

**AGRICULTURAL LAND  
CLASSIFICATION REPORT**

**SWALE BOROUGH LOCAL PLAN**

**LAND AT MINSTER, SITE 11**

# AGRICULTURAL LAND CLASSIFICATION REPORT

## SWALE BOROUGH LOCAL PLAN LAND AT MINSTER, SITE 11 AGRICULTURAL LAND CLASSIFICATION

### Summary

- 1 1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality on land at Minster site 11. This work was in connection with Swale Borough Local Plan.
- 1 2 Approximately 29 hectares of land relating to this area was surveyed in July 1994. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 27 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 Huntingdon Statutory Group of ADAS.
- 1 4 At the time of the survey the agricultural land use was permanent pasture and rough grazing. The Non-agricultural area includes scrub and the area of Urban included hard tracks, dwellings and sheds.
- 1 5 Previous ALC field survey work has been carried out at nearby sites 3(2011/102/93), 5(2011/103/93) and 16A(2011/100/93) Swale Borough Local Plan. All three sites were mapped as subgrade 3b land.
- 1 6 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**

<b>Grade</b>	<b>Area (ha)</b>	<b>% of Site</b>	<b>% of Agricultural Area</b>
Subgrade 3a	10.7	37.5	40.8
Subgrade 3b	15.5	54.4	59.2
Non Agricultural	0.8	2.8	
Urban	1.5	5.3	
<b>Total</b>	<b>28.5 ha</b>	<b>100%</b>	<b>100% (26.2ha)</b>

- 1 7 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 8 The land quality on the site has been classified as subgrades 3a and 3b (good and moderate quality land respectively). Subgrade 3a land is subject to moderate wetness and workability limitations together with moderate droughtiness imperfections. The subgrade 3b land is limited by more significant wetness/workability constraints with a small area also limited by gradient.
- 2 0 **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 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 an overall climatic grade 1.

**Table 2 Climatic Interpolation**

Grid Reference	TQ 960 726
Altitude (m, AOD)	50
Accumulated Temperature (° C days Jan-June)	1438
Average Annual Rainfall (mm)	554
Field Capacity Days	99
Moisture Deficit wheat (mm)	125
Moisture Deficit, potatoes (mm)	122
Overall Climatic Grade	1

- 3 0 **Relief**
- 3 1 From a broad flat area at approximately 25m AOD on the south western edge of the site the land rises in a north easterly direction to approximately 55m AOD and then levels towards the dwellings on the north eastern edge. Slopes were measured at 6° over most of this area although on the eastern side localised slopes were measured at 8° using a hand held clinometer. Gradient therefore imposes a limitation in this small area.
- 4 0 **Geology and Soils**
- 4 1 The published geology map for the site area, (BGS 1977 Sheet 272 Chatham) shows the site to be underlain by London Clay with Bagshot and Claygate Beds in both the north east and north west corners of the site.

4 2 The published soils information for the area (SSEW 1983 Sheet 6 1 250 000) shows the majority of the site to comprise Windsor Association soils. These are described as slowly permeable seasonally waterlogged clayey soils. A small area to the north east comprises Burlesdon Association soils which are described as deep fine loamy soils with slowly permeable subsoils.

#### 5 0 **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 The north eastern part of the site has been mapped as subgrade 3a land. Soils typically comprise non calcareous very slightly stony medium clay loam (occasionally heavy clay loam) topsoils. Upper subsoils comprise heavy clay loam merging to clay at depth. Wetness class has been assessed as II or III depending on the depth to the horizons with impeded drainage typically 30/55cms. The combination of topsoil textures and wetness class restrict the land to subgrade 3a as a result of moderate wetness and workability limitations. These soils also suffer from a moderate droughtiness limitation because soil moisture reserves may be inadequate to meet the demands of a growing crop throughout the year. Within the land graded 3a, areas of grade 2 land occur but they are too small to delineate separately.

#### **Subgrade 3b**

5 4 The remainder of the land has been mapped as subgrade 3b. Soils typically comprise non calcareous very slightly stony heavy clay loam topsoils over stoneless non calcareous slowly permeable clays from typically 25/35cms. Wetness class has been assessed as III due to impeded drainage directly below the topsoil. Together with the heavy textured topsoils this excludes the land from a higher grade due to wetness and workability limitations. A small area of land to the east of Gilbert Hall Farm has been mapped as subgrade 3b due to gradients of 8° measured using a hand held clinometer.

