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**Fareham Borough Local Plan
Land at Fareham Common**

**Agricultural Land Classification
ALC Map and Report**

September 1997

**Resource Planning Team
Eastern Region
FRCA Reading**

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AGRICULTURAL LAND CLASSIFICATION REPORT

FAREHAM BOROUGH LOCAL PLAN LAND AT FAREHAM COMMON

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey on approximately 17.3 hectares between the M27 and Kiln Road, to the north of Fareham, south Hampshire. The survey was carried out during September 1997.
2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)¹, on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF). The survey was carried out in connection with the Fareham Borough Local Plan. This survey supersedes any previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA. 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 western half of the site was under permanent pasture. The majority of the eastern half was in cereal stubble, with a small area of rough grass behind Potters Avenue. The areas shown as 'Other Land' comprise a garage and drive, a road and an area of scrub.

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 below.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
3b	16.9	100.0	97.7
Other land	0.4	N/A	2.3
Total surveyed area	16.9	100	97.7
Total site area	17.3	-	100

¹ FRCA is an executive agency of MAFF and the Welsh Office

7. The fieldwork was conducted at an average density of one boring per hectare. A total of 19 borings and one soil inspection pit was described.

8. All of the agricultural land on this site has been classified as Subgrade 3b (moderate quality). This land, which is derived mostly from Reading Beds, is limited by soil wetness and workability. Typical profiles comprise medium and heavy loamy topsoils which overlie clay subsoils at shallow depths within the soil profile. The clay subsoils act to impede soil drainage and, at this locality, reduce the flexibility of cropping, stocking and cultivations.

FACTORS INFLUENCING ALC GRADE

Climate

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

10. 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		
		SU 569 078	SU 566 078	SU 569 075
Grid reference	N/A	SU 569 078	SU 566 078	SU 569 075
Altitude	m, AOD	20	25	35
Accumulated Temperature	day°C (Jan-June)	1533	1527	1516
Average Annual Rainfall	mm	802	805	812
Field Capacity Days	days	163	163	164
Moisture Deficit, Wheat	mm	113	112	111
Moisture Deficit, Potatoes	mm	108	107	105
Overall climatic grade	N/A	Grade 1	Grade 1	Grade 1

11. 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.

12. 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.

13. The combination of rainfall and accumulated temperature at this site mean that there is no overall climatic limitation. Local climatic factors, such as exposure or frost risk, do not affect land quality at this site. However, climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations. At this locality, the climate is relatively moist and warm in national terms, thus ensuring an early start to the growing season. In addition, the moist climate means that the likelihood of soil wetness problems may be enhanced.

Site

14. The lowest land on the site, which lies at 15m AOD, occurs next to the M27 in the north-east corner of the site. The land rises, mostly in a southerly direction, through gentle slopes of 2°-6° towards the highest point of 35 m AOD. The latter occurs immediately south of Kiln Road. Nowhere on the site do gradient or microrelief adversely affect agricultural land quality.

Geology and soils

15. The most detailed published geology map for this area (BGS, 1971) shows most of the site to be underlain by Reading Beds. A thin strip of the higher land in the south of the site is shown to be underlain by London Clay.

16. The most detailed published soils information covering the area (SSEW, 1983) depicts the entire site as Urban. However, soils of the Wickham 4 Association are mapped to the immediate north of the M27. These soils are described as 'Slowly permeable seasonally waterlogged fine loamy over clayey and fine silty over clayey soils associated with similar clayey soils, often with brown subsoils' (SSEW, 1983). Detailed field examination found soils consistent with this description across the entire site.

AGRICULTURAL LAND CLASSIFICATION

17. 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 1.

