APPENDIX 12.1:

MAFF (NOW DEFRA) AGRICULTURAL LAND CLASSIFICATION SURVEY REPORTS

ALC Reports provided by Natural England.

Assessments undertaken by MAFF (now DEFRA)

AGRICULTURAL LAND CLASSIFICATION KINGS ACRE ROAD, HEREFORD

.

.

•

R D Metcalfe Resource Planning Team ADAS Statutory Group WOLVERHAMPTON ADAS Ref: 25/RPT/0336 Job No: 10/94 6

MAFF Ref: EL 17/10379

2

.

AGRICULTURAL LAND CLASSIFICATION REPORT FOR

Kings Acre Road, Hereford

1. SUMMARY

The Agricultural Land Classification (ALC) survey for this site shows that the whole site, covering 6.5 ha, is classified as Grade 1 - "land with no or very minor limitations to agricultural use".

2. INTRODUCTION

- 2.1 The site was surveyed by the Resource Planning Team in February 1994. An Agricultural Land Classification survey was undertaken according to the guidelines laid down in the "Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for Grading the Quality of Agricultural Land" (MAFF 1988).
- 2.2 The site is situated to the west of Hereford, and north of the A438 road. The land immediately to the north, west and east of the site is predominantly in agricultural use.
- 2.3 The survey was requested by MAFF in connection with an ad-hoc development for a cricket ground and houses.
- 2.4 At MAFF Land Use Planning Unit's request this was a detailed grid survey at 1:10000 with a minimum auger boring density of 1 per hectare. The attached map is only accurate at the base map scale and any enlargement would be misleading.
- 2.5 At the time of the survey the site was under winter wheat.

3. CLIMATE

3.1 The following interpolated data are relevant for the site: (SO 481412).

Average Annual Rainfall (mm)	706
Accumulated Temperature above 0°C January to June (days °C)	1447

- 3.2 There is no overall climatic limitation on the site.
- 3.3 Other relevant data for classifying land include:

Field Capacity Days (days)	158
Moisture Deficit Wheat (mm)	104
Moisture Deficit Potatoes (mm)	95

4. SITE

- 4.1 Three site factors of gradient, micro relief and flooding are considered when classifying land.
- 4.2 These factors do not impose any limitations on the agricultural use of the land.

5. **GEOLOGY AND SOILS**

- 5.1 The underlying geology of the area is comprised of Boulder Clay British Geological Survey Sheet 198 scale 1:50000.
- 5.2 The underlying geology influences the soils which have a sandy silt loam texture.

6. AGRICULTURAL LAND CLASSIFICATION

- 6.1 The whole site is classified as Grade 1 land. The soils typically have a sandy silt loam texture to depth; occasionally soils with a medium clay loam texture are present below 40cms. The topsoil stone content meets the requirements for Grade 1.
- 6.2 There are no soil wetness or droughtiness limitations to the agricultural use of the land.

6.3 Summary of Agricultural Land Classification Grades

Grade	Area in Hectares	% of Survey Area		
1	6.5	100.0		
Total	6.5	100.0		





AGRICULTURAL LAND CLASSIFICATION KING'S ACRE ROAD, HEREFORD

The site at King's Acre Road, Hererford was surveyed in detail by the Resource Planning Group in January 1990. The site comprises two fields, one on either side of the lane leading from King's Acre Road to Huntingdon on the western outskirts of Hereford. It covers about 4.5 hectares and was in agricultural use (cereals) at the time of survey.

21/89

Climate

The average annual rainfall in the vicinity of the site is about 703 mm with maxima in August and November and a drier period from February to April. The accumulated temperature above 0°C for the period January to June is 1450 day °C, so there is no overall climatic limitation to the agricultural use of the land. The balance between summer rainfall and evapotranspiration gives moisture deficits of 105 mm for winter wheat and 96 mm for potatoes. The median duration of field capacity is 158 days and the growing season extends to about 250 days from late March until the beginning of December.

Site

The site lies at an altitude of about 64 m_{λ} is level throughout.

Geology

Detailed geological maps are not available, but small scale maps indicate that the area west of Hereford is underlain by Devonian Old Red Sandstone rocks with thick drift deposits of till and outwash. The soils developed from this parent material are deep, red in colour and fine sandy or silty textured.

Agricultural land classification.

<u>Grade 1.</u> Most of the site has been mapped as Grade 1. Soils are deep sandy silt loams, occasionally with sandy clay loam in the subsoil. The soils are slightly stony at the surface but with less than 5% stones and some of the profiles have slightly stonier layers at about 45 cm. Much of this stone is soft weathering sand-

stone. Below about 90 cm stone and gravel content increases. The soils show very few signs of wetness namely occasional manganese concretions and faint ochreous mottles at depths below 70 cm. Across the centre of the larger of the two fields there is a narrow strip of land with rubble, bricks and stones at the surface, indicating the line of a former track

Grade 2. A small area of grade 2 land has been mapped at the southern end of the site. Soils here are slightly heavier than elsewhere on the site with medium clay loam textures and more signs of wetness below 60 cm. The slight wetness limitation and heavier topsoil textures restricts this land to Grade 2.

Area of land in each Grade

Hectares % of Total % of Agricultural area 91 88 3.9 Grade 1 9 9 0.4 Grade 2 3 0.1 NA 100 100 Total 4.4

Site

The site lies at an altitude of about 54 m is level throughout.

Geology

area west of Hereford is underlain by Devonian Old Red Saudstone rocks with thick drift deposits of till and outwash. The soils developed from this parent material are deep, red in eclour and fine sandy or silty textured.

Agricultural land classification.

because ... Most of the site has been mapped as Grade 1. Soils are deep wandy silt loans, occasionally with sandy clay loan in the subscil. The soils are slightly stony at the surface but with less than SX stones and some of the profiles have slightly stonier layers at about 45 cm. Much of this stone is soft weathering sandstone. Below about 90 cm stone and gravel content increases. The soils show

very new signs of wetness namely occasional manganese concretions and faint ochreous mottles at depths below 70 cm.





AGRICULTURAL LAND CLASSIFICATION

Υ.

THREE ELMS ROAD (PROPOSED GOLF DRIVING RANGE)

HEREFORD

M J W Wood Resource Planning Team ADAS Statutory Group WOLVERHAMPTON

.

.

t t

ADAS Ref:	25/RPT/0687
Job No:	102/94
MAFF Ref:	EL 17 / 10741

AGRICULTURAL LAND CLASSIFICATION REPORT FOR THREE ELMS ROAD (PROPOSED GOLF DRIVING RANGE), HEREFORD

1. SUMMARY

; t

1.1 The Agricultural Land Classification (ALC) Survey for this site shows that the following proportions of ALC grades are present:

Grade/Subgrade	ha	% of site
2 Other Land	~ 7.5	94
Urban	~ 0.5	6

1.2 The main limitations to the agricultural use of land in Grade 2 are topsoil stone content, soil wetness and soil droughtiness.

2. **INTRODUCTION**

- 2.1 The site was surveyed by the Resource Planning Team in December 1994. An Agricultural Land Classification survey was undertaken according to the guidelines laid down in the "Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for Grading the Quality of Agricultural Land" (MAFF 1988).
- 2.2 The ~8 has ite is situated to the north west of Hereford city centre. The land immediately to the north and west of the site is predominantly in agricultural use. The land immediately to the south and east is occupied by a sports ground and urban development. There is a small orchard immediately to the west of Bonnington Drive (south of the site).
- 2.3 The survey was requested by MAFF in connection with an ad-hoc development proposal to Hereford City Council to construct a golf driving range.
- 2.4 At the request of the MAFF Land Use Planning Unit this was a detailed grid survey at 1: 10 000 scale with a minimum auger boring density of 1 per hectare. The attached map is only accurate at the base map scale and any enlargement would be misleading.
- 2.5 At the time of the survey the site was under grass, which is traversed by a number of regularly used footpaths.

3. CLIMATE

÷

3.1	The following interpolated data are relevant for the site (SO 489 414):
-----	---	---------------

Average Annual Rainfall (mm)699Accumulated Temperature above 0°C January to June (day °C)1453

3.2 There is no overall climatic limitation on the site.

3.3 Other relevant data for classifying land include:

Field Capacity Days (days)	156
Moisture Deficit Wheat (mm)	105
Moisture Deficit Potatoes (mm)	97

4. **SITE**

- 4.1 Three site factors of gradient, micro-relief and flooding are considered when classifying land. Information on flooding at Yazor Brook is limited and at the time of the survey there was no evidence available to warrant the downgrading of the land.
- 4.2 These factors do not impose any limitations on the agricultural use of this land.

5. **GEOLOGY AND SOILS**

- 5.1 The geology of the area is comprised of Quaternary Till, Alluvium and landslip deposits (British Geological Survey, Sheet 198 Hereford 1 : 50 000).
- 5.2 The underlying geology influences the soils which have either a sandy silt loam or a clay loam texture.

6. AGRICULTURAL LAND CLASSIFICATION

- 6.1 Grade 2 occupies ~7.5 ha (57%) of the survey area and covers the majority of the site.
 - 6.1.1 These soils typically have a medium clay loam or sandy silt loam texture overlying clay loam (with occasional sandy clay loam lenses) to depth. Profiles are slightly stony in the topsoil and the subsoils are moderately stony. Observations of gleying place these soils in to either Wetness Class I or II. In the north east corner of the site (near Yazor Brook) the soil profiles have very stony subsoils and are limited to Grade 2 by the moisture balance. There are profiles of Grade 1 quality within this unit (the south of the site) but they are of an insufficent extent to map seperately.
 - 6.1.2 The main limitations to the agricultural use of this land are topsoil stone content (greater than 2cm in size), soil wetness and soil droughtiness.
- 6.2 Other land includes urban which occupies ~0.5 ha (6%) of the survey area and is found in the south east corner as housing.

6.3 SUMMARY OF AGRICULTURAL LAND CLASSIFICATION GRADES

\$

ł

Grade/Subgrade	Area (Ha)	% of survey area	% of agricultural land
2 Other Land	~7.5	94	100
Urban	~0.5	6	
Totals	~8.0	100	100

٦





Whitecross Hereford

Agricultural Land Classification

February 1999

Resource Planning Team Bristol FRCA Western Region Job Number 2/99

MAFF Ref EL17/1814



WHITECROSS HEREFORD

AGRICULTURAL LAND CLASSIFICATION SURVEY

CONTENTS

Page

INTRODUCTIO	N	1
SUMMARY		1
CLIMATE		2
RELIEF		2
GEOLOGY ANI	D SOILS	2
AGRICULTURA	L LAND CLASSIFICATION AND MAP	3
REFERENCES		5
APPENDIX I	Description of the Grades and Subgrades	6
APPENDIX II	Definition of Soil Wetness Classes	8
APPENDIX III	Survey Data	9
	Sample Point Location Map	
	Pit Descriptions	
	Boring Profile Data	
	Boring Horizon Data	
	Abbreviations and Terms used	in Survey Data

WHITECROSS HEREFORD

AGRICULTURAL LAND CLASSIFICATION SURVEY

INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 62.6 ha of land at Whitecross Hereford Field survey was based on 61 auger borings and 3 soil profile pits and was completed in January 1999 During the survey 3 samples were analysed for particle size distribution (PSD)

2 The survey was conducted by the Resource Planning Team of FRCA Western Region on behalf of MAFF in its statutory role in the preparation of Herefordshire Local Plan

3 Information on climate geology and soils and from previous ALC surveys was considered and is presented in the relevant sections Apart from the published regional ALC map (MAFF 1977) which shows the site at a reconnaissance scale as Grade 2 the site was previously surveyed in 1986 at a scale of 1 25 000 (ADAS 1986) This showed mainly Grade 2 with some Subgrade 3a The current survey uses the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988) and supersedes any previous ALC survey Grade descriptions are summarised in Appendix I

4 An adjacent site to the north of Kings Acre Road Hereford was surveyed in 1989 (ADAS 1989) This survey showed primarily Grade 1 with a small area of Grade 2 in the south of the site These soils were found to be well drained fine sandy silt loams with medium clay loams in the south exhibiting some wetness at depth Textures were confirmed by PSD analysis Similar soils were found during the current survey

5 At the time of survey land cover was primarily cereals with some pasture Other land which was not surveyed included tracks and a house

SUMMARY

6 The distribution of ALC grades is shown on the accompanying 1 10 000 scale ALC map The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas Areas are summarised in the Table 1

Grade	Area (ha)	% Surveyed Area (61 9 ha)
1	59 4	96
3b	2 5	4
Other land	07	
Total site area	62 6	

Table 1Distribution of ALC gradesWhitecross Hereford

7 96% of the land has been mapped as best and most versatile land This Grade 1 land has no limitations to agricultural versatility The soils are well drained and have adequate available moisture The remaining land mapped as Subgrade 3b has a moderate droughtiness limitation caused by stony subsoils

CLIMATE

7 Estimates of climatic variables for this site were derived from the published agricultural climate dataset Climatological Data for Agricultural Land Classification (Meteorological Office 1989) using standard interpolation procedures Data for key points around the site are given in Table 2 below

8 Since the ALC grade of land is determined by the most limiting factor present overall climate is considered first because it can have an overriding influence by restricting land to a lower grade despite more favourable site and soil conditions Parameters used for assessing overall climate are accumulated temperature a measure of relative warmth and average annual rainfall a measure of overall wetness The results shown in Table 2 indicate that there is no overall climatic limitation

9 Climatic variables also affect the ALC grade through interactions with soil conditions The most important interactive variables are Field Capacity Days (FCD) which are used in assessing soil wetness and potential Moisture Deficits calculated for wheat and potatoes which are compared with the moisture available in each profile in assessing soil droughtiness limitations These are described in later sections

			<u></u>	
Grid Reference		SO 483 408	SO 490 401	SO 485 405
Altıtude (m)		65	80	75
Accumulated Temperature	e (day C)	1447	1430	1436
Average Annual Rainfall (mm)	703	706	707
Overall Climatic Grade	ŕ	1	1	1
Field Capacity Days		157	156	157
Moisture deficit (mm)	Wheat	104	103	103
Ĭ	Potatoes	96	94	94

Table 2 Climatic Interpolations Whitecross, Hereford

RELIEF

11 Altitude ranges from 65 metres in the north to 80 metres in the centre of the site Most of the site is gently sloping The northern part of the site slopes towards Kings Acre Road but even here the slopes are not limiting to agricultural use

GEOLOGY AND SOILS

12 The underlying geology of the site is shown on the published geology map (BGS 1989) as mainly till overlying Raglan Mudstone Formation which is exposed in the west and south

east The soils found during the recent survey were generally uniform across the whole site being well drained reddish clay loam soils over clays A small area of stonier soils was found in the east derived from drift deposits

13 Soils were mapped by the Soil Survey of England and Wales at a reconnaissance scale of 1 250 000 (SSEW 1983) as mainly Escrick 1 Association associated with the Till deposits and Bromyard Association in the west and south associated with the mudstone

14 Escrick 1 Association is described as deep well drained reddish coarse loamy soils with some similar soils with slowly permeable subsoils and seasonal waterlogging Also some slowly permeable seasonally waterlogged reddish fine silty soils Bromyard Association is decribed as well drained reddish fine silty soils over shale and siltstone There may be some similar soils with slowly permeable subsoils and slight seasonal waterlogging Some well drained coarse loamy soils over sandstone are also included

15 There was no noticible distinction between the two soil associations mapped across the site the soils being reddish well drained clay loams over clays

AGRICULTURAL LAND CLASSIFICATION

16 The distribution of ALC grades found by the current survey is shown on the accompanying 1 10 000 scale map and areas are summarised in Table 1 The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas

Grade 1

17 The majority of the site is mapped as Grade 1 excellent quality land These soils are well drained and soil profile pits 2 and 3 showed that the clay subsoils are free draining The soils are assessed as Wetness Class I (see Appendix II) There are a few manganese concretions in some of the profiles examined The soil profile pits show that there are occasional stones in the profile which could cause auger borings to be impenetrable particularly at the boundary between horizons two and three These stones do not impose a droughtiness limitation and the soils are Grade 1 The PSD results for the site show that the topsoil texture of the soil is borderline medium clay loam/ fine sandy silt loam This does not affect the grade of the site The PSD result for a sample taken from the higher land in the far west showed that the soils in this area although heavier and less sandy were still medium clay loams

18 The majority of this area was mapped as Grade 2 in the 1986 survey Under the Revised Guidelines these soils are not downgraded on the basis of texture alone and the profiles show adequate available moisture to allow Grade 1 The small area of Subgrade 3a around Lower Hill Farm showed some mottling deep in the profile but under the Revised Guidelines this is not sufficient to downgrade the soil The current grading assessment supersedes the previous survey work since it uses the current ALC guidelines and is at a more detailed level

Subgrade 3b

A small area of land has been mapped as Subgrade 3b moderate quality land These soils were impenetrable to the auger at shallow depths cause by stony soils A soil profile pit was dug which showed that the topsoil stone content was 26% 10% of this being stones over 2 cm in size The subsoil was considerably stonier with 64% stone measured The pit filled with water making assessment of the subsoil horizons difficult but the soil could be no better than Subgrade 3b imposed by a droughtiness limitation

This area was mapped as Subgrade 3a in the 1986 survey but no soil profile pits were dug then to assess the actual stone content of the soil Sieving the soils as in the current survey provides a better indication of the stone content of the soil and hence the available moisture of the profile Only shallow impenetrable borings relate to the stony soil profile dug Other deeper impenetrable borings relate to the stony layer between horizons 2 and 3 as described under Grade 1 above

Other Land

21 Land mapped as Other includes tracks and land associated with The Cotts

G M Shaw Resource Planning Team FRCA Bristol February 1999

REFERENCES

ADAS RESOURCE PLANNING TEAM (1986) Agricultural Land Classification Survey of Hereford Scale 1 25 000 Reference 29 ADAS Bristol

ADAS RESOURCE PLANNING TEAM (1989) Agricultural Land Classification Survey of Kings Acre Road Hereford Scale 1 5 000 Reference 21/89 ADAS Bristol

BRITISH GEOLOGICAL SURVEY (1989) Sheet 198 Hereford 1 50 000 series Solid and Drift edition BGS London

HODGSON J M (Ed) (1997) Soil Survey Field Handbook Soil Survey Technical Monograph No 5 Silsoe

MAFF (1977) 1 250 000 series Agricultural Land Classification West and East Midlands Regions MAFF Publications Alnwick

MAFF (1988) Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for grading the quality of agricultural land MAFF Publications Alnwick

METEOROLOGICAL OFFICE (1989) Climatological Data for Agricultural Land Classification Meteorological Office Bracknell

SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 3 Soils of Midland and Western England 1 250 000 scale SSEW Harpenden

SOIL SURVEY OF ENGLAND AND WALES (1984) Soils and Their Use in Midland and Western England Bulletin No 12 SSEW Harpenden

APPENDIX I

DESCRIPTION OF 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 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 root 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 level of yields. It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yields 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

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

APPENDIX II

DEFINITION OF SOIL WETNESS CLASSES

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile

Wetness Class I

The soil profile is not wet within 70 cm depth for more than 30 days in most years

Wetness Class 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 not wet within 40 cm depth for more than 30 days in most years

Wetness Class 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 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

Wetness Class 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 or 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

Wetness Class V

The soil profile is wet within 40 cm depth for 211 335 days in most years

Wetness Class VI

The soil profile is wet within 40 cm depth for more than 335 days in most years

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

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

Source Hodgson J M (Ed) (1997) Soil Survey Field Handbook Soil Survey Technical Monograph No 5 Silsoe

APPENDIX III

ABBREVIATIONS AND TERMS USED IN SURVEY DATA

Soil pit and auger boring information collected during ALC survey is held on a computer database and is reproduced in this report Terms used and abbreviations are set out below These conform to definitions contained in the Soil Survey Field Handbook (Hodgson 1997)

1 Terms used on computer database in order of occurrence

GRID REF National 100 km grid square and 8 figure grid reference

LAND USE At the time of survey

WHT	Wheat	SBT	Sugar Beet	НТН	Heathland
BAR	Barley	BRA	Brassicas	BOG	Bog or Marsh
OAT	Oats	FCD	Fodder Crops	DCW	Deciduous Wood
CER	Cereals	FRT	Soft and Top Fruit	CFW	Coniferous Woodland
MZE	Maize	HRT	Horticultural Crops	PLO	Ploughed
OSR	Oilseed Rape	LEY	Ley Grass	FLW	Fallow (inc Set aside)
РОТ	Potatoes	PGR	Permanent Pasture	SAS	Set Aside (where known)
LIN	Linseed	RGR	Rough Grazing	ОТН	Other
BEN	Field Beans	SCR	Scrub		

GRDNT Gradient as estimated or measured by hand held optical clinometer

GLEY SPL Depth in centimetres to gleying or slowly permeable layer

AP (WHEAT/POTS)	Crop adjusted available water capacity			
MB (WHEAT/POTS)	Moisture Balance MD)	(Crop adjusted AP	crop potential	

DRT Best grade according to soil droughtiness

If any of the following factors are considered significant Y will be entered in the relevant column

MREL EXP CHEM	Microrelief limita Exposure limitati Chemical limitati	ation F Ion F On	TLOOD TROST	Flood risk Frost prone	EROSN DIST	Soil erosion risk Disturbed land
LIMIT	The main lim used	utation to	o land qua	lity The foll	owing abbr	eviations are
OC	Overall Climate	AE	Aspect	EX	K Expo	sure
FR	Frost Risk	GR	Gradien	t M	R Micro	orelief
FL	Flood Risk	ТХ	Topsoil	Texture DI	P Soil I	Depth

СН	Chemical	WE	Wetness	WK	Workability
DR	Drought	ER	Erosion Risk	WD	Soil Wetness/Droughtiness
ст	Toncol Stonings				<i>Q</i>

ST Topsoil Stoniness

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	С	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)

MOTTLE COL Mottle colour using Munsell notation

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%+

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
- PED COL Ped face colour using Munsell notation
- GLEY If the soil horizon is gleyed a Y will appear in this column If slightly gleyed an S will appear

STONE LITH Stone Lithology One of the following is used

HR	All hard rocks and stones	SLST	Soft oolitic or dolimitic limestone
СН	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 or metamorphic rock

Stone contents are given in % by volume for sizes >2cm >6cm and total stone >2mm

STRUCT The degree of development size and shape of soil peds are described using the following notation

Degree of development	WA Adhei	Weakly developed rent	WK	Weakly developed
	MD develo	Moderately oped	ST	Strongly developed
<u>Ped size</u>	F C	Fine Coarse	M VC	Medium Very coarse
<u>Ped Shape</u>	S GR SAB PL	Sıngle graın Granular Sub angular blocky Platy	M AB PR	Massive Angular blocky Prismatic

CONSIST Soil consistence is described using the following notation

L	Loose	VF	Very Friable	FR	Friable	FM	Fırm
VM	Very firm	EM	Extremely firm	EH	Extremely	Hard	

- SUBS STRSubsoil structural condition recorded for the purpose of calculating
profile droughtinessG GoodM ModerateP Poor
- **POR** Soil porosity If a soil horizon has poor porosity with less than 0.5% biopores >0.5mm a Y will appear in this column
- **IMP** If the profile is impenetrable to rooting a Y will appear in this column at the appropriate horizon
- SPL Slowly permeable layer If the soil horizon is slowly permeable a Y will appear in this column
- CALC If the soil horizon is calcareous with naturally occurring calcium carbonate exceeding 1% a Y will appear this column

2 Additional terms and abbreviations used mainly in soil pit descriptions

STONE ASSESSMENT

V Visual S Sieved D Displacement

MOTTLE SIZE

EF	Extremely fine <1 mm	Μ	Medium 5 15mm
	_		

VF Very fine 1 2mm> Fine 2 5mm F

С Coarse >15mm

MOTTLE COLOUR May be described by Munsell notation or as ochreous (OM) or grey (GM) In topsoil the presence of rusty root channels might be **ROOT CHANNELS** noted as RRC

MANGANESE CONCRETIONS Assessed by volume

Ν	None		Μ	Many	20 40%
F	Few	<2%	VM	Very Many	>40%
С	Common	2 20%		- •	

POROSITY

P	Poor	less than 0 5% biopores at least 0 5mm in diameter
G	Good	more than 0 5% biopores at least 0 5mm in diameter

ROOT ABUNDANCE

The number of	roots per 100cm ²	Very Fine and Fine	Medium and Coarse
F	Few	1 10	1 or 2
С	Common	10 25	2 5
Μ	Many	25 200	>5
Α	Abundant	>200	

ROOT SIZE

VF	Very fine	<1mm	Μ	Medium	2 5mm
F	Fine	1 2mm	С	Coarse	>5mm

HORIZON BOUNDARY DISTINCTNESS

Sharp	<0 5cm	Gradual	6 13cm
Abrupt	05 25cm	Dıffuse	>13cm
Clear	2 5 6cm		

HORIZON BOUNDARY FORM Smooth wavy irregular or broken *

* See Soil Survey Field Handbook (Hodgson 1997) for details