#### **Non Agricultural**

5 5 The non-agricultural land comprises areas of abandoned pasture with scrub and thistle infestations.

**Urban**

5 6 Areas of urban include hard tracks dwellings and gardens and sheds attached to rear of properties

ADAS Reference 2011/178/94  
MAFF Reference EL 20/245

Resource Planning Team  
Huntingdon Statutory Group  
ADAS Cambridge

## REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES 1977  
Sheet 272 Chatham Drift Edition, 1 63 360 scale

MAFF 1968 Agricultural Land Classification Map No 172 1 63 360 scale

MAFF 1988 Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for Grading the Quality of Agricultural Land) Alnwick

METEOROLOGICAL OFFICE 1989 Published climatic data extracted from the agroclimatic dataset compiled by the Meteorological Office

SOIL SURVEY OF ENGLAND AND WALES 1983 Soils of South East England  
Sheet 6 1 250 000 scale

## Appendix 1

### **DESCRIPTION OF THE GRADES AND SUBGRADES**

The ALC grades and subgrades are described below in terms of the types of limitation which can occur typical cropping range and the expected level of consistency of yield. In practice the grades are defined by reference to physical characteristics and the grading guidance and cut-offs for limitation factors in Section 3 enable land to be ranked in accordance with these general descriptions. The most productive and flexible land falls in Grades 1 and 2 and Subgrade 3a and collectively comprises about one-third of the agricultural land in England and Wales. About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4. Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where farmland predominates. The remainder is very poor quality land in Grade 5 which most occurs in the uplands.

#### **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 include 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 and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable crops. The level of yield is generally high but may be lower or more variable than Grade 1.

#### **Grade 3 - good to moderate quality agricultural land**

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where 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 levels of yields It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yield of which are variable In most 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 very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops

### **Descriptions of other land categories used on ALC maps**

#### **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/airfields 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 (e.g. polythene tunnels erected for lambing) may be ignored

### **Open water**

Includes lakes, ponds and rivers as map scale permits

### **Land not surveyed**

Where the land use includes more than one of the above land cover types e.g. buildings in large grounds and where map scale permits the cover types may be shown separately Otherwise, the most extensive cover type will usually be shown

## Appendix 2

### **FIELD ASSESSMENT OF SOIL WETNESS CLASS**

#### **Definition of Soil Wetness Classes**

<b>Wetness Class</b>	<b>Duration of Waterlogging<sup>1</sup></b>
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years <sup>2</sup>
II	The soil profile is wet within 70 cm depth for 31-90 days in most years <i>or</i> , if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days but not wet within 40 cm depth for more than 30 days in most years
III	The soil profile is wet within 70 cm depth for 91-180 days in most years <i>or</i> , if there is no slowly permeable layer 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 and 90 days in most years
IV	The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years <i>or</i> , if there is no slowly permeable layer 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

