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Site 195
Albany Farm, Bishops Waltham,
Winchester & District Local Plan
Hampshire
ALC Map and Report
July, 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

Site 195

Albany Farm, Bishops Waltham Hampshire Winchester & District Local Plan

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 connection with its statutory input to the preparation of the Winchester and District Local Plan
- 1.2 Approximately 9 hectares of land relating to Site 195 around Albany Farm on the western fringe of Bishop s Waltham in Hampshire were surveyed in July 1994. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 10 borings and 2 soil inspection pits 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 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 survey the agricultural land use was permanent grass
- 1.5 The distribution of the 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 survey information for this site

Table 1 Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Area
3a	1.3	14.6	14.9
3b	7.4	83.2	<u>85.1</u>
Agricultural Bldgs	<u>0.2</u>	<u>2.2</u>	100% (8.7 ha)
Total	8.9 ha	100%	

- 1.6 A general description of the grades, subgrades and land use categories is provided in Appendix 1. 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 land quality on the majority of the site has been classified as Subgrade 3b (moderate quality) as result of a significant soil wetness limitation, with a minor area of Subgrade 3a (good quality) which experiences a soil workability limitation

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. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation

Table 2 Climatic Interpolation

Grid Reference	SU542180	SU539178
Altitude (m AOD)	53	41
Accumulated Temperature (days Jan June)	1491	1505
Average Annual Rainfall (mm)	851	841
Field Capacity Days	180	178
Moisture deficit wheat (mm)	105	107
Moisture deficit potatoes (mm)	97	99
Overall Climatic Grade	1	1

3 Relief

- 3.1 The land occupies gentle south west facing slopes in the range 33-53 metres. Nowhere on the site do gradient or microrelief affect the land classification

4 Geology and Soils

- 4.1 The published geology map for the site area (BGS 1971) shows the site to be underlain predominantly by London Clay with Reading Beds in the north of the site)
- 4.2 The published soils information for the area (SSEW 1983) shows the site to comprise the Windsor association described as slowly permeable seasonally waterlogged clayey soils

5 Agricultural Land Classification

- 5.1 The ALC classification of the site is shown on the attached ALC map
- 5.2 The location of the soil observation points is shown on the attached sample point map

Subgrade 3a

- 5 3 A small area of this grade has been mapped on a slight topographic rise. Given the dry and stony subsoil conditions, these soils could not be penetrated by hand augering. Pit 1 was dug to investigate the subsoils. The description in Appendix I reveals clay subsoils with stone contents of approximately 20%. The soils exhibit evidence of shallow gleying but have moderate subsoil structural conditions which are not slowly permeable. The soils fall into Wetness Class II (see Appendix II) and these characteristics together with the prevailing field capacity level (180 days) limits the land to Subgrade 3a. Soil wetness is the key limitation as there is sufficient water available in the profile to qualify for Subgrade 3a at worst on the basis of soil droughtiness.

Subgrade 3b

- 5 4 The majority of the site has been placed in this grade with soil wetness as the key limitation. These soils experience a wetness limitation that is significantly worse than the adjacent Subgrade 3a land. Pit 2 is typical of these soils which comprise medium clay loam topsoils over clay subsoils. The clay below approximately 48 cm is slowly permeable and there is clear evidence of gleying from within the topsoil. The structure of the lower clays has been described as massive and these characteristics place the soils in Wetness Class IV. The combination of topsoil texture, wetness class and field capacity level (178-180 days) limits this land to Subgrade 3b. There is a restriction on the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock.

ADAS Reference 1513/123/94
MAFF Reference EL 15/594

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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 (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.

Urban

Built up or hard uses with relatively little potential for a return to agriculture including 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 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 ¹ 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.

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

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

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents

Soil Abbreviations Explanatory Note

Soil Pit Descriptions

Database Printout Boring Level Information

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%+
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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 WINCHESTER LP SITE 195 P t Number 1P

Grid Reference SU53901790 Average Annual Rainfall 841 mm
 Accumulated Temperature 1505 degree days
 Field Capacity Level 178 days
 Land Use Permanent Grass
 Slope and Aspect 02 degrees SW

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 28	MCL	10YR53 00	8		15	HR					
28 58	C	10YR53 00	0		20	HR	M			M	
58 85	C	25Y 53 00	0		20	HR	M			M	

Wetness Grade 3A Wetness Class II
 Gleying 028 cm
 SPL No SPL

Drought Grade 3A APW 095mm MBW 12 mm
 APP 098mm MBP 1 mm

FINAL ALC GRADE 3A
 MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name WINCHESTER LP SITE 195 Pit Number 2P

Grid Reference SU53901780
 Average Annual Rainfall 841 mm
 Accumulated Temperature 1505 degree days
 Field Capacity Level 178 days
 Land Use Permaculture
 Slope and Aspect 02 degrees SW

HORIZON	TEXTURE	COLOUR	STONES	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 25	MCL	25Y 5/2 0/0	10	20	HR	C				
25 48	C	10YR 7/2 0/0	0	10	HR	M			M	
48 68	C	10YR 6/1 0/0	0	2	HR	M	MASSIV	FM	P	

