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Land off P ırk Road Didcot
South Oxfordshire Local Plan
ALC Map and Report
October 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

Land off Park Road Didcot Oxfordshire
South Oxfordshire Local Plan

Summary

1 1 ADAS was commisioned by MAFF s Land Use Planning Unit to provide information on land quality on land west of Park Road on the southern edge of Didcot in Oxfordshire This work was in connection with the South Oxfordshire Local Plan

1 2 Approximately 6 hectares of land was surveyed in September 1994 The survey was undertaken at a detailed level of approximately one boring per hectare A total of 9 borings and 1 soil inspection pit was 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 Guildford Statutory Group of ADAS

1 4 At the time of survey the agricultural land use was permanent grass The Non agricultural area (0 1 ha) relates to in area of rubble adjacent to some agricultural buildings (0 1 ha)

1 5 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 6 All of the agricultural land (5 7 ha) has been classified as Subgrade 3a as a result of a soil droughtiness and soil wetness limitation

2 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 an 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 that there is no overall climatic limitation

Table 1 Climatic Interpolation

Grid Reference	SU514890
Altitude (m AOD)	70
Accumulated Temperature (days Jan June)	1441
Average Annual Rainfall (mm)	587
Field Capacity Days	124
Moisture deficit wheat (mm)	115
Moisture deficit potatoes (mm)	109
Overall Climatic Grade	1

3 Relief

3 1 The site is flat at an altitude of 70 metres nowhere on the site do gradient or microrelief affect the classification

4 Geology and Soils

4 1 The published geology map for the area (BGS 1971) shows the site to be underlain by Cretaceous Upper Greensand

4 2 The published soils information for the area (SSEW 1973) shows the site to comprise soils of the Harwell series described as slightly stony clay loams with high silt and fine sand fractions with gley colours that are not a reliable indicator of soil water conditions as water may lie on the surface after rainfall

5 Agricultural Land Classification

Subgrade 3a

5 1 All of the land has been placed in this grade Soil droughtiness is the main limiting factor but individual borings show a soil wetness limitation

5 2 Many of the borings were impenetrable to the auger in the subsoil at moderate depths presumably due to the presence of Greensand stones or rock Pit 1 is typical of these soils which exhibit fine sandy silt loam topsoil textures overlying clay subsoils The clays have moderate subsoil structures with approximately 25% stone in the lower subsoil Pit 1 was impenetrable to digging beyond 65 cm where the Greensand stones increase and become platy in nature It was not possible to observe the exact rooting depths into the Greensand and it has been assumed that given the platy nature of the rock the roots would not penetrate deeply into this material As a result this land can be grade no better than Subgrade 3a

5 3 Individual borings in the centre of the site experience a soil wetness limitation where the subsoil clays are clearly slowly permeable

Resource Planning Team
Guildford Statutory Group
ADAS Reading

ADAS Reference 3303/221/94
MAFF Reference EL 33/278

Sources of Reference

British Geological Survey (1971) Sheet Number 253 Abingdon 1 63 360

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

Meteorological Office (1989) Climatological Data for Agricultural Land Classification

Soil Survey of England and Wales (1973) Soils of the Wantage and Abingdon District

APPLNDIX I

DESCRIPTION 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

Urban

Built up or hard uses with relatively little potential for a return to agriculture including housing industry commerce education transport religous buildings cemetries 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 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 (eg polythene tunnels erected for lambing) may be ignored

Open Water

Includes lakes ponds and rivers as map scale permits

Land Not Surveyed

Agricultural land which has not been surveyed

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

APPENDIX II

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile Six soil wetness classes are identified and are defined in the table below

Definition of Soil Wetness Classes

Wetness Class	Duration of Waterlogging[1]
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years [2]
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 only wet within 40 cm depth for 30 days in most years
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 present 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 90 days in most years
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years **or** if there is no slowly permeable layer present 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

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics site and climatic factors Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field The method adopted here is common to ADAS and the SSLRC

[1]The number of days specified is not necessarily a continuous period

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

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

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	**TRT**	Soft and Top Fruit	**FLW**	Fallow
PGR	Permanent Pasture	**LEY**	Ley Grass	**RGR**	Rough Grazing
SCR	Scrub	**CFW**	Coniferous Woodland	**DCW**	Deciduous Wood
HTH	Heathland	**BOG**	Bog or Marsh	**FLW**	Fallow
PLO	Ploughed	**SAS**	Set aside	**OTH**	Other
HRT	Horticultural Crops				

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	**EX**	Exposure
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
ST	Topsoil Stoniness				

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	**SLST**	soft oolitic or dolimitic limestone
CH	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/metamorphic rock		