<sup>1</sup> The number of days specified is not necessarily a continuous period

<sup>2</sup> 'In most years' is defined as more than 10 out of 20 years

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEYSPL	- WEINNESS -		-WHEAT-		POTS		M REL		EROSN	FROST EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
						CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD						
2	TQ95807290	FLW	N	02	030 050	3	3A	132	7	107	15	3A					WE	3A	DR TOO
3	TQ95707280	FLW	N		030 050	3	3A	132	7	107	-15	3A					WE	3A	DR TOO
4	TQ95807280	FLW	NE	01	030 030	3	3B	123	-2	102	-20	3A					WE	3B	
5	TQ95907280	PGR	NE	02	030 030	3	3B	127	2	104	-18	3A					WE	3B	
7	TQ95707270	PGR	SW	05	035 035	3	3B	128	3	105	-17	3A					WE	3B	
8	TQ95807270	PGR	SW	01	030 030	3	3B	128	3	105	-17	3A					WE	3B	
9	TQ95907270	PGR	E		035 035	3	3B	127	2	104	-18	3A					WE	3B	
10	TQ96007270	FLW	W	03	030 050	3	3A	133	8	110	-12	3A					WE	3A	DR TOO
11	TQ96107270	PGR	S		030 050	3	3A	132	7	107	-15	3A					WE	3A	DR TOO
13	TQ96307270	PGR	S		025 025	3	3B	127	2	104	-18	3A					WE	3B	
14	TQ95607260	PGR	SW	01	035 035	3	3B	126	1	104	-18	3A					WE	3B	
15	TQ95707260	PGR	SW	01	030 030	3	3B	123	-2	101	-21	3A					WE	3B	
16	TQ95807260	PGR	SW	05	035 035	3	3B	131	6	108	-14	3A					WE	3B	
17	TQ95907260	PGR	SW	01	035 035	3	3B	130	5	107	-15	3A					WE	3B	
17P	TQ95907260	PGR	E	02	033 033	3	3B	129	4	106	-16	3A					WE	3B	
18	TQ96007260	PGR	SW	01	045 055	2	3A	137	12	115	-7	2					WE	3A	
20	TQ96207260	PGR	S		025 025	3	3A	135	10	113	9	2					WE	3A	
20P	TQ96207260	PGR	E	02	000 000	1	1	161	36	117	-5	2					DR	2	
21	TQ96307260	PGR	S	02	075 075	2	2	143	18	118	-4	2					WE	2	DR TOO
22	TQ95807250	PGR	S	02	030 030	3	3B	127	2	104	-18	3A					WE	3B	
23	TQ95907250	PGR	S	03	030 030	3	3B	129	4	106	-16	3A					WE	3B	
24	TQ96007250	PGR	S	03	030 050	3	3B	135	10	112	-10	2					WE	3B	
25	TQ96107250	PGR	S	04	000 000	1	1	123	-2	103	-19	3A					DR	3A	
26	TQ96207250	PGR	S	05	050 060	2	3A	138	13	114	-8	2					WE	3A	
27	TQ96307250	PGR	S	02	030 030	3	3A	129	4	106	-16	3A					WE	3A	DR TOO
28	TQ96407250	PGR	NW	02	030 050	3	3A	135	10	112	-10	2					WE	3A	
29	TQ96007240	PGR	SW	01	025 025	3	3B	124	-1	101	-21	3A					WE	3B	
30	TQ96107240	PGR	SW	01	025 025	3	3B	126	1	103	-19	3A					WE	3B	
31	TQ96207240	PGR	SW	01	030 030	3	3B	128	3	105	-17	3A					WE	3B	

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES----		PED CONT	----STONES----		STRUCT/ CONSIST	SUBS			CALC	
				COL	ABUN		GLEY	>2 >6 LITH		TOT	STR	FOR		IMP
2	0-30	mcl	10YR42 00	-		-	5	0	HR	5				
	30-50	hcl	10YR43 00	10YR56 00	C	10YR53 00	Y	0	0	0	M			
	50-120	hcl	10YR43 00	10YR56 00	C	10YR52 00	Y	0	0	0	P	Y	Y	
3	0-30	mcl	10YR43 00				5	0	HR	5				
	30-50	hcl	10YR54 00	10YR56 00	C	10YR53 00	Y	0	0	0	M			
	50-120	hcl	10YR54 00	10YR56 00	C	10YR53 00	Y	0	0	0	P	Y	Y	
4	0-30	hcl	10YR42 00				4	0	HR	4				
	30-120	c	75YR46 00	75YR58 00	C	75YR53 00	Y	0	0	HR	5	P	Y	Y
5	0-30	hcl	10YR42 00				2	0	HR	2				
	30-120	c	10YR43 00	10YR46 00	C	10YR51 00	Y	0	0	HR	2	P	Y	Y
7	0-25	hcl	10YR43 00				2	0	HR	2				
	25-35	c	10YR43 00	10YR46 00	F		0	0	HR	3	M	Y		
	35-120	c	10YR53 00	10YR68 61	C		Y	0	0	HR	1	P		Y
8	0-30	hcl	10YR43 00				1	0	HR	1				
	30-120	c	10YR53 00	10YR68 00	C	10YR52 00	Y	0	0	HR	1	P	Y	Y
9	0-35	hcl	10YR43 00				4	0	HR	4				
	35-120	c	10YR51 00	10YR58 00	C		Y	0	0	HR	4	P	Y	Y
10	0-30	mcl	10YR43 00				2	0	HR	2				
	30-50	hcl	10YR43 00	10YR56 00	C	10YR53 00	Y	0	0	HR	2	M		
	50-120	c	10YR43 00	10YR56 00	C	10YR52 00	Y	0	0	0	P	Y	Y	
11	0-30	mcl	10YR43 00				5	0	HR	5				
	30-50	hcl	10YR54 00	10YR56 00	C	10YR53 00	Y	0	0	0	M			
	50-120	hcl	10YR54 00	10YR56 00	C	10YR53 00	Y	0	0	0	P		Y	
13	0-25	hcl	10YR53 00				0	0		0				
	25-120	c	10YR54 00	10YR56 00	C	10YR53 00	Y	0	0	0	P		Y	
14	0-35	hcl	10YR43 00				4	0	HR	4				
	35-120	c	10YR53 00	10YR66 51	C		Y	0	0	HR	5	P	Y	Y
15	0-30	hcl	10YR43 00				5	0	HR	5				
	30-120	c	10YR53 00	10YR68 51	C		Y	0	0	HR	5	P	Y	Y
16	0-35	hcl	10YR43 00				3	0	HR	0				
	35-120	c	10YR53 00	10YR58 00	C	10YR51 00	Y	0	0	HR	1	P		Y
17	0-35	hcl	10YR43 00				2	0	HR	2				
	35-120	c	10YR53 00	10YR56 51	C		Y	0	0	HR	1	P		Y
17P	0-33	hcl	10YR43 00				2	0	HR	2			Y	
	33-120	c	10YR53 00	10YR56 51	C	10YR51 00	Y	0	0	HR	1	MDCAB	VF	P

