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**Ashford Borough Local Plan
Site 67: Land South of Warehouse Road,
Hamstreet**

**Agricultural Land Classification
ALC Map and Report**

April 1997

**Resource Planning Team
Eastern Region
FRCA Reading**

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AGRICULTURAL LAND CLASSIFICATION REPORT

ASHFORD BOROUGH LOCAL PLAN SITE 67: LAND SOUTH OF WAREHOUSE ROAD, HAMSTREET.

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 13 ha of land south of Hamstreet, near Ashford in Kent. The survey was carried out during April 1997.
2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA) on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with its statutory input to the Ashford Borough Local Plan. This survey supersedes 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 land use on the site was a mixture of permanent grassland used for beef rearing and an area of cereal production. The areas mapped as 'Other land' include farm buildings and their associated infrastructure.

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.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	4.5	41.3	35.2
3a	6.4	58.7	50.0
Other land	1.9		14.8
Total surveyed area	10.9	100	-
Total site area	12.8	-	100

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 13 borings and 2 soil pits were described.

8. Land on this site has been classified as Grade 2 (very good quality agricultural land) and Subgrade 3a (good quality agricultural land).

9. Grade 2 land has minor drought or combined drought/wetness limitations which affect crop yield, cultivations or harvesting. Soils typically comprise deep, variably drained clay loam profiles which become heavier and in some places, less permeable with depth thereby suffering slight soil wetness restrictions. Additionally, moisture balance calculations for these profiles indicate a slight droughtiness restriction.

10. Subgrade 3a land has slight limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Soil profiles are similar to those within the Grade 2 mapping unit. However, soil wetness and droughtiness restrictions are more apparent due to soils which are less well drained or which have lower reserves of available water. Subgrade 3a is therefore the appropriate classification.

FACTORS INFLUENCING ALC GRADE

Climate

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

12. 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	
		TQ 999 331	TQ 001 330
Grid reference	N/A		
Altitude	m, AOD	10	5
Accumulated Temperature	day°C (Jan-June)	1500	1505
Average Annual Rainfall	mm	666	665
Field Capacity Days	days	137	137
Moisture Deficit, Wheat	mm	128	129
Moisture Deficit, Potatoes	mm	127	128
Overall climatic grade	N/A	Grade 1	Grade 1

13. 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.

14. 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.

15. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation affecting the site. In addition, local climatic factors such as exposure and frost risk are not believed to affect the site. The site is climatically Grade 1.

Site

16. The site lies at an altitude of between 5 and 15 metres AOD, sloping gently from the west to the east. Gradient, microrelief and flooding do not affect land quality on this site

Geology and soils

17. The most detailed published geological information for the area (BGS, 1974) maps the site mainly as Tunbridge Wells Sand with some alluvium on the eastern edge bordering the Springbrook Sewer.

18. The most detailed published soils information for the area (SSEW, 1983) shows the whole of the survey area to be mapped as Wickham 1 association soils. These are described as, 'Slowly permeable seasonally waterlogged fine silty over clayey, fine loamy over clayey and clayey soils. Some Wickham soils have stony upper horizons' (SSEW, 1984).

AGRICULTURAL LAND CLASSIFICATION

19. 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.

20. 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.

Grade 2

21. Grade 2 (very good quality) agricultural land cuts a sinuous swath from Parker Farm through to the southern boundary of the survey area. The principal limitation is minor soil droughtiness and/or soil wetness.

22. Typically, Grade 2 land comprises, non-calcareous stoneless medium clay loam or medium silty clay loam topsoils. These pass into similar or heavy clay loam upper subsoils passing into stoneless heavy clay loam, silty clay or clay at depth.

23. Grade 2 land experiences a minor soil wetness limitation related to impeded soil drainage as evidenced by the presence of gleying at variable depths caused by slowly permeable lower subsoils. This degree of soil wetness places these soils in Wetness Class II. This wetness class, in combination with the topsoil textures and the prevailing field capacity level (137 days), restricts this land to Grade 2. This limitation will restrict the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock as well as affecting crop growth and development.

24. Where land is not affected solely by a minor soil wetness limitation, soil droughtiness may be acting in combination or on its own to restrict land quality. The combination of

textures, depths, structures and stone contents means that there is insufficient water for crop growth at critical times of the season. As a result, the level and consistency of crop yields may be affected and this land cannot be classified higher than Grade 2.

