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Little Woodcote Lane Reservoir
Woodcote, Borough of Croydon
Agricultural Land Classification
ALC Map and Report
September 1993

LITTLE WOODCOTE LANE RESERVOIR
WOODCOTE, BOROUGH OF CROYDON
AGRICULTURAL LAND CLASSIFICATION REPORT

1 0 Summary

1 1 In July 1993 a detailed Agricultural Land Classification (ALC) survey was made on approximately 4 hectares of land adjacent to Little Woodcote Lane near Woodcote in the Borough of Croydon, Greater London

1 2 The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS in response to a commission by MAFF s Land Use Planning Unit to provide information on the quality of agricultural land affected by proposals for a reservoir development

1 3 The classification has been made using 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 4 The fieldwork was carried out with an observation density of approximately one per hectare A total of 4 borings and one soil pit were examined

1 5 The table below provides the details of the grades found across the site The majority of the land is classified as very good quality (Grade 2) the remainder being excellent (Grade 1) quality Where a physical limitation exists to the land quality it is soil droughtiness

Table 1 . Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site
1	1 5	34 0
2	2 9	66 0
Total Area of Site	4 4 ha	100%

1 6 The distribution of the ALC grades is shown on the attached map The information is presented at a scale of 1 2500 it is accurate at this level but any enlargement would be misleading This map supersedes any previous ALC information for this site

1 7 At the time of survey the site was under permanent grass cover

1 8 A general description of the grades and subgrades is provided as an appendix 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

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 the overall climatic limitation are annual average rainfall as a measure of overall wetness and accumulated temperature as a measure of the relative warmth of a locality

2 3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset (Met Office 1989) The details are given in the table below and these show that there is no overall climatic limitation affecting the site

2 4 No local climatic factors such as exposure or frost risk affect the site

Table 2 . Climatic Interpolations

Grid Reference	TQ291615
Altitude (m)	115
Accumulated Temperature (days)	1384
Average Annual Rainfall (mm)	735
Field Capacity (days)	154
Moisture Deficit Wheat (mm)	101
Moisture Deficit Potatoes (mm)	93
Overall Climatic Grade	1

3 0 Relief

3 1 The site lies at approximately 115m AOD Overall it was found to be flat except for the southern section which is gently sloping

4 0 Geology and Soil

4 1 The relevant published geological sheet (British Geological Survey Sheet 270 South London 1981) shows the area to be underlain by Cretaceous Upper Chalk described as being composed of soft white limestone with flints

4 2 The main soil types according to the Soil Survey of England and Wales published Sheet 6 Soils of South East England (1983) at the site show it to be underlain by soils of the Frilsham Association It describes them as well drained mainly fine loamy soils over chalk some calcareous Shallow calcareous fine loamy and fine silty soils in places Soils of this nature were found at the site

5 0 Agricultural Land Classification

5 1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade is shown on the attached ALC map

5 2 The location of the soil observation points are shown on the attached sample point map

5 3 Grade 1

Land of this quality covers a significant minority of the site and has no significant limitations The profiles generally consist of a very slightly stony (up to 5% flints by volume) medium clay loam topsoil over a similarly stony sandy clay loam upper subsoil passing to clay and occasionally chalk at depths beyond 1m The soils are free draining and are placed in Wetness Class I Given the textures depths and structures that exist there is adequate water available within the profile to qualify for Grade 1

5 4 Grade 2

Land of this quality covers the majority of the site and is slightly limited by soil droughtiness The profiles consist of a slight stony (up to 5% total flints by volume) calcareous sandy clay loam or heavy clay loam topsoil over either a slightly stony (up to 2% flints by volume) calcareous sandy clay passing to a sandy clay loam containing significant chalk quantities (up to 15% by volume) and then to pure chalk or a heavy silty clay loam containing highly significant chalk quantities (up to 40% by volume) and then to pure chalk These textures depths stone contents and structures combine to cause a slight restriction on the total available water for extraction by crops The drought limitation means that either throughout or at some point during the growing season water availability will not match demand slightly limiting the types of crops that can be grown although this land is still capable of supporting a wide range of agricultural crops or horticultural crops

ADAS Reference 2704/91/93
MAFF Reference EL27/202

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

* British Geological Survey (1981) Sheet No 270 South London, 1 50000

* 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 (1983) Sheet No 6 Soils of South East England 1 250000