SAMPLE	DEPTH	TEXTURE	COLOUR	--- MOTTLES ---			PED COL	--- STONES ---			STRUCT/ CONSIST	SUBS		SPL	CALC		
				COL	ABUN	CONT		GLE	>2	>6		LITH	TOT			STR	FOR
18	0-45	hcl	10yr43-00					N	2	0	HR	2			N	N	
	45-55	c	10yr44-00 10yr68-	C				N	0	0		0	M		N	N	
	55-120	c	10yr53 00 10yr68-	C				Y	0	0		0	P	Y		Y	
20	0-25	mcl	10YR43 00						0	0		0					
	25-60	c	10YR54 00 10YR56 00	C				10YR53 00	Y	0	0	0	M			Y	
	60-120	mcl	10YR54 00 10YR56 00	C				10YR53 00	Y	0	0	0	P			Y	
20P	0-35	mcl	10YR43 00						0	0		0					
	35-60	scl	10YR54 00 10YR56 00	F					0	0	HR	1	WKCSAB FM	M	Y		
	60-120	mszl	10YR66 00						0	0		0	WKCSAB FM	M	Y		
21	0-30	mcl	10YR43 00						0	0		0					
	30-75	hcl	10YR43 00 10YR56 00	F				10YR42 00		0	0	0	M				
	75-120	hcl	10YR43 00 10YR56 00	C				10YR42 00	Y	0	0	0	P			Y	
22	0-30	hcl	10YR43 00						2	0	HR	2					
	30-120	c	10YR42 00 10YR56 00	C				10YR52 00	Y	0	0	HR	2	P	Y	Y	
23	0-30	hcl	10YR43 00						0	0		0					
	30-120	c	10YR42 00 10YR56 00	C				10YR52 00	Y	0	0	0	P	Y		Y	
24	0-30	hcl	10YR43 00						0	0		0					
	30-50	hcl	10YR42 00 10YR56 00	C				10YR52 00	Y	0	0	0	M				
	50-120	c	10YR42 00 10YR56 00	C				10YR52 00	Y	0	0	0	P	Y		Y	
25	0-30	mcl	10YR43 00						0	0	HR	0					
	30-45	mcl	10YR43 00						0	0		0	M				
	45-120	mcl	10YR43 00						0	0	HR	20	P				
26	0-30	hcl	10YR42 00						0	0		0					
	30-50	hcl	10YR54 00 10YR56 00	F					0	0		0	M				
	50-60	hcl	10YR53 00 10YR56 00	C					Y	0	0	0	M				
	60-120	hcl	10YR53 00 10YR56 00	C					Y	0	0	0	P			Y	
27	0-30	mcl	10YR43 00						0	0		0					
	30-120	c	10YR42 00 10YR46 00	C					Y	0	0	0	P			Y	
28	0-30	mcl	10YR43 00						0	0		0					
	30-50	hcl	10YR54 00 10YR56 00	C				10YR53 00	Y	0	0	0	M	Y			
	50-120	c	10YR54 00 10YR58 00	C				10YR53 00	Y	0	0	0	P	Y		Y	
29	0-25	c	10yr42-00	-				N	1	0	HR	1				N	
	25-120	c	10yr41-00 10yr58-	C				Y	0	0		0	P	Y	N	Y	N
30	0-25	hcl	10yr43-00						2	0	HR	2			N	N	N
	25-120	c	10yr53-00 10yr53-	C				10yr51-	Y	0	0	0	P	Y	N	Y	N