Subgrade 3a

25. Subgrade 3a (good quality) agricultural land is found either side of the Grade 2 land. *The principal limitation is a slight soil droughtiness limitation, as assessed in Pits 1 and 2. In places i.e., as at pit 1 this is accompanied by a slight soil wetness limitation.*

26. Typically, Subgrade 3a land comprises non-calcareous, stoneless medium clay loam topsoils over stoneless heavy clay loam upper subsoils. From 65 to 100cm, lower subsoils are stoneless heavy clay loam, heavy silty clay loam, silty clay or clay.

27. Moisture balance calculations for these soils indicate that they suffer from a slight soil droughtiness limitation due to the interaction of soil properties and the relatively dry climate which prevails. The effect of droughtiness is expressed in terms of reduced levels and consistency of yield and reduced crop quality.

28. A combined soil wetness limitation exists where gleying is within 40cm and a slowly permeable layer exists from approximately 42cm. This degree of wetness places these soils in Wetness Class III. This wetness class in combination with the topsoil textures and the prevailing field capacity level (137 days), restricts this land to Subgrade 3a. This limitation may adversely affect seed germination and survival as well as inhibit the development of a good rooting system. It also affects the timing of cultivations and/or grazing.

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SOURCES OF REFERENCE

British Geological Survey (1974) *Sheet No. 305/306, Folkestone and Dover*.
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*.
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England*
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	FM: firm	EH: extremely hard
VF: very friable	VM: very firm	
FR: friable	EM: extremely firm	

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 : ASHFORD LP, SITE 67 Pit Number : 1P

Grid Reference: TQ99903330 Average Annual Rainfall : 666 mm
 Accumulated Temperature : 1500 degree days
 Field Capacity Level : 137 days
 Land Use : Permanent Grass
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 23	MCL	10YR53 52	0	0		C				
23- 40	MCL	10YR62 72	0	0		M	MVCSAB	FM	M	
40-100	HCL	25Y 71 72	0	0		M	WKCAB	FM	P	
100-120	C	25Y 71 72	0	0		M	WKCAB	FM	P	

Wetness Grade : 3A Wetness Class : III
 Gleying : 0 cm
 SPL : 040 cm

Drought Grade : 3A APW : 130mm MBW : 1 mm
 APP : 105mm MBP : -23 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Soil Wetness/Droughtiness

SOIL PIT DESCRIPTION

Site Name : ASHFORD LP, SITE 67 Pit Number : 2P

Grid Reference: TR00103310 Average Annual Rainfall : 666 mm
 Accumulated Temperature : 1500 degree days
 Field Capacity Level : 137 days
 Land Use : Cereals
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 29	MCL	10YR52 00	0	0		C				
29- 52	HCL	10YR52 62	0	0		C	MDCSAB	FM	M	
52-100	HCL	10YR61 62	0	0		C	MDCSAB	FR	M	
100-120	C	10YR51 00	0	0		C	MASSVE	FM	P	

Wetness Grade : 2 Wetness Class : II
 Gleying : 0 cm
 SPL : 100 cm

Drought Grade : 3A APW : 150mm MBW : 21 mm
 APP : 118mm MBP : -10 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Droughtiness

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--			-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS
			GRDNT	GLEYS	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	
1	TQ99903330	PGR SE	01	0	042	3	3A	130	1	106	-22	3A		WD	3A	
1P	TQ99903330	PGR SE	01	0	040	3	3A	130	1	105	-23	3A		WD	3A	
2	TQ99803320	PGR NE	02	030	065	2	2	140	11	116	-12	3A		DR	3A	BORDER 2
2P	TR00103310	CER		0	100	2	2	150	21	118	-10	3A		DR	3A	BORDER 2
3	TQ99903320	PGR N	02	0	045	3	3A	134	5	109	-19	3A		WD	3A	
4	TR00003320	PGR NE	01	0	100	2	2	149	20	117	-11	3A		DR	3A	BORDER 2
6	TQ99823308	PGR NE	03	0	100	2	2	155	26	125	-3	2		WD	2	
7	TQ99903310	PGR NE	02	0	058	3	3A	134	5	112	-16	3A		WD	3A	
8	TR00003310	CER SE	02	070		1	1	156	27	118	-10	2		DR	2	SL.GLEY 30
9	TR00103310	CER		0	073	2	2	134	5	109	-19	3A		DR	3A	
10	TQ99903300	CER S	03	045	058	2	2	131	2	113	-15	3A		DR	3A	
11	TR00003300	CER S	02	045		1	1	156	27	118	-10	2		DR	2	
12	TR00103300	CER S	01	0	035	4	3B	000	0	000	0			WE	3B	
13	TR00003290	CER S	01	030	070	2	2	141	12	118	-10	2		WD	2	