Wetness Grade 3B
 Wetness Class IV
 Gleying 000 cm
 SPL 048 cm

Drought Grade 3B
 APW 085mm MBW 22 mm
 APP 095mm MBP 4 mm

FINAL ALC GRADE 3B
 MAIN LIMITATION Wetness

SAMPLE NO	GRID REF	ASPECT		WETNESS		WHEAT		POTS		M REL		EROSN	FROST	CHEM	ALC	COMMENTS	
		USE	GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT		
1	SU53801800	PGR	W		000		2	3A	088	19	094	5	3A		WE	3A	NOSPLIMP
1A	SU53801800	PGR			000	035	4	3B	086	21	091	8	3B		WE	3B	
1P	SU53901790	PGR	SW	02	028		2	3A	095	12	098	1	3A		WE	3A	NO SPL
2	SU53901800	PGR	W	01	000		1	2	043	64	043	56	4		DR	3A	IMPX3QDR
2P	SU53901780	PGR	SW	02	000	048	4	3B	085	22	095	4	3B		WE	3B	SPL 48
3	SU54101800	PGR	S	02	000	020	4	3B	111	4	102	3	3A		W	3B	
4	SU54201800	PGR	S	02	000		1	1	052	55	052	47	4		DR	4	STN YZ
5	SU53801790	PGR			000		2	3A	068	39	068	31	3B		WE	3A	IMPX2
6	SU53901790	PGR	SW	02	000		2	2	049	58	049	50	4		DR	3B	IMPST 30
7	SU54001790	PGR	SW	01	000	020	4	3B	101	6	099	0	3A		WE	3B	QSPL 20
8	SU54101790	PGR	S	02	000	030	4	3B	124	17	101	2	2		W	3B	
9	SU53901780	PGR	SW	01	000	030	4	3B	000	0	000	0			WE	3B	SPL 30

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES			PED		STONES			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT	COL	GLE	2	6	LITH		TOT	STR	POR	IMP	SPL	CALC
1	0 25	mc1	10YR53 00 000C00 00 C						Y	0	0	0						
	25 42	c	10YR53 00 000C00 00 M						Y	0	0	0		M				
	42 55	c	10YR53 00 000C00 00 M						Y	0	0	0		P	Y			
	55 58	c	75YR53 00 000C00 00 M						Y	0	0	HR	5	M				
1A	0 25	mc1	10YR53 00 000C00 00 C						Y	0	0	0						
	25 35	c	10YR53 00 000C00 00 C						Y	0	0	0		M				
	35 58	c	10YR52 00 000C00 00 M						Y	0	0	HR	1	P	Y		Y	
1P	0 28	mc1	10YR53 00 10								8	0	HR	15				
	28 58	c	10YR53 00 10YR58 00 M						Y	0	0	HR	20	M				
	58 85	c	25Y 53 00 75YR58 00 M						Y	0	0	HR	20	M				
2	0 25	mc1	10YR43 00 000C00 00 C								0	0	HR	5				
2P	0 25	mc1	25Y 52 00 75YR58 00 C						Y	10	0	HR	20					
	25 48	c	10YR72 00 75YR68 00 M						Y	0	0	HR	10	M				
	48 68	c	10YR61 00 75YR68 00 M						Y	0	0	HR	2	MASSIV FM P	Y		Y	
3	0 20	mzc1	10YR42 00 75YR46 00 F						Y	0	0	HR	10					
	20 30	hc1	10YR51 00 75YR46 00 C						Y	0	0	HR	2	M			Y	
	30 100	c	10YR51 00 10YR58 00 C						Y	0	0	0		P			Y	
4	0 30	mzc1	10YR42 00 75YR46 00 F						Y	0	0	HR	10					
5	0 25	mzc1	10YR53 00 000C00 00 C					00ZZ00 00	Y	0	0	HR	2					
	25 40	c	10YR52 00 000C00 00 C						Y	0	0	HR	10	M				
6	0 30	mc1	10YR42 52 10YR46 00 C						Y	0	0	HR	10					
7	0 20	mc1	25Y 42 53 10YR56 00 C						Y	0	0	HR	3					
	20 45	c	25Y 53 00 10YR58 00 M					00MN00 00	Y	0	0	HR	2	P			Y	
	45 90	c	25Y 52 53 10YR58 00 M					00MN00 00	Y	0	0	0		P			Y	
8	0 20	mzc1	10YR42 00 75YR46 00 F						Y	0	0	HR	10					
	20 30	hc1	10YR51 00 75YR46 00 C						Y	0	0	HR	10	M				
	30 120	c	10YR51 00 10YR58 00 C						Y	0	0	0		P			Y	
9	0 30	mc1	10YR52 42 10YR58 00 C						Y	0	0	HR	5					
	30 55	c	25Y 53 00 10YR58 00 C						Y	0	0	HR	5	P			Y	
	55 80		25Y 53 00 75YR58 00 M						Y	0	0	0		P			Y	