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	**VC** very coarse
ped shape	**S** single grain	**M** massive
	GR granular	**AB** angular blocky
	SAB sub angular blocky	**PR** prismatic
	PL platy	

9 **CONSIST** Soil consistence is described using the following notation

L loose **VF** very friable **FR** friable **FM** firm **VM** very firm
EM extremely firm **EH** extremely hard

10 **SUBS STR** Subsoil structural condition recorded for the purpose of calculating profile droughtiness **G** good **M** moderate **P** poor

11 **POR** Soil porosity If a soil horizon has less than 0 5% biopores >0 5 mm a Y will appear in this column

12 **IMP** If the profile is impenetrable to rooting a Y will appear in this column at the appropiate 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	WHEAT CRADE	POTS AP	POTS MB	M REL AP	M REL MB	DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	s 513 891	PGR		000			1	1	115	0	127	18	3A				DR	2	IMPQDRWE
1P	51358905	PGR		000			2	1	106	9	117	8	3A				DR	3A	
2	s 514 891	PGR		000			1	1	094	21	095	14	3B				DR	3A	IMPQDR
3	s 513 890	PGR		000	068		2	2	114	1	115	6	3A				WE	2	
4	s 51358890	PGR		000			1	1	105	10	111	2	3A				DR	2	IMPQDRWE
5	s 51458895	PGR		000	025		3	3A	081	34	084	25	3B				WE	3A	GOODSPL
6	s 515 890	PGR		020			1	1	081	34	081	28	3B				DR	3A	IMPQDRWE
7	s 5145890	PGR		000			1	1	069	46	069	40	3B				DR	3A	IMPQDRWE
8	s 514 890	PGR		000	040		3	3A	089	26	095	14	3B				WE	3A	
9	su5125889	PGR		000			1	1	097	18	109	0	3A				DR	2	IMPQDRWE

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 25	fs l	10YR52 00						0	0		0						
	25 75	c	25Y 63 00	000C00	00	C		Y	0	0		0		M				
1P	0 25	fszl	10YR52 00	10YR56	00	C		Y	0	0		0						
	25 60	c	25Y 62 00	25Y 56	00	C		Y	0	0		0	MCSAB	FR M		Y		
	60 65	c	25Y 63 00	25Y 56	00	C		Y	0	0	MSST	25		M				
2	0 20	fszl	10YR42 00	000C00	00	C		Y	0	0		0						
	20 52	c	25Y 63 00	000C00	00	C		Y	0	0		0		M				
3	0 20	mcl	10YR42 00	000C00	00	C		/	0	0		0						
	20 68	c	25Y 63 00	000C00	00	C		Y	0	0		0		M				
	68 90	c	25Y 63 00	000C00	00	C		Y	0	0		0		P	Y		Y	
4	0 25	f zl	10YR42 00	000C00	00	C		Y	0	0		0						
	25 60	mcl	25Y 63 00	000C00	00	C		Y	0	0		0		M				
5	0 25	mcl	10YR42 00	000C00	00	C		Y	0	0		0						
	25 55	c	25Y 63 00	000C00	00	C		Y	0	0		0		P	Y		Y	
6	0 20	mcl	10YR42 00						0	0		0						
	20 48	c	25Y 63 00	000C00	00	C		Y	0	0		0		M				
7	0 25	mcl	10YR52 00						0	0		0						
	25 40	mcl	10YR53 00	000C00	00	C		Y	0	0		0		M				
8	0 25	mcl	10YR32 00	000C00	00	C		Y	0	0		0						
	25 40	c	25Y 63 00	000C00	00	C		Y	0	0		0		M				
	40 60		25Y 63 00	000C00	00	C		Y	0	0		0		P	Y		Y	
9	0 25	mcl	10YR42 00	000C00	00	C		Y	0	0		0						
	25 65	c	25Y 63 00	000C00	00	C		Y	0	0		0		M				

SOIL PIT DESCRIPTION

Site Name PARK ROAD DIDCOT SOXONLP P t N ber 1P

Grid Refe ence s 51358905 A e ge An al Ra fall 587 mm
Acc l ted Tempe t 1441 deg ee day
F eld Cap c ty L el 124 days
Land Use Pe a e t G s
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 25	FSZL	10YR52 00	0		0		C				
25 60	C	25Y 62 00	0		0		C	MCSAB	FR	M	
60 65	C	25Y 63 00	0		25	MSST	C			M	

W tness G ade 1 W t ess Cl ss II
Gley ng 000 cm
SPL N SPL

D o ght G de 3A APW 106mm MBW 9 mm
APP 117mm MBP 8 mm

FINAL ALC GRADE 3A
MAIN LIMITATION Dro ght ss