18. 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 3b

19. All of the land on this site has been classified as Subgrade 3b (moderate quality) because of significant soil wetness and workability limitations. Topsoils comprise non-calcareous medium (silty) clay loams and heavy (silty) clay loams. These profiles typically pass directly into clay subsoils; occasionally, however, these overlie shallow, permeable medium or heavy clay loam upper subsoils which pass into clay lower subsoils. Topsoils and subsoils are typically very slightly stony, containing 2% total flints by volume. On the higher land in the south of the site, however, profiles tend to be stonier. Here, topsoils contain 3-7% of flints larger than 2 cm and 10-15% total flints; subsoils contain 15-35% total flints by volume.

20. As shown by Pit 1 (see Appendix II), the clay subsoils are poorly structured (weakly developed coarse sub-angular peds of firm consistence, tending to massive) and have low porosity. As such, these clay subsoils are slowly permeable and, given the shallow depth to gleying together with the local climate, such profiles are assessed as poorly drained (Wetness Class IV). 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 (1971), *Sheet 316, Fareham, 1:63,360 (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:

Sample location map

Soil abbreviations - explanatory note

Soil pit descriptions

Soil boring descriptions (boring and horizon levels)

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. **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	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. **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	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

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--				-WHEAT-		-POTS-		M.REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
			GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT					
1	SU56500781	PGR N	5			1	1	56	-56	56	-51	4			DR 4	Imp30 Q3bwe	
2	SU56600780	PGR NE	3	25	25	4	3B		0		0				WE 3B	Plastic 35	
3	SU56700780	PGR N	2	0	25	4	3B		0		0				WE 3B	Rel plastic	
4	SU56790780	PGR		0	20	4	3B		0		0				WE 3B	Under PGR-dry	
5	SU56900780	RGR N	3	0	25	4	3B		0		0				WE 3B	Plastic	
6	SU57000780	STB NE	2	20	20	4	3B		0		0				WE 3B		
7	SU57100780	STB N	2	0	35	4	3B		0		0				WE 3B		
8	SU57200780	PGR		25	25	4	3B		0		0				WE 3B	Q liming 25	
9	SU57300781	STB N	2	18	18	4	3B		0		0				WE 3B	Rel plastic	
10	SU56810770	RGR N	4	0	25	4	3B		0		0				WE 3B		
11	SU56910770	STB N	4	35	35	4	3B		0		0				WE 3B		
12	SU57000770	STB N	4	35	35	4	3B		0		0				WE 3B		
13	SU57100770	STB N	4	30	30	4	3B		0		0				WE 3B		
14	SU57200770	PGR N	3	25	25	4	3B		0		0				WE 3B	Rel plastic	
15	SU56900760	STB N	5			1	1		0		0				WE 3B	I32stonySee15A	
15A	SU56910760	STB N	5	35	35	4	3B	72	-40	76	-31	4			WE 3B	Imp60 stony	
16	SU57000760	STB N	5	30	30	4	3B		0		0				WE 3B		
17	SU57100760	STB N	5	45	45	3	3A	69	-43	71	-36	4			WE 3A	I55 Prob sp145	
18	SU57200760	RGR N	6	0	25	4	3B		0		0				WE 3B		
1P	SU56910770	STB N	4	33	33	4	3B	132	20	109	2	2			WE 3B	h2 Q massive	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED	----STONES----			STRUCT/	SUBS						
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
1P	0-33	MZCL	10YR43							1	0	HR	3					
	33-55	C	25Y 63	75YR68	61			Y		0	0	HR	2	WKCSAB	FM	P	Y	Y

