such are slowly permeable These characteristics place the soils in Wetness Class IV (Appendix II) which given the topsoil texture and prevailing field capacity level (188 days) produce a wetness limitation that restricts the land to Subgrade 3b

ADAS Ref 1513/120/94
MAFF Ref EL15/594

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

British Geological Survey (1971) Sheet 316 Fareham 1 63 360 Drift Edition

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

Meteorological Office (1989) Climatic datasets for Agricultural Land Classification

Soil Survey of England and Wales (1983) Sheet No 6 Soils of South East England 1 250 000 and Accompanying Legend

Soil Survey of England and Wales (1984) Soils and their use in South East England Bulletin No 15

APPENDIX I

DESCRIPTION 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 (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 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 including housing industry commerce education transport religous buildings cemetries Also hard surfaced sports facilities permanent caravan sites and vacant land all types of derelict land including mineral workings which are only likely to be reclaimed using derelict land grants

Non agricultural

Soft uses where most of the land could be returned relatively easily to agriculture including private parkland public open spaces sports fields allotments and soft surfaced areas on airports Also active mineral workings and refuse tips where restoration conditions to soft after uses may apply

Woodland

Includes commercial and non commercial woodland A distinction may be made as necessary between farm and non farm 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

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

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

Definition of Soil Wetness Classes

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

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics site and climatic factors Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field The method adopted here is common to ADAS and the SSLRC

[1]The number of days specified is not necessarily a continuous period

[2] 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 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 **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	**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 **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	**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 appropiate 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 WINCHESTER LP SITE 143 P t N mber 1P

Grid Refere ce SU60601410 A erage Ann al Ra nfall 885 mm
Acc mulated Temperat re 1472 deg ee d y
F eld Capacity Le el 188 days
Land Use Permanent Gras
Slope and Aspect deg ees

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 17	MCL	10YR33 00	0	5	HR	F				
17 31	HCL	10YR52 00	0	5	HR	C	MDCSAB	FR	M	
31 57	C	25Y 61 00	0	0		C	WDCP	FM	P	

Wet ess G ade 3B Wetness Class IV
Gleyi g 17 cm
SPL 31 cm

Dro ght G ade APW mm MBW 0 mm
APP mm MBP 0 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Wet ess

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS CLASS	WHEAT GRADE	WHEAT AP	WHEAT MB	POTS AP	POTS MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU60601430	PGR	W				1	2	34	67	34	59	4				DR	4	IMP STONES 20
1P	SU60601410	PGR			17	31	4	3B		0		0					WE	3B	PIT 57 SPL 31
2	SU60701430	PGR	W	01	30	40	4	3B		0		0					WE	3B	SPL 40 SEE 1P
3	SU60801430	PGR			0	25	4	3B		0		0					WE	3B	SPL 25 SEE 1P
4	SU60901430	PGR					1	2	45	56	45	48	4				DR	3B	IMP STONES 25
5	SU60601420	PGR			25	40	4	3B		0		0					WE	3B	SPL 40 SEE 1P
6	SU60601410	PGR			20	35	4	3B		0		0					WE	3B	SPL 35 SEE 1P

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 20	mzcl	10YR32 00						0	0	HR	10						
1P	0 17	mcl	10YR33 00	75YR56 00	F				0	0	HR	5						
	17 31	hcl	10YR52 00	10YR68 00	C			Y	0	0	HR	5	MDCSAB	FR M				
	31 57	c	25Y 61 00	75YR68 00	C			Y	0	0		0	WDCP	FM P	Y		Y	
2	0 30	mcl	10YR32 00						0	0	HR	10						
	30 40	c	10YR62 00	75YR56 00	C			Y	0	0	HR	5		M				
	40 70	c	10YR52 00	10YR58 00	C			Y	0	0		0		P			Y	
3	0 25	mzcl	10YR42 00	000C00 00	C			Y	0	0	HR	5						
	25 55	c	25Y 52 00	000C00 00	M			Y	0	0	HR	1		P			Y	
4	0 25	mzcl	10YR42 00	000C00 00	C			Y	0	0	HR	5						
5	0 25	mcl	10YR31 00						0	0	HR	3						
	25 40	mcl	25Y 51 00	10YR68 00	C			Y	0	0	HR	5		M				
	40 65	c	25Y 61 00	75YR68 00	M			Y	0	0		0		P			Y	
6	0 20	mcl	10YR31 41						0	0	HR	3						
	20 35	mcl	10YR51 61	10YR78 00	M			Y	0	0	HR	5		M				
	35-50	c	25Y 62 00	10YR68 00	M			Y	0	0	HR	5		P			Y	
	50 100	c	25Y 62 00	10YR68 00	M			Y	0	0		0		P			Y	