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---		PED		----STONES----			STRUCT/	SUBS	SPL	CALC
				COL	ABUN	CONT	COL.	GLE	>2	>6				
1	0-26	mc1	10YR52 53 75YR56 00 C					Y	0	0	0			
	26-42	hc1	25 Y62 00 10YR58 00 C			00M00	00	Y	0	0	0	M		
	42-62	hc1	25 Y72 00 10YR58 00 M			00M00	00	Y	0	0	0	P	Y	
	62-120	c	25 Y72 00 10YR58 00 M			25 Y70	00	Y	0	0	0	P	Y	
1P	0-23	mc1	10YR53 52 10YR56-00 C					Y	0	0	0			AT BORING 1
	23-40	mc1	10YR62 72 10YR46 56 M			-	Y	0	0	0	MVCSAB	FM	M	FEW MN CONCS
	40-100	hc1	25Y 71 72 10YR58 00 M			00M00	00	Y	0	0	0	HKCOAB	FM	P Y Y
	100-120	c	25Y 71 72 75YR58 00 M			00M00	00	Y	0	0	0	HKCOAB	FM	P Y Y
2	0-30	mc1	10YR43 00 00M00- F			00M00-00		0	0	0				
	30-40	hc1	10YR43 00 75YR56 00 C			00M00	00	Y	0	0	0	M		
	40-65	hc1	10YR53 00 75YR56 00 C			00M00	00	Y	0	0	0	M		
	65-120	zc	10YR63 64 10YR58 00 M			00M00	00	Y	0	0	0	P	Y	
2P	0-29	mc1	10YR52 00 10YR58 00 C					Y	0	0	0			AT BORING 9
	29-52	hc1	10YR52 62 10YR58 00 C			-	Y	0	0	0	0	MDCSAB	FM	M FEW MN CONCS
	52-100	hc1	10YR61 62 75YR58 00 C			00M00	00	Y	0	0	0	MDCSAB	FR	M
	100-120	c	10YR51 00 10YR58 00 C			00M00	00	Y	0	0	0	MASSVE	FM	P Y Y
3	0-28	mc1	10YR61-53 10YR58 00 C			-	Y	0	0	0				FEW MN CONCS
	28-45	hzc1	10YR62 00 10YR58 00 C			-	Y	0	0	0		M		FEW MN CONCS
	45-120	hc1	10YR61 00 10YR58 00 C			00M00	00	Y	0	0	0	P	Y	FIRM/DENSE
4	0-32	mc1	10YR61 53 10YR56 00 C			-	Y	0	0	0				FEW MN CONCS
	32-70	mc1	10YR62 63 10YR46 58 M			00M00	00	Y	0	0	HR	2	M	MCL +FINE SAND
	70-100	mc1	10YR61 71 75YR58 00 M			00M00	00	Y	0	0	0	M		
	100-120	hc1	10YR72 71 75YR58 00 M			00M00	00	Y	0	0	0	P	Y	FIRM/DENSE
6	0-30	mzc1	10YR53 00 10YR56 00 C					Y	0	0	0			
	30-68	mzc1	10YR62 00 10YR56 00 C			00M00	00	Y	0	0	0	M		
	68-75	hzc1	10YR62 72 10YR56 00 C			00M00	00	Y	0	0	0	M		
	75-100	mzc1	10YR61 71 75YR58 00 M					Y	0	0	0	M		
	100-120	zc	10YR71 00 75YR58 00 M					Y	0	0	0	P	Y	
7	0-29	mc1	10YR53 61 10YR56 00 C			-	Y	0	0	0				FEW MN CONCS
	29-58	hc1	10YR62 63 10YR58 00 M			00M00	00	Y	0	0	HR	2	M	
	58-92	hc1	10YR72 62 75YR58 00 M			00M00	00	Y	0	0	0	P	Y	FIRM/DENSE
	92-120	hzc1	10YR71 72 75YR58 00 M			00FE00-00	Y	0	0	0	0	P	Y	
8	0-30	mc1	10YR43 00 10YR58 00 F						0	0	0			
	30-70	hc1	10YR43 53 10YR58 00 C			00M00	00	S	0	0	0	M		SLIGHTLY SANDY
	70-120	hc1	10YR53 63 10YR58 00 C			00M00	00	Y	0	0	0	M		BORDER SCL
9	0-25	mc1	10YR42 00 10YR58 00 C			10YR61	00	Y	0	0	0			
	25-50	hc1	10YR53 00 75YR58 00 C			10YR71	00	Y	0	0	0	M		
	50-73	hc1	10YR71 00 10YR58 00 M			00M00-00	Y	0	0	0	0	M		NOT SPL-SEE 2P
	73-120	c	10YR71 00 75YR56 00 M					Y	0	0	0	P	Y	