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TEST VALLEY BOROUGH LOCAL PLAN
SITE 356 GANGER FARM WOODLEY
HAMPSHIRE
AGRICULTURAL LAND CLASSIFICATION
ALC MAP AND REPORT
JUNE 1993

TEST VALLEY BOROUGH LOCAL PLAN

SITE 356 GANGER FARM, WOODLEY, HAMPSHIRE

AGRICULTURAL LAND CLASSIFICATION

1 SUMMARY

1 1 In May 1993 a detailed Agricultural Land Classification (ALC) survey was made on approximately 4 hectares of land at Ganger Farm near Woodley in Hampshire

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 the Test Valley Borough Local Plan

1 3 The classification has been made by 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 1 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 being of poor quality grade 4 The key limitation is droughtiness caused by profile stoniness and shallow depth over gravel

Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% Total Agricultural Area
4	3 12	70 3	100
Non Agriculture	0 03	0 7	
Woodland	1 29	29 0	
Total Site Area	4 44 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 5000 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 land use on the site was rough grassland with many weeds

1 8 A general description of the grades and sub grades 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 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 average annual 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 5 km 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	SU 374226	SU 374227
Altitude (m)	35	40
Accumulated Temperature (days)	1513	1508
Average Annual Rainfall (mm)	814	815
Field Capacity Days	175	175
Moisture Deficit (Wheat) (mm)	108	107
Moisture Deficit (Potatoes) (mm)	108	101
Overall Climatic Grade	1	1

3 RELIEF

3 1 Land within the survey area lies between 35 and 40 m AOD rising in the south of the site such that the northern half of the site is virtually flat

4 GEOLOGY AND SOIL

4 1 The published geological sheet (B G S Southampton Sheet 315 (1973)) for the site shows the underlying geology to be comprised of Recent Plateau gravels to the west and northwest and Tertiary Bracklesham Beds over the remainder of the site

4 2 The soil type that occurs on the site as shown by the Soil Survey of England and Wales map of South East England (SSEW 1983 Sheet 6) is of the Shirrell Heath 2 Association a permeable well drained acid sandy podzolic soil

4 3 Detailed field examination of the site shows the soils to be shallow stony medium clay loams over gravel These bear little similarity to the Shirrell Heath 2 soils described by the Soil Survey

5 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 is shown on the attached sample point map

5 3 Grade 4

The land at this site had during the 1970s been disturbed by gravel extraction It was understood that the site had been restored to a lower level by mechanically replacing a topsoil over the substrate Using this information the site has been graded accordingly

The soils observed here consist of a very stony (up to 45% total (25% >2 cm) flints) non calcareous medium clay loam topsoil passing to a gravel horizon between 23 and 35 cm containing approximately 75% total stone (35% >2 cm) Rooting was found to extend to 43 cm 20 cm in to the gravel horizon such that available water is limited within the profile to a severe extent therefore grade 4 is appropriate Available water capacity for plant growth will be inadequate such that crops will experience severe drought stress particularly during the summer months

5 4 The areas marked as non agricultural include a large area of mixed mature woodland to the south of the site and a small corner where saplings are established

ADAS Ref 1512/67/93
MAFF Ref EL 6105

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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

Sub grade 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 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

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

REFERENCES

* British Geological Survey (1973) Sheet No 315 Southampton 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 III

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 IV

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 database This has commonly used notations and abbreviations as set out below

Boring Header Information

1 **GRID REF** national grid square and 8 figure grid reference

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

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

3 **GRDNT** Gradient as measured by a hand held optical clinometer

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

5 **AP (WHEAT/POTS)** Crop adjusted available water capacity

6 **MB (WHEAT/POTS)** Moisture Balance

7 **DRT** Best grade according to s l droughtiness

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

MREL Microrelief limitation **FLOOD** Flood risk **EROSN** Soil erosion risk **EXP** Exposure limitation **FROST** Frost
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** Soi l Erosion Risk **WD** Combined 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
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 predom nant size of sand fraction will be indicated by the use of 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

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

6 **STONE LITH** One of the following is used

HR all hard rocks and stones **MSST** soft medium or coarse grained sandstone
SI soft weathered igneous or metamorphic **SLST** soft oolitic or dolimitic 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 (>2cm >6cm 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 developed

ped size **F** fine **M** mediur **C** coarse **VC** very coarse

ped shape **S** s ngle grain **M** massive **GR** granular **AB** angular blocky **SAB** sub angular blocky **PR** pr smatic
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 pr-file 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 appropiate 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

SAMPLE NO	GRID REF	ASPECT USE	GRDNT	GLEY	SPL	--WETNESS- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT		ALC	COMMENTS
1	SU37302280	RGR		000		1	1	32	-75	32	-69	4				DR	4		IMP 29
1P	SU37402270	RGR		000		1	1	27	-80	27	-74	4				DR	4		ROOT 43
2	SU37402280	RGR		000		1	1	28	-79	28	-73	4				DR	4		IMP 25
3	SU37302270	RGR		000		1	1	36	-71	36	-65	4				DR	4		IMP 35
4	SU37402270	RGR		000		1	1	23	-84	23	-78	4				DR	4		IMP 22

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL	GLEY	----STONES--- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
	0-29	mcl	10YR31 41						25	0	HR	40						
1P	0-23	mcl	10YR42 00						23	0	HR	43						
	23-43	gh	10YR56 00						33	0	HR	70		P				
2	0-25	mcl	10YR42 00	75YR56 00	F				25	0	HR	40						
3	0-35	mcl	10YR41 00						20	0	HR	45						
4	0-20	mcl	10YR42 00						23	0	HR	43						
	20-22	hcl	10YR56 00	10YR53 00	F				0	0	HR	50		P				

SOIL PIT DESCRIPTION

Site Name WOODLEY TEST VAL LP S356 Pit Number 1P

Grid Reference SU37402270 Average Annual Rainfall 815 mm
Accumulated Temperature 1508 degree days
Field Capacity Level 175 days
Land Use
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	MOTTLES	STRUCTURE
0- 23	MCL	10YR42 00	23		43		
23- 43	GH	10YR56 00	33		70		

Wetness Grade 1 Wetness Class I
Gleying 000 cm
SPL No SPL

Drought Grade 4 APW 27 mm MBW -80 mm
APP 27 mm MBP -74 mm

FINAL ALC GRADE 4
MAIN LIMITATION Droughtiness