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TUNBRIDGE WELLS BOROUGH  
LOCAL PLAN  
MABLEDON FARM  
AGRICULTURAL LAND CLASSIFICATION  
ALC MAP & REPORT  
OCTOBER 1993

**TUNBRIDGE WELLS BOROUGH LOCAL PLAN  
PROPOSED PARK AND RIDE SITES MABLEDON FARM  
AGRICULTURAL LAND CLASSIFICATION**

**1 0 Summary**

1 1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality on an area of land at Mabledon Farm adjacent to the A26 on the edge of Tunbridge Wells in Kent. The work forms part of MAFF's statutory input to proposed park and ride sites in the Tunbridge Wells Borough Local Plan.

1 2 Approximately 2 hectares of land was surveyed in October 1993. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 2 soil auger borings and 1 soil inspection pit 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 conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.

1 4 At the time of the survey the land use on the site was permanent pasture.

1 5 The ALC information is shown on the attached ALC map at a scale of 1:5,000. It is accurate at this scale but any enlargement would be misleading. This map supersedes any previous survey information.

1 6 Appendix 1 gives a general description of the grades, subgrades and land use categories identified in the survey. 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 7 All of the site (2.4 ha) has been classified as Subgrade 3b moderate quality land with soil wetness as the key limitation. Soils are typically heavy clay loam topsoils with clay subsoils. There is evidence of a significant drainage limitation due to the presence of a poorly structured clay subsoil.

**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 average annual rainfall as a measure of overall wetness and accumulated temperature (degree days Jan-June) 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. However climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations.

## Table 2 - Climatic Interpolations

Grid Reference	TQ 582 445
Altitude (m)	90
Accumulated Temperature (days)	1413
Average Annual Rainfall (mm)	765
Field Capacity (days)	157
Moisture Deficit Wheat (mm)	104
Moisture Deficit Potatoes (mm)	97
Overall Climatic Grade	1

### **3 0 Relief**

3 1 The site is gently undulating lying at an altitude ranging between 85 and 90m On no part of the site does relief pose any limitation to agricultural use

### **4 0 Geology and Soil**

4 1 The relevant geological information for the site (BGS Sheet 287 Sevenoaks 1971) shows the underlying geology to be Wadhurst Clay

4 2 The published soils information for the area (SSEW Sheet 6 Soils of South East England 1983) shows the soils on the site to be of the Wickham 1 association These are described as slowly permeable seasonally waterlogged fine loamy over clayey and clayey soils Detailed field examination broadly confirms this

### **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 Subgrade 3b The entire site has been classified as Subgrade 3b moderate quality agricultural land Profiles typically comprise gleyed heavy clay loams overlying a clay subsoil Pit 1 showed that these soils are gleyed which is evidence of significantly impeded drainage due to the presence of a poorly structured clay subsoil which is slowly permeable The poorly structured clay layer tends to be at a shallower depth on the lower slopes on the site at approximately 35cm which gives a resultant Wetness Class IV for these soils On the highest point on the site the poorly structured clay was deeper at a depth of 60cm (as is evident from the soil inspection pit) thus these soils are placed into Wetness Class III Soil profiles tend to be waterlogged which leads to a reduction in the range of crops that can tolerate such conditions Soil wetness conditions also restrict the frequency and efficiency of the use of machinery problems such as trafficking and ponding can occur as a result When considering the topsoil texture and the local climatic regime these soils can be classified as no better than Subgrade 3b

ADAS REFERENCE 2014/198/93  
MAFF REFERENCE EL20/00306

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 (1987) Sheet No 287 Sevenoaks 1 50 000
- \* 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 1 250 000 and accompanying legend

## 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 Abbreviations	Explanatory Note
	* Soil Pit Descriptions	
	* Database Printout	Boring Level Information
	* Database Printout	Horizon Level Information

## 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. Positional 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 hand held optical clinometer

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

5 AP (WHEAT/POTS). Crop-dependent available water capacity

6 MB (WHEAT/POTS). Moisture Balance

7 DRT. Depth to grade according to soil 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. Threshold 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 Soil Erosion Risk WD Combined Soil Wetness/Droughtiness ST Topsoil Storage

### 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 Medium 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 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 subdivided 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 mottle evident only on close inspection D distinct mottles are readily seen

P prominent mottling conspicuous and of the outstanding features of the horizon

5 PED. COL Pedf ace 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 gneous or metamorphic SLST soft oolitic or dolomitic limestone

FSST soft fine grained sandstone ZR soft argillaceous silty rocks CH chalk

GH gravel with pebbles (hard) stones GS gravel with porous (soft) stones

Stonestones (>2cm >6cm diameter) registered 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 medium C coarse VC very coarse

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

8 CONSIST Soil consistency 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% of pores >0.5 mm diameter Y will appear in this column

11 IMP If the profile is impervious 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

SOIL PIT DESCRIPTION

Site Name MABLEDON FARM TUNBRIDGE Pit Number 1P

Grid Reference TQ58154437 Average Annual Rainfall 767 mm  
 Accumulated Temperature 1413 degree days  
 Field Capacity Level 158 days  
 Land Use Permanent Grass  
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES	TOT STONE	MOTTLES	STRUCTURE
0 20	HCL	10YR42 00	0	0		
20 60	C	25Y 63 00	0	0	M	MDCSAB
60 80	C	25Y 63 00	0	0	M	MASSIV

Wetness Grade 3B Wetness Class III  
 Gleying 020 cm  
 SPL 060 cm

Drought Grade 3A APW 106mm MBW 2 mm  
 APP 113mm MBP 17 mm

FINAL ALC GRADE 3B  
 MAIN LIMITATION Wetness

SAMPLE NO	GRID REF	ASPECT USE	WETNESS		WHEAT		POTS		M REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS	
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB						DRT
1	TQ58204440	PGR	000	035	4	3B	088	16	094	2	3A			WE	3B	
1P	TQ58154437	PGR	020	060	3	3B	106	2	113	17	3A			WE	3B	
2	TQ58304450	PGR	000	035	4	3B	101	3	109	13	3A			WE	3B	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES			PED		STONES			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT	COL	GLE	2	6	LITH		TOT	STR	POR	IMP	SPL	CALC
1	0 25	hc1	25Y 42 00	10YR58	00	C			Y	0	0	0						
	25 35	c	10YR71 00	10YR58	00	M			Y	0	0	0		M				
	35 60	c	10YR71 00	10YR58	00	M			Y	0	0	0		P	Y		Y	
1P	0 20	hc1	10YR42	00						0	0	0						
	20 60	c	25Y 63 00	10YR58	72	M	00M00	00	Y	0	0	0	MDCSAB	FM	M	Y		
	60 80	c	25Y 63 00	10YR58	71	M	00M00	00	Y	0	0	0	MASSIV	VM	P	Y		Y
2	0 25	hzc1	10YR42	00	10YR58	61	C			Y	0	0	0					
	25 35	c	10YR42	00	10YR58	61	M			Y	0	0	0		M			
	35 75	c	10YR63	00	10YR78	61	M			Y	0	0	0		P	Y		Y