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---			PED COL.	---STONES---			STRUCT/ CONSIST	SUBS				
				COL	ABUN	CONT		GLE	>2	>6		LITH	TOT	STR	POR	IMP
1	0-30	MZCL	10YR42					0	0	HR	2					
2	0-25	HZCL	10YR42						0	0	HR	2				
	25-35	C	25Y 62	10YR58				Y	0	0	HR	2	P			Y
	35-60	C	25Y 61 63	75YR58				Y	0	0	HR	2	P			Y
3	0-25	HCL	10YR42	10YR58				Y	0	0	HR	2				
	25-45	C	25Y 63 61	75YR58				Y	0	0	HR	5	P			Y
	45-60	C	05Y 61	05YR56				Y	0	0	HR	5	P			Y
4	0-20	MCL	10YR42	75YR58				Y	0	0	HR	2				
	20-40	C	25Y 63	75YR68				Y	0	0	HR	2	P			Y
	40-60	C	25Y 61 63	75YR68				Y	0	0		0	P			Y
5	0-25	MZCL	10YR42 52	10YR56				Y	0	0	HR	2				
	25-60	C	25Y 61 53	10YR68				Y	0	0		0	P			Y
6	0-20	HCL	10YR42	10YR56		D			0	0	HR	2				
	20-45	C	25Y 62	75YR58 68		D		Y	0	0	HR	5	P			Y
	45-60	C	25Y 62	75YR58 68		D		Y	0	0	HR	8	P			Y
7	0-25	MCL	10YR42 41	75YR58		D		Y	0	0	HR	2				
	25-35	HCL	25Y 63	10YR58				Y	0	0	HR	15	M			
	35-55	C	25Y 61	75YR68		D		Y	0	0	HR	10	P			Y
	55-70	C	05Y 71	05YR58		D		Y	0	0		0	P			Y
8	0-25	HZCL	10YR42	10YR58					0	0	HR	2				
	25-30	C	25Y 62	10YR58				Y	0	0	CH	2	P			Y
	30-60	C	05Y 61	10YR58				Y	0	0		0	P			Y
9	0-18	HZCL	10YR43						0	0	HR	2				
	18-35	C	25Y 62	75YR58 68				Y	0	0	HR	5	P			Y
	35-60	C	05Y 52	75YR58 68				Y	0	0		0	P			Y
10	0-25	MZCL	10YR41 42	75YR46				Y	0	0	HR	2				
	25-60	C	25Y 61 53	75YR58 68				Y	0	0	HR	2	P			Y
11	0-35	MZCL	10YR43						0	0	HR	3				
	35-60	C	25Y 61	75YR68 58				Y	0	0		0	P			Y
12	0-35	MCL	10YR43						0	0	HR	2				
	35-60	C	25Y 53	75YR68				Y	0	0	HR	2	P			Y
13	0-30	MCL	10YR43						0	0	HR	2				
	30-70	C	25Y 61	75YR58				Y	0	0		0	P			Y
14	0-25	HZCL	10YR42						0	0	HR	2				
	25-60	C	25Y 62	75YR58 68		D		Y	0	0	HR	2	P			Y

See 1P 245/94

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----		PED COL.	----STONES----			STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN		CONT	GLE	>2		>6	LITH	TOT		
15	0-25	MCL	10YR42					3	0	HR	10				
	25-32	MCL	10YR42					0	0	HR	15	M			
15A	0-35	MCL	10YR42					3	0	HR	15				
	35-60	C	25Y 63	75YR58			Y	0	0	HR	35	P		Y	
16	0-30	MCL	10YR42					1	0	HR	5				
	30-40	C	25Y 62	75YR58			Y	0	0	HR	5	P		Y	
	40-60	C	05Y 51	75YR58			Y	0	0		0	P		Y	
17	0-30	MCL	10YR43					7	0	HR	15				
	30-45	HCL	10YR42					0	0	HR	35	M			
	45-55	C	25Y 62	10YR58			Y	0	0	HR	35	P		Y	
18	0-25	HCL	10YR52	10YR58			Y	0	0	HR	5				
	25-40	C	25Y 62	75YR58 68	D		Y	0	0	HR	2	P		Y	
	40-70	C	05Y 71	75YR58 68	D		Y	0	0		0	P		Y	
	70-33	MZCL	10YR43					1	0	HR	3				
	33-55	C	25Y 63	75YR68 61			Y	0	0	HR	2	WKCSAB FM P	Y	Y	

See 1P 245/94
Prob sp1

Few brick frags