program ALC011

COMPLETE LIST OF PROFILES 08/22/94 MINSTER SITE 11 SWALELP

page 3

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---			PED COL	----STONES---			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLE	>2	>6		LITH	TOT	STR	FOR	IMP	SPL
31	0 30	hc1	10yr43-00					N	1	0	HR	1		N	N	N	N
	30 120	c	10yr53-00	75yr68-	C		10yr61-	Y	0	0		0	P	N	N	Y	N

Appendix 3

**SOIL BORING AND SOIL PIT DESCRIPTIONS**

Contents

- \* Soil boring descriptions
- \* Soil pit descriptions
- \* Soil Abbreviations Explanatory Note

## SOIL PIT DESCRIPTION

SITE 11 MINSTER Pit 1 (nr AB 17)

G.R.	TQ 9590 7260	AAR	554 mm
		ATO	1438° C days
		FCD	99 days
		Land Use	permanent pasture
		Slope & Aspect	1° south west

Horizon	Texture	Colour	Stones >2	Tot Stone	Mottles	Structure
0-33	HCL	10YR4/3	2	3	-	-
33-120	C	10YR5/3	-	1	C	MDCAB

Wetness Grade	3b	Wetness class	III
		Gleying	33cm
		SPL	33cm

Drought Grade	3a	APW = 129 mm	MBW = 4 mm
		APP = 106 mm	MBP = -16 mm

Final ALC grade	3b
Limitations	Wetness and workability



## SOIL PIT DESCRIPTION

SITE 11 MINSTER Pit 2 (nr AB 20)

G R.	TQ 9620 7260	AAR	554 mm
		ATO	1438° C days
		FCD	99 days
		Land Use	permanent grass
		Slope & Aspect	1° east

Horizon	Texture	Colour	Stones >2	Tot Stone	Mottles	Structure
0-35	MCL	10YR4/3	2	2	-	-
35-60	SCL	10YR5/4	-	1	F	WKCSAB
60-120	MSZL	10YR6/6	-	1	-	WKCSAB

Wetness Grade	1	Wetness class	I
		Gleying	None
		SPL	None

Drought Grade	2	APW = 161 mm	MBW = 36 mm
		APP = 117 mm	MBP = -5 mm

Final ALC grade	2
Limitations	Droughtiness

## Appendix 3 (Cont)

### **SOIL PROFILE DESCRIPTIONS EXPLANATORY NOTE**

Soil profile and pit information obtained during ALC surveys is held on a database. This has commonly used notations and abbreviations as set out below.

#### **BORING HEADERS**

1 **GRID REF** National grid square followed by 8 figure grid reference

2 **USE** Land-use at the time of survey  
The following abbreviations are used

ARA - arable	PAS/PGR - permanent pasture
WHT - wheat	RGR - rough grazing
BAR - barley	LEY - ley grassland
CER - cereals	CFW - coniferous woodland
OAT - oats	DCW - deciduous woodland
MZE - maize	SCR - scrub
OSR - oilseed rape	HTH - heathland
BEN - field beans	BOG - bog or marsh
BRA - brassicae	FLW - fallow
POT - potatoes	PLO - ploughed
SBT - sugar beet	SAS - set-aside
FDC - fodder crops	OTH - other
FRT - soft and top fruit	LIN - linseed
HOR/HRT - horticultural crops	

3 **GRDNT** Gradient as measured by optical reading clinometer

4 **GLEYSPL** Depth in centimetres (cm) to gleyed and/or slowly permeable horizons

5 **AP (WHEAT/POTS)** Crop-adjusted available water capacity. The amount of soil water (in millimetres) held in the soil profile that is available to a growing crop (wheat and potatoes are used as reference crops)

6 MB (WHEAT/POTS) The moisture balance for wheat and potatoes obtained by subtracting the soil moisture deficit from the crop-adjusted available water capacity

7 DRT Grade according to soil droughtiness assessed against soil moisture balances

8 M REL Micro-relief )  
FLOOD Flood risk ) If any of these factors are  
EROSN Soil erosion ) considered significant in terms of  
EXP Exposure ) the assessment of agricultural land  
FROST Frost prone ) quality a 'y' will be entered in the  
DIST Disturbed land ) relevant column  
CHEM Chemical limitation )

9 LIMIT Principal limitation to agricultural land quality  
The following abbreviations are used

OC - overall climate	CH - chemical limitations
AE - aspect	WE - wetness
EX - exposure	WK - workability
FR - frost	DR - drought
GR - gradient	ER - erosion
MR - micro-relief	WD - combined soil wetness/soil droughtiness
TX - soil texture	ST - topsoil stoniness
DP - soil depth	

## PROFILES AND PITS

1 TEXTURE Soil texture classes are denoted by the following abbreviations

S	- sand
LS	- loamy sand
SL	- sandy loam
SZL	- sandy silt loam
ZL	- silt loam
MZCL	- medium silty clay loam
MCL	- medium clay loam
SCL	- sandy clay loam
HZCL	- heavy silty clay loam
HCL	- heavy clay loam
SC	- sandy clay
ZC	- silty clay
C	- clay

For the sand loamy sand sandy loam and sandy silt loam classes the predominant size of sand fraction may be indicated by the use of prefixes

- F - fine (more than  $\frac{2}{3}$  of the sand less than 0.2 mm)
- C - coarse (more than  $\frac{1}{3}$  of sand greater than 0.6 mm)
- M - medium (less than  $\frac{2}{3}$  fine sand and less than  $\frac{1}{3}$  coarse sand)

The sub-divisions of clay loam and silty clay loam classes according to clay content are indicated as follows

- M - medium (less than 27% clay)
- H - heavy (27-35% clay)

Other possible texture classes include

OL - organic loam

P - peat

SP - sandy peat

LP - loamy peat

PL - peaty loam

PS - peaty sand

MZ - marine light silts

2 MOTTLE COL Mottle colour

3 MOTTLE ABUN Mottle abundance

F - few - less than 2% of matrix or surface described

C - common - 2-20% of the matrix

M - many - 20-40% of the matrix

VM - very many - 40% + of the matrix

4 MOTTLE CONT Mottle continuity

F - faint - indistinct mottles evident only on close examination

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

6 STONE LITH Stone lithology One of the following is used

HR - all hard rocks or stones

MSST - soft medium or coarse grained sandstone

SI - soft weathered igneous or metamorphic

SLST - soft oolitic or dolomitic limestone

FSST - soft *fine grained sandstone*

ZR - soft argillaceous or silty rocks

CH - chalk

GH - gravel with non-porous (hard) stones

GS - gravel with porous (soft) stones

Stone contents (>2 cm >6 cm and total) are given in percentages (by volume)

- 7 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 well developed

- ped size F - fine  
M - medium  
C - coarse  
VC - very coarse

- ped shape S - single grain  
M - massive  
GR - granular  
SB/SAB - sub-angular blocky  
AB - angular blocky  
PR - prismatic  
PL - platy

- 8 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

- 9 SUBS STR Subsoil structural condition recorded for the purpose of calculating profile droughtiness

G - good  
M - moderate  
P - poor

- 10 POR Soil porosity If a soil horizon has less than 0.5% biopores >0.5 mm, a 'y' will appear in this column
- 11 IMP If the profile is impenetrable a 'y' will appear in this column at the appropriate horizon
- 12 SPL slowly permeable layer If the soil horizon is slowly permeable a 'y' will appear in this column
- 13 CALC If the soil horizon is calcareous a 'y' will appear in this column
- 14 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