* Soil Survey of England and Wales (1984) Soils and their use in South East England Bulletin No 15

APPENDIX I

DESCRIPTION OF THE GRADES AND SUB GRADES

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 on 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 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

Sub grade 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 (eg 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 very 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 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 re claimed 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

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

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

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

Wetness Class II

The soil profile is wet within 70cm depth for 31 90 days in most years **or** if there is no slowly permeable layer within 80cm depth it is wet within 70cm for more than 90 days but not wet within 40cm depth for more than 30 days in most years

Wetness Class III

The soil profile is wet within 70cm depth for 91 180 days in most years **or** if there is no slowly permeable layer within 80cm depth it is wet within 70cm for more than 180 days but only wet within 40cm depth for 31 90 days in most years

Wetness Class IV

The soil profile is wet within 70cm depth for more than 180 days but not wet within 40cm depth for more than 210 days in most years **or** if there is no slowly permeable layer within 80cm depth it is wet within 40cm depth for 91 210 days in most years

Wetness Class V

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

Wetness Class VI

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

(The number of days is not necessarily a continuous period 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 a ger boring information collected during ALC f eldwork is held on a database This has commonly sed otations and abbre iatio s as set out below

Boring Header Information

1 GRID REF natio al grid sq are and 8 f gure grid reference

2 USE La d use at the time of survey Th f llowing bbre iations are used

ARA Arable WHT Wheat BAR Barley CER Cereals OAT Oats MZE M ize OSR Oilseed rape
BEN Field Bean BRA Brassicae POT P tatoe SBT Sugar Beet FCD Fodder Crops LIN Linseed
FRT Soft and Top Fru t HRT Horticultural Crops PGR Permanent Pasture LEY Ley Grass RGR Rough Grazing
SCR Scrub CFW Co iferous Woodland DCW Deciduous Woodland HTH Heathland BOG Bog or Marsh
FLW Fallow PLO Ploughed SAS Set aside OTH Other

3 GRDNT Gradient s measured by a hand held optical clin m ter

4 GLEY/SPL Depth in cm to gleying or slowly permeable layers

5 AP (WHEAT/POTS) Crop- djusted ailable w ter capacity

6 MB (WHEAT/POTS) Moisture Bala ce

7 DRT Best grade according to soil droughtiness

8 If any of the following f ctors are considered gnificant an entry of Y will be entered in the rele ant column

MREL Microrelief limitation FLOOD Flood risk EROSN Soil ero ion risk EXP Exposure limitation FROST Frost
DIST Disturbed land CHEM Chemical limitation

9 LIMIT The main limitation to land qu lity The following abbreviations are used

OC O erall Climate AE Aspect EX Exposure FR Frost Risk GR Gradient MR Microreli f
FL Flood Risk TX Topsoil Texture DP Soil Depth CH Chemical WE Wetn s WK Work b lity
DR Dro ght ER So l Eros o Risk WD Combined So l Wetness/Droughtines ST Topsoil Stoniness

Soil Pits and Auger Borings

1 TEXTURE soil texture lasses are denoted by the f llowing bbre iations

S Sand LS Loamy Sand SL Sandy Loam SZL Sandy Silt Loam CL Clay Loam ZCL Silty Clay 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 P ty Loam PS Peaty Sa d MZ Marine L ght Silts

For th sand loamy sa d sandy loam and sandy ilt loam lasses the predominant ize f sand fra tion will be ind cated by the use of prefixes

F Fine (more than 66% of the sa d 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 s lty lay loam la se will be sub-d ided according to th clay content

M Medium (< 27% clay) H Heavy (27 35% clay)

2 MOTTLE COL Mottle colour

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 f nt ndistinct mottles e ident only on close nspection D distinct mottles are readily seen
P promment mottlng is conspicuou and o e of the outstandng features of the horizon

5 PED COL Ped f ce colour

6 STONE LITH One of the followng is sed

HR all hard rock and to MSST soft medium or coarse grained sandston
SI soft weathered gneo s m tamorphic SLST soft oolitic or dolimitic limestone
FSST soft fin grained sandst e ZR soft argillaceous or silty rocks CH halk
GH gra el w th non porous (hard) ston s GS gravel with porous (soft) stones

Stone contents (>2cm >6cm d total) are g en n percentages (by ol me)

7 STRUCT the degree of dev lopment size and sh pe of soil peds are described usng the followng otation

degree of de elopment WK weakly de eloped MD moderately dev loped ST strongly de eloped

ped size F fine M medium C coarse VC ery coarse

ped shape S sngle grain M mass ve GR granular AB angula blocky SAB sub-angular blocky PR prismatic PL platy

8 CONSIST So l consistence s described usng the followng notation

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

9 SUBS STR Subso l structu al cond t o recorded for the purpose of calculatng profile droughtn s

G good M moderate P poo

10 POR Soil poros ty If a soil h rizon h l s than 0 5% biopores >0 5 mm a Y will appear n th s column

11 IMP If the profile is mpenetrable Y will ppear n this column at the appropiate horizon

12 SPL Slowly permeable layer If the soil horizo is slowly permeable a Y will appea n this column

13 CALC If the soil horizon is calcareous a Y will appear n this column

14 Other otations

APW a ailable water capacity (n mm) dj sted for wheat
APP ilabl w ter cap city (n mm) adj sted f potatoes
MBW moisture bala ce wheat
MBP moisture balance potatoes

SOIL PIT DESCRIPTION

Site Name WOODCOTE LANE RESERVOIR Pit Number 1P

G id Reference TQ29016141 A erage Ann al Rainfall 735 mm
Accumulated Temperature 1384 degree days
F eld Capacity Le el 154 days
Land Use Permanent Grass
Slope and Aspect deg ees

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	MOTTLES	STRUCTURE
0 30	MCL	10YR42 00	2	5		
30 54	SCL	75YR46 00	0	5		WKCSAB
54 75	C	75YR46 56	0	5	F	MDCSAB
75 115	C	75YR46 56	0	5	F	
115 120	CH	10YR81 00	0	5		

Wetness G ade 1 Wetness Class I
Gl ying cm
SPL No SPL

Dro ght G de 1 APW 134mm MBW 33 mm
APP 110mm MBP 17 mm

FINAL ALC GRADE 1
MAIN LIMITATION

SAMPLE NO	GRID REF	USE	ASPECT GRDNT	GLEY	SPL	WETNESS CLASS	WHEAT GRADE	WHEAT AP	WHEAT MB	POTS AP	POTS MB	M REL DRT	EROSN FLOOD	FROST EXP	CHEM DIST	ALC LIMIT		COMMENTS
1	TQ29006150	PGR				1	1	121	20	109	16	2				DR	2	ROOT 100
1P	TQ29016141	PGR				1	1	134	33	110	17	1					1	PIT TO 75
2	TQ29006140	PGR				1	1	138	37	115	22	1					1	NO MOTS
3	TQ29106130	PGR				1	1	138	37	111	18	1					1	NO MOTS
4	TQ29176134	PGR	N	01		1	2	112	11	108	15	2				DR	2	DR&WK ROOT 90

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	PED GLEY	STONES 2	STONES 6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
1	0 28	scl	10YR42 00						0	0		0							
	28 62	sc	75YR46 00						0	0	HR	2		M					
	62 75	scl	10YR64 00						0	0	CH	15		M			Y		
	75 100	ch	10YR81 00						0	0	HR	5		P			Y		
1P	0 30	mcl	10YR42 00						2	0	HR	5							
	30 54	scl	75YR46 00						0	0	HR	5	WKCSAB	FM	M				
	54 75	c	75YR46 56	00MN00	00	F	75YR44 00		0	0	HR	5	MDCSAB	FM	M				PIT TO 75
	75 115	c	75YR46 56	00MN00	00	F			0	0	HR	5		M					AUGER TO 120
	115 120	ch	10YR81 00						0	0	HR	5		P					
2	0 32	mcl	10YR42 00						0	0	HR	3							
	32 45	scl	75YR46 00						0	0		0		M					
	45-90	c	75YR46 00						0	0		0		M					
	90 120	c	75YR46 00	00MN00	00	F			0	0	HR	5		M					
3	0 28	mcl	10YR42 00						0	0	HR	3							
	28 65	scl	75YR56 00						0	0	HR	3		M					
	65 120	c	75YR46 00	00MN00	00	F		Y	0	0	HR	5		M					
4	0 32	hcl	10YR42 00						0	0	CH	5					Y		
	32 65	hzcl	10YR64 81						0	0	CH	40		M			Y		
	65 90	ch	10YR81 00						0	0	HR	5		P			Y		