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DOVER DISTRICT LOCAL PLAN-OBJECTOR SITES LAND AT ASH, KENT (INCLUDING OBJECTOR SITES 11 AND 13).

Agricultural Land Classification
ALC Map and Report

June 1998

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

DOVER DISTRICT LOCAL PLAN - OBJECTOR SITES
LAND AT ASH, KENT,
INCLUDING OBJECTOR SITES 11 AND 13.

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 12.4 ha of land to the north of the village of Ash, in Kent. The survey was carried out during June 1998.

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), in connection with its statutory input to the Dover District Local Plan. The survey covers two objector sites, numbers 11 and 13 (Queen's Road and Chequer Lane, respectively). In order to provide a context for appraising the current objector sites further, adjacent land was also surveyed. 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 land to the west of Chequer Lane was in cereals. Land to the east of Queen's Road was in a variety of uses, namely potatoes, brassicas, beans and horticultural crops. The areas mapped as 'Other land' comprise a track, farm buildings and a residential dwelling.

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 objector sites and all of the surveyed land are summarised in Tables 1 to 3 inclusive.

7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. In total, 12 borings and two soil pits were described.

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

Table 1: Area of grades - Objector Site 11

Grade/Other land	Area (hectares)	% surveyed area	% site area
1	1.2	48.0	42.9
2	1.3	52.0	46.4
Other land	0.3	-	10.7
Total surveyed area	2.5	100.0	89.3
Total site area	2.8	-	100.0

Table 2: Area of grades - Objector Site 13

Grade/Other land	Area (hectares)	% site area
2	2.8	100.0
Total site area	2.8	100.0

Table 3: Area of grades and other land - Land at Ash

Grade/Other land	Area (hectares)	% surveyed area	% site area
1	3.3	27.3	26.6
2	8.8	72.7	71.0
Other land	0.3	-	2.4
Total surveyed area	12.1	100.0	97.6
Total site area	12.4	-	100.0

8. Much of the land to the east of Queen's Road has been classified as Grade 1 (excellent quality). The remainder of agricultural land at Ash has been classified as Grade 2 (very good quality). Where Grade 1 land is mapped, the soils are deep and comprise light loamy textured topsoils over similarly textured subsoils. The soils are either stoneless or very slightly stony and, despite the dry locality, the reserves of soil available water are high and will be sufficient to meet crop needs throughout the growing season in most years. As a result, this land has no or very minor limitations to agricultural use and is suitable for a very wide range of agricultural or horticultural crops.

9. Where Grade 2 land is mapped, the soils are also deep but have a higher clay content and comprise medium silty topsoils overlying similar subsoils. These soils have a slightly lower available moisture content, compared with the land in Grade 1. Given the dry local climate, this acts to impart slight soil droughtiness which may act to slightly lower the level and consistency of crop yields.

FACTORS INFLUENCING ALC GRADE

Climate

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

11. The key climatic variables used for grading this site are given in Table 4 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

Table 4: Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	TR 286 589	TR 290 588
Altitude	m, AOD	20	18
Accumulated Temperature	day°C (Jan-June)	1470	1473
Average Annual Rainfall	mm	673	671
Field Capacity Days	days	137	136
Moisture Deficit, Wheat	mm	125	125
Moisture Deficit, Potatoes	mm	123	124
Overall climatic grade	N/A	Grade 1	Grade 1

12. 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.

13. 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.

14. The combination of rainfall and temperature within this survey area means that there is no overall climatic limitation. However, climatic factors do interact with soil properties to influence soil wetness and soil droughtiness. At this locality, the climate is relatively dry in national terms. As a result the likelihood of soil droughtiness problems may be increased. No local climatic factors, such as exposure or frost risk, are believed to adversely affect the land quality on the site. This site is climatically Grade 1.

Site

15. The survey area lies between approximately 18m and 20m AOD and is mostly flat, with discrete areas that are gently sloping (1-2°). Nowhere on the site do gradient or microrelief adversely affect agricultural land quality.

Geology and soils

16 The most detailed published geological information for this area (BGS, 1977) shows the entire site to comprise drift deposits of head brickearth over Thanet Beds.

17. The most recent published soils information covering the area (SSEW, 1983) shows the site to comprise soils of the Hamble 1 Association. These soils are described as 'Deep, well drained often stoneless fine silty soils. Some similar soils affected by groundwater and some fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging.' (SSEW, 1983). These soils are similarly described in Soils of Kent, (SSEW, 1980).

AGRICULTURAL LAND CLASSIFICATION

18. The details of the classification of the survey area are shown on the attached ALC map and the area statistics of each grade are given in Tables 1-3.

19. 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 1

20. Grade 1, excellent quality, land occurs to the east of Queen's Road. This land has no or very minor limitations to agricultural use. Profiles comprise non-calcareous fine sandy silt loam topsoils which overlie similarly textured or, occasionally, medium silty clay loam subsoils. Topsoils are very slightly stony, containing 0-3% total flints (all of which are smaller than 2 cm). Subsoils have a similar stone content. Some of these profiles are gleyed within 40 cm, and as such are assessed as moderately well drained (Wetness Class II). Other profiles show no evidence of any drainage impedance and have been assessed as well drained (Wetness Class I). All subsoils are moderately structured and permeable. These profiles are typified by Pit 2 (see Appendix II).

21. Even where the profiles are moderately well drained, the combination of light loamy topsoil textures and the dry prevailing climate means that this land has no or very minor restrictions on the flexibility of cropping, stocking and cultivations. In addition, the fine sand content of the topsoils means that these profiles have high reserves of soil available water to support a wide range of agricultural or horticultural crops throughout the growing season in most years. Consequently Grade 1 is appropriate.

Grade 2

22. Land classified as Grade 2, very good quality, has minor soil droughtiness limitations. Profiles typically comprise non-calcareous medium silty clay loam topsoils and subsoils. The topsoils are stoneless to very slightly stony, containing 0-2% flints larger than 2 cm and 0-7% total flints by volume. Subsoils have a similar stone content. These profiles tend to be well drained (Wetness Class I), with some profiles being gleyed at 75-85 cm depth. All of these subsoils are permeable and moderately structured. These profiles are represented by Pit 1. In comparison to the land classified as Grade 1, the presence of medium silty clay loam topsoils, rather than fine sandy silt loam textures, means that at this dry locality this land has slightly

lowered amounts of profile available water for uptake by crop roots. The resulting soil droughtiness limitation means that this land may have slightly lower and less consistent crop yields.

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SOURCES OF REFERENCE

British Geological Survey (1977) *Sheet No.* 290, Dover, *1:63,360, Solid and Drift Ed.*
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 (1980) *Soils of Kent, Soil Survey Bulletin No. 9.*
SSEW: Harpenden

Soil Survey of England and Wales (1983) *Sheet 6, Soils of South East England, 1:250,000.*
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:

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. **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	**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. **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	**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

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	TR28405890	WHT					1	1	158	33	122	-1	2				DR	2	Potatoes limit
2	TR28505890	WHT					1	1	152	27	118	-5	2				DR	2	Potatoes limit
3	TR28605890	WHT					1	1	162	37	126	3	2				DR	2	Potatoes limit
4	TR28705890	WHT					1	1	161	36	125	2	2				DR	2	Potatoes limit
5	TR28905890	POT	SE	2	85		1	1	181	56	135	12	1					1	
6	TR28305880	WHT					1	1	160	35	124	1	2				DR	2	Potatoes limit
7	TR28405880	WHT	SW	2			1	1	161	36	125	2	2				DR	2	Potatoes limit
8	TR28905880	POT			75		1	1	161	36	125	2	2				DR	2	Potatoes limit
9	TR29005880	BRA	SE	1			1	1	212	87	149	26	1					1	
10	TR29105880	HRT			32		2	1	209	84	147	24	1					1	
11	TR28305870	WHT					1	1	160	35	124	1	2				DR	2	Potatoes limit
12	TR29105870	BNS			30		2	2	157	32	122	-1	2				WD	2	Potatoes limit
1P	TR28605890	WHT					1	1	162	37	126	3	2				DR	2	Potatoes limit
2P	TR29025876	HRT	SE	1	36		2	1	188	63	145	22	1					1	Pit95 Augd120

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	
1	0-28	MZCL	10YR42						1	0	HR	5							
	28-70	MZCL	10YR53						0	0		0		M				Y	
	70-120	MZCL	10YR54						0	0		0		M				Y	
2	0-30	MZCL	10YR42						2	0	HR	6							
	30-50	MZCL	10YR53						0	0	HR	5		M					
	50-85	MZCL	10YR54						0	0	HR	7		M					
	85-120	MZCL	10YR66						0	0	HR	7		M					
3	0-36	MZCL	10YR42						0	0		0							
	36-60	MZCL	10YR53						0	0		0		M					
	60-120	MZCL	10YR53						0	0		0		M					
4	0-28	MZCL	10YR42						0	0		0							
	28-45	MZCL	10YR54						0	0		0		M					
	45-120	MZCL	10YR53						0	0		0		M					
5	0-35	FSZL	10YR42						0	0	HR	2							
	35-55	MZCL	10YR44 54						0	0		0		M					
	55-85	MZCL	10YR44 54	10YR56	C	F		S	0	0		0		M					Slightly gleyed
	85-100	FSZL	10YR53	10YR56	C	F		Y	0	0		0		M					
	100-120	MSL	10YR53	10YR56	C	F		Y	0	0		0		M					
6	0-26	MZCL	10YR43						0	0		0							
	26-120	MZCL	10YR44						0	0		0		M					
7	0-35	MZCL	10YR43						0	0	HR	2							
	35-85	MZCL	10YR44						0	0		0		M					
	85-120	MZCL	10YR44						0	0		0		M					
8	0-35	MZCL	10YR42						0	0	HR	2							
	35-75	MZCL	10YR54						0	0		0		M					
	75-120	MZCL	10YR54	10YR56	C	F		Y	0	0		0		M					
9	0-35	FSZL	10YR42						0	0	HR	2							
	35-75	FSZL	10YR44 54						0	0		0		M					
	75-120	FSZL	10YR54	10YR66	F	F			0	0		0		M					
10	0-32	FSZL	10YR42						0	0	HR	2							
	32-90	FSZL	25Y 52 63	10YR56	C	D		Y	0	0	HR	2		M					
	90-120	FSZL	25Y 62	10YR4658	M	D		Y	0	0	HR	2		M					
11	0-30	MZCL	10YR43						0	0	HR	2							
	30-50	MZCL	10YR43						0	0		0		M					
	50-70	MZCL	10YR44 56						0	0		0		M					
	70-120	MZCL	10YR56						0	0		0		M					
12	0-30	MZCL	10YR32 42						0	0	HR	2							
	30-70	MZCL	25Y 52 63	10YR56	C			Y	0	0	HR	3		M				Y	
	70-120	MZCL	10YR52	10YR4658	M	D		Y	0	0	HR	2		M				Y	

				----MOTTLES-----			PED		----STONES----			STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
1P	0-35	MZCL	10YR43						0	0		0						
	35-60	MZCL	10YR44						0	0		0	MDCSAB	FR	M			
	60-87	MZCL	10YR44						0	0		0	MDCPR	FR	M			Columnar
	87-120	MZCL	10YR54						0	0		0			M			
2P	0-36	FSZL	10YR32 42						0	0	HR	3		FR				
	36-76	FSZL	25Y 53 63 10YR56	C	D			Y	0	0	HR	2	MDCSAB	FR	M	N		
	76-120	FSZL	25Y 62 63 10YR58	M	D		10YR53	Y	0	0	CH	3	MDCSAB